Jo Marchant, *The Human Cosmos: A Secret History of the Stars*


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The way people view the universe affects how they behave, and their behaviour affects their perception of the universe. This principle is embraced in *The Human Cosmos* by Jo Marchant, who attempts to outline the evolution of this relationship from the Upper Palaeolithic to the present. Because the cultural impact of the sky, of astronomical observation and of cosmology is well-established in the literature of archaeoastronomy, ethnoastronomy, astronomical history and cultural history and in the ongoing Inspiration of Astronomical Phenomena conference series and publications, the book’s subtitle – “A Secret History of the Stars” – is more fanfare than fact. The book is, however, an engaging examination of the ways in which our changing cosmological perception has affected our ideas about the sky, destiny, time, space, art, governance, physical reality and more. Intended for the general reader with an interest in the evolution of ideas and intellectual history, *The Human Cosmos* does not pretend to be a rigorous, academic study but is none-theless assembled responsibly and is guided by serious, if not always persuasive, thought.

Taking a cue from the zodiac, the author has divided her book into 12 themes—myth, land, fate, faith, time, ocean, power, light, art, life, aliens and mind. More arbitrary than the 12 signs and 12 constellations which share, if little else, the path of the Sun, these 12 topics provide a vehicle intended to show how we have decoupled ourselves from direct experience of the heavens, and the consequences of that estrangement.

The book is not so much a recitation of facts as a configuration of stories intended to make a point. The author argues the notion – not always relevant to the example in play – that we are missing something fundamental and essential in our understanding of the universe by depersonalising it. Distinguished from our ancestors, we have exchanged a cosmos in which we saw ourselves as participants for a cosmos that runs its course without any regard for us. The book attributes that shift to the advance of critical, rational thought, to the success of advanced technologies and to the loss of the night sky.
Each chapter relies on a detailed and concrete narrative – a thread pulled from history – to illustrate how our minds were changed and what happened when they were. The chapter themes don’t comprise a structured and exhaustive catalogue of human endeavour; they are instead convenient categories intended to link the stories Marchant wants to tell. The content provides abundant opportunity for illustrations that would amplify all of the storylines, but there are no pictures.

Pivoting on the alleged depiction of the Pleiades gracing the shoulder of one of the Palaeolithic bulls painted in the Lascaux cave complex, in the first chapter, “Myth”, Marchant then makes a stop in Native California and also references recognition of the Big Dipper/Plough in the widespread myth of the Cosmic Hunt. She does this not to demonstrate how symbolic narrative works or to explore the function of celestial myth, but simply to state an already well-established principle: the sky has played a role in belief systems from deep antiquity.

That theme is extended to the solstitial and seasonal meanings of Newgrange and Stonehenge in Chapter 2, “Land”, as the book shifts from the Palaeolithic and Mesolithic hunters and gatherers to the Neolithic farmers. Göbekli Tepe and Çatalhöyük take a bow but offer no astronomical credentials. The chapter simply argues that our perception of the cosmos changed when we settled more permanently in one place, and perhaps emphasises too much the contrast between subterranean sanctuaries and large public monuments. The real difference in cosmology is the location of the centre of the universe. Hunter-gatherers carry it around with themselves. For agriculturists, it’s in the territory they settle, occupy and own. For us, there really is no centre, for in a sense it is in every direction as we look back in time to the Big Bang.

“Fate”, the third chapter, tracks the tradition of divine celestial will to Ashurbanipal’s library in Nineveh and to documentation of Mesopotamian astrology in cuneiform tablets. “Faith” (Chapter 4), spotlights celestial symbolism in the vision and victory of Constantine as he was on the way to becoming Rome’s sole emperor. This moves into an account of the tension between the planet gods of paganism and monotheistic Christianity, which appropriated aspects of divine celestial objects.

After a short account of some astronomical aspects of ancient Egyptian religion, Marchant propels her theme forward by arguing that we replaced celestial gods and a creator god that is part of a living universe with a single, all-powerful God who is outside of the universe he creates. This, according to Marchant, not only changes the way we look at the cosmos, it separates us from it.

“Time” (Chapter 5), tells the tale of Richard of Wallingford’s mechanical clock and its ability to impose regularity and punctuality on monastic prayers and, eventually, just about every other endeavour. As technological timekeeping replaced the heavenly cycles, we lost another connection to the sky. This chapter also provides Marchant with an opportunity to return to the Antikythera device, the ancient Greek astronomical computer that was the focus of one of her earlier books, Decoding the Heavens (Marchant 2009).

Navigation, another fundamental application of celestial observation, is the foundation of Chapter 6, “Oceans”, which details the challenges of exploration and sailing at the time of Captain Cook and his Pacific discoveries. Marchant merges this history with the
story of Tupaia, a Polynesian navigator and high priest who joined Cook’s expedition in Tahiti. Although Cook was not able to learn from Tupaia how the Polynesians managed to find their way to islands all over the Pacific, a copy of a chart prepared by Tupaia has recently been re-examined and found to demonstrate a completely different perspective on mapping and wayfinding, rooted in a different concept of Earth and sky. Here, too, Marchant wants this history to challenge the value of relying only on the concepts of space and time that the scientific world embraces today, despite the fact that those concepts have allowed us to leave the planet, put valuable tools in orbit, send research spacecraft to other planets and set foot on another world, and revealed a universe far more extravagant and mysterious than anything we had conjured before.

Celestial authorisation of terrestrial governance frames “Power”, the book’s seventh chapter, with references to Heaven’s authorisation of the emperor’s power in China and the alignment of the caliph of Baghdad with the ordering principles conferred by the sky. Most of this chapter, however, explores the influence of Newtonian physics on political theory in the eighteenth century and dedicates most of its pages to the American and French Revolutions and the English-American patriot and firebrand Tom Paine.

The ignition of the astrophysical revolution is detailed in “Light” (Chapter 8). George Bunsen, Gustav Kirchoff, Joseph Fraunhofer and William Huggins pioneered analysis of light to reveal the physical nature of celestial objects and relied on instruments, not optical observation, to do it.

Chapter 9, “Art”, might have gone in any of several directions, but it primarily follows the trajectory of Kazimir Malevich, an avant-garde Russian artist whose public enterprises rejected the rational and measured cosmos that Newtonian mechanics and modern astrophysics had provided. Marchant also allows Malevich’s attack on reason to operate as a harbinger for the ambiguities and uncertainties relativity and quantum mechanics were introducing at the time into our understanding of the universe.

Recognition of authentic links between celestial cycles and the behaviour of living things has a chequered history, but “Life” (Chapter 10) adds another beguiling chapter to the chronicle of our cosmic connections. Marchant opens the narrative with the Atlantic oysters that the American biologist Frank Brown displaced to the Midwest, where, after about two weeks, they adjusted their daily activity cycle from the time of high tide in New England to the time when the Moon was culminating in their new home. This suggested that the oysters can tell where the Moon is, a notion the scientific community rejected. Although Brown continued to investigate cosmic influences on living things, he and his work were marginalised, and in the book he serves as a martyr on the altar of cosmobiology (Brown 1977; Webb 1984). Since the 1950s, more studies have revealed bona fide biological responses to the sky and terrestrial magnetism, but Marchant strong-arms those developments to assert speculatively and without detail that we are more bonded to the universe than we think.

Luminous moments in the story of the search for life in the universe are compressed into Chapter 11, “Aliens”, where Marchant usefully spends no time on UFOs and extraterrestrial visitors. She instead retells the entertaining story of NASA’s flirtation with the detection of fossils of Martian microbes in ALH84001, a meteorite collected in Antarctica.
The story effectively and appropriately illustrates how our concept of life in the universe depends on our understanding of the universe’s capacity to establish, proliferate and sustain life. She correctly asserts that the modern preoccupation with life elsewhere in the universe indicates a significant change in how we think about ourselves and our place in the cosmos. *The Human Cosmos* contrasts a traditional perspective – our existence in “God’s special creation” (p. 261) – with the possibility that we are “a chance aberration in an otherwise empty universe” (p. 262), and then implies the search for life in the universe suggests that it’s a bio-friendly cosmos after all. In fact, even if the only life in the universe is the life on Earth, it’s still a bio-friendly universe because life, whether unpardonably rare or not, is still the product of 13.8 billion years of cosmic evolution. Common or scarce, life is something the universe does.

When most people talk about life in the universe, they aren’t focused on microbes, which are the life that physics, chemistry and time are most likely to cook up from the Big-Bang expanding relativistic quantum universe we inhabit. People instead imagine intelligent life. That means consciousness, and that is the subject of Chapter 12, “Mind”. The core of the essay is an examination of the origin, function and social and personal value of cosmic awe, which the universe delivers in spades and which the true dark sky on a clear night inspires whenever we give it the chance. Marchant details some of the speculation about the character of consciousness and its role in the cosmos. In asking, however, whether the universe is itself conscious, our role as agents of consciousness is not really addressed.

In this last chapter, Marchant also returns to a foundation of her book: we, in the Western world at least, she says, “have inexorably removed personal experience from our understanding of the universe” (p. 263). Our rational, systematic, scientific approach to nature has disenchanted the world. Marchant scores that as a loss and so romanticises the enchanted world of myths, gods and spirits. That is a cosmos in which patterns are recognised but not necessarily understood, and in which departures from pattern are not easily or correctly explained.

Marchant does applaud the “breathtakingly successful” (p. 264) portrait of the universe that our instruments, measurements, detectors and computers have provided but wonders whether that’s enough. She asks: “But are the data all that matters?” (p. 264). Of course, they aren’t. The data are, however, what put the Hubble Space Telescope’s “Pillars of Creation” above the fold on front pages of newspapers all over the world and that continues to populate the internet with stories of astronomical discovery – merging black holes, gravitational waves, geysers on other worlds – far more numerous and frequently than would perhaps be expected from such a specialised enterprise as astronomy. These revelations, too, carry the emotional value, philosophical significance and aesthetic impact with which Marchant is in tune.

In many respects, *The Human Cosmos* is a nostalgic response to the evolution of our take on the universe, and it ends with an insistent Epilogue that properly laments our loss of the night sky but erroneously argues we aren’t the engaged witnesses to cosmic grandeur we once were. Writing as a journalist, with a certain amount of cynicism, Marchant moralises, when all of the book’s commerce with awe should instead inspire. It
is true that “we are so focused on screens, we barely notice when streetlights erase our view of the stars” (p. 293), but this is also the era when millions of people spend money to travel to another side of the planet to witness directly a total eclipse of the Sun, which was once just about the last thing our ancestors wanted to see. Those same screens also bring astronomical concepts and wonders and images and live but otherwise invisible celestial events to more people than ever could see them before. These experiences also inspire awe. It is why people look at them.

Public astronomy today puts more people eyeball to the universe than ever. In Los Angeles, California, Griffith Observatory’s livestream internet telescopic broadcast of the great conjunction (Jupiter and Saturn) on 21st December, 2020 collected two and half million views around the globe in two and half hours (Krupp 2021, 12).

Although we now have to work much harder to access the stars as our ancestors could see them, we are also now transformed by rovers catching sunsets on Mars and landers that bounce off comets and spacecraft that transform what were once points of light in the sky into strange and staggering vistas.

Of course, we need to invest in preservation of the real night sky for the reason *The Human Cosmos* suggests. Direct, personal experience of the cosmos is, as Marchant’s book implies, delicious and essential. That’s confirmed every time planetarium audiences spontaneously applaud the emergence of artificial stars on the dome. People see and know what they have been missing, and if the real experience is as important as the book declares, people will continue, one way or another, to find their way to the real stars.

*The Human Cosmos* is not just an account of how we’ve responded to the sky. It is, as well, another route to the sky. It reminds us with anecdote and argument how we are affected by our understanding of the cosmos and our experience with the night. Marchant’s range in the book is monumental and she impressively connects multiple lines of inquiry. The book’s greater value, however, is Marchant’s enthusiasm. Despite an entangled argument here and there, she writes well and tells a good tale, skills that correctly persuade a reader to continue and absorb the message. *The Human Cosmos* is another step in the very process Marchant has dedicated a book to describing, and her book, like all the rest of our interactions with the sky, lifts readers to a celestial perspective. With it, they are certain to look at things a little differently.

**References**


