

126).

- The association of the names 'Rosencrantz' and 'Guildenstern' in *Hamlet* with Tycho Brahe's portrait was proposed in years ranging from 1904 to 1981 (page 113) (Olson, 2014: 296–297; Olson et al., 1998: 71).

- By 1921, James Joyce had associated the Ghost in *Hamlet* with the New Star of 1572 (page 118–119) and incorporated the association into *Ulysses* (Gabler, 1986: 17.1118–1124; Littmann and Schweighauser, 1965: 239).

- Tycho Brahe observed the New Star of 1572 (page 118) five days after its discovery on 6 November 1572. The line *Ham.* 1.1.21 suggests that the Ghost first appeared at that time too. Tycho Brahe died in 1601, so if the Ghost is a disembodied Tycho (page 110–111), there is much to explain.

- The term 'new astronomy' is used throughout in reference to the Copernican Revolution, but the term does not apply to Tycho's cosmic model (page 128–129). Rather, the term used there pertains to Tycho's hybrid geo-heliocentrism which was still basically geocentric and which explains why Claudius welcomed Rosencrantz and Guildenstern to Elsinore.

For those scientists who are willing to put in the time, Slater's book is an excellent source of information and guide for the use of tropes in a scientific context, and its bibliography is as current as one could expect in a fast-changing field.

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Islamic Theology and Extraterrestrial Life: New Frontiers in Science and Religion, edited by Shoaib Ahmed Malik and Jörg Matthias Determann (London, I.B. Taurus, 2024), Pp. xii +240. ISBN 978-0-7556-5088-0 (hardback), 157 × 231, US \$130.

Throughout history astronomy has impacted society perhaps more than any other science. Over millennia the study of the heavens has generated cosmological worldviews ranging from the geocentric to the heliocentric to the galactocentric, worldviews that have entered into popular culture through works ranging from Dante's *Divine Comedy* to Harlow Shapley's *Of Stars and Men* (Palmeri, 2009; Shapley, 1958), and many more modern writings both popular and scientific. Our worldview today continues to be shaped by the knowledge that we reside in one of several trillion galaxies in a Universe that is product of 13.8 billion years of cosmic evolution. Little wonder that quite aside from popular works like those of Carl Sagan and Neil de Grasse Tyson, serious scholarly books are increasingly being written on subjects like the meaning of life in a cosmological perspective, cosmological theories of value, and the meaning of cosmic evolution and our place in it (Chaisson, 2005; Lupisella, 2020; Vidal, 2014).

Theology is no exception when it comes to the role of astronomy in shaping worldviews. This is particularly true when it comes to theological and religious connections to the extraterrestrial life debate, with books on

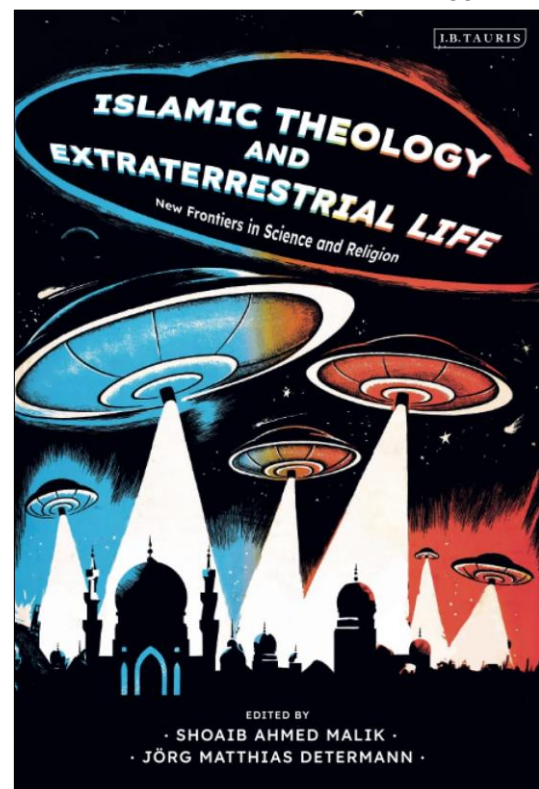
those connections ranging from a general overview of the effect on religions (Weintraub, 2014) to specific religions such as Christianity (Parkyn, 2021; Peters, 2018), and lesser-known traditions such as process theology (Davis, 2023; Davis and Faber, 2023), among others. What has been missing has been any systematic discussion of the potential effect of the discovery of extraterrestrial life on Islam and the world's two billion Muslims. When a decade ago when I organized a two-day program at the Library of Congress on the subject of preparing for the discovery of life beyond Earth, I could find no speakers to address Islamic theology in that context (Dick, 2015; Library of Congress, 2014). Since then, the subject has been only rarely addressed (Iqbar, 2018; Weintraub, 2014). This is now remedied in part with the book at hand, edited by Shoaib Ahmed Malik, a researcher at St. Mary's University in the UK, and Jörg Matthias Determann, a Professor of History at Virginia Commonwealth University, Qatar. Determann has previously shed light on the subject of Islam and astrobiology in his book *Islam, Science Fiction, and Extraterrestrial Life: The Culture of Astrobiology in the Muslim World* (Determann, 2021), which was reviewed in the September 2021 issue of this journal. The two books can profitably be read in tandem.

In their substantial Introduction Malik and Determann point out the long history of association between astronomy and the Muslim world. But it is current discoveries that have led to the questions in this volume. Muslim astronomers are no less interested in astrobiology than their Western colleagues, especially in the wake of the discovery of more than 5,000 exoplanets, discoveries to which they have contributed with the Qatar Exoplanet Survey, which has discovered ten massive planets named Qatar-1, Qatar 2b, and so on.

The book is the Proceedings of a conference held in May 2022 as an online event under the sponsorship of the Virginia Commonwealth University in Qatar in the midst of the Covid-19 pandemic. Its nine chapters are authored by theologians, scholars of comparative religion, philosophers, and social scientists, many of them Muslim. The authors conceive the book as consisting of four main themes: what Islamic theology and scripture say about extraterrestrial life; Islamic jurisprudence and extraterrestrials, including ethical considerations; a comparison of theological issues in Islam and Christianity; and Is-

lamic exotheology in Muslim society, including the Muslim UFO community and its science fiction.

As to the first theme, the opening three chapters conclude that Islamic theology and Scripture do not oppose the existence of extraterrestrial intelligence, and that if scientists make such a discovery this would be useful information for the expansion of Islamic theology, including the eschatological implications such as the end of the world. In Chapter 3 a case is made that the Quran implies the existence of extraterrestrials in at least six passages. In a parallel to the plurality of worlds tradition in Western commentaries on Aristotle, such a connection was suggested



as far back as the tenth century in commentaries on the Quran, where it is stated that "All praise belongs to God, Lord of the Worlds" (page 2). The hadiths (narratives about the prophet Muhammed) are even more explicit, allowing for intelligent creatures beyond Earth contemporary with us, and even intelligent creatures living in another Universe. Just as Western traditions of commentary on Scriptures differ among the various sects of Christianity such as Catholic, Protestant and Mormon, the analyses of Islamic sources must also consider both Sunni and Shi'i interpretations, which sometimes differ. Islam is no more monolithic than Christianity, and there are varying interpretations. Nor are extrater-

restrials part of dogma in any of these traditions (although Mormonism comes closest).

It is within the Sunni framework, the largest branch of Islam, that Chapter 4 concludes that

There are no theological, doctrinal, or scriptural grounds to negate the possibility that God created morally accountable beings elsewhere in the universe ... (page 111),

and that they would need to be treated ethically as morally accountable persons. Chapter 6, authored by one of the editors, Shoaib Ahmed Malik, highlights both the similarities between the Christian and Muslim responses to extraterrestrials. The principal difference is that the Christian doctrines of Incarnation or Redemption have no equivalent in Islam, but are hotly debated in the Christian tradition in the context of extraterrestrials. Using previous work on the relation between Christianity and extraterrestrials as a template (McIntosh and McNabb, 2021) Malik examines potential conflicts in six areas: with theism, Islamic scripture, Islamic doctrine, Islamic tradition, the problem of evil, and overall Muslim narratives. He finds little conflict, except with the non-trivial question of whether humans are the most superior beings of all creation, a view that is ambiguous within the Islamic tradition and in this volume, and thus open to debate.

Several chapters in this volume discuss the 'jinn' (supernatural creatures discussed in the Qur'an), in relation to extraterrestrials, and addressed here most notably in Chapter 7 on "The alien in the lamp? The jinn and alien life in Islamic Theology." Richard Playford, one of the few non-Muslim authors of this volume, argues that the jinn, which in a sense occupy a position midway between humans and angels, might provide a model for understanding the place of intelligent extraterrestrials within Islam. Playford also argues that although Islam is tied to particular Earthly historical events, in the event of the discovery of extraterrestrials, Islam would have to adapt or risk extinction. He believes the difficulties of adaption are not insurmountable.

This review cannot do justice to the intricate interpretation of Quranic Scripture present in some of these chapters. But they illustrate what undoubtedly will happen in the case that extraterrestrial life is discovered as religions of all varieties attempt to restructure their beliefs in a much broader context.

In the final two chapters the authors show how UFOs are popular among Muslims, with a particular focus on Indonesia, including an 'Islamic UFO' virtual community seeking scientific explanations compatible with Islam. Determann's book, referenced above, also discussed UFO sightings in Muslim-majority countries and how they were occasionally tied to the 'jinn'. Muslim science fiction is open-minded about extraterrestrials, as the final chapter, on "Exotheology in contemporary Egyptian science fiction", demonstrates. In Muslim as well as Western traditions, UFOs and science fiction are two ways in which popular culture attempts to absorb the new worldview that I have called 'The Biological Universe'—the idea that the Universe is full of life (Dick, 1996). That said, exoplanets notwithstanding, this worldview remains to be proven. But in the interests of preparing for discovery, the study of the societal impact of finding life beyond Earth, including the impact on theologies, is a prudent step, one that in any case helps place Earthly concerns in a more generalized context of the possibilities inherent in the Universe.

These considerations may seem far from the traditional concerns of historians of astronomy. But as in all areas of science, astronomers and historians of astronomy should be aware of the societal impact of their work. This volume goes a long way toward understanding that impact in an Islamic context, an understanding that has heretofore been lacking.

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William Frederick Denning: Grand Amateur and Doyen of British Meteor Astronomy, by Martin Beech (Cham, Springer, 2023), Pp. xiv +334. ISBN 978-3-031-44442-5 (hardback), 160 × 240, €39.99.

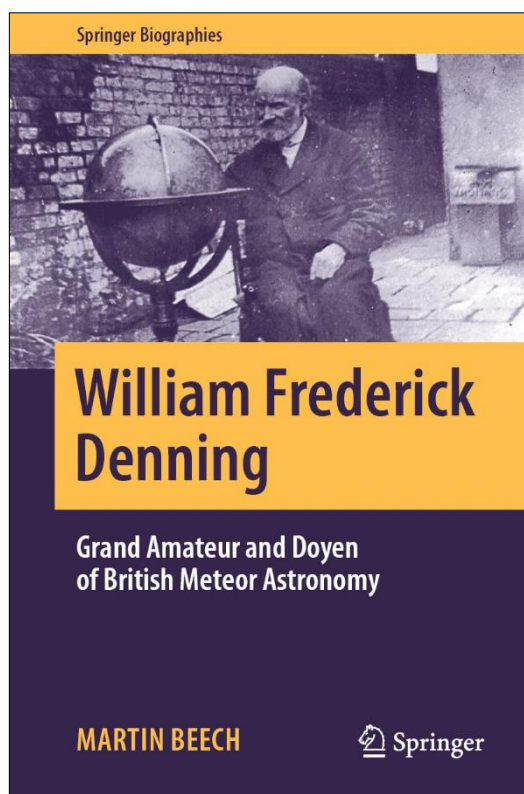
This is a long-awaited book about one of my favourite characters in visual meteor observing. I use the term ‘characters’ intentionally for William Frederick Denning (1848–1931), although an amateur astronomer, held firm beliefs about meteors and shower radiants and was not afraid to defend these against allcomers, professional astronomers included. So, he was seen by some as a controversial figure.

Denning was born in a small Somerset village, but spent much of his life living in or near Bristol. During the 1870s he became a prominent figure in British astronomy, so Beech’s subtitle for this book, *Grand Amateur*

and *Doyen of British Meteor Astronomy*, is apt.

Chapter 1, “A Man of Parts”, discusses Denning’s formative years in amateur astronomy, which began in earnest in 1864 or 1865 when his father bought him a 4.5-in refractor. But in 1866 he witnessed the unforgettable Leonid meteor storm and on 6 November 1869 an awe-inspiring fireball, and Beech concludes that

It seems reasonable to suppose that it was the observation of these two celestial events ... that turned Denning’s interest towards meteor astronomy ... (page 5).



Meteor astronomy was then at a formative stage and Denning’s key involvement in its development is explored in Chapter 2, “In Quest of Meteors”.

In this 53-page chapter Beech starts by noting that

Meteor astronomy in the mid-nineteenth century was a topic primed, ready, and waiting for the appearance of an enthusiastic and dedicated observer to carry its cause forward—Denning was destined to be that key figure. (page 38).

From 1868 to 1932 Denning published a succession of astronomical papers in 18 different