

The present delightful book by Felicity Henderson details Hooke's career from his birth on the Isle of Wight to his death in London at the age of 67. It's a fascinating read and very modestly priced — DAVID STICKLAND.

Lunar. A History of the Moon in Myths, Maps + Matter, edited by Matthew Shindell (Thames & Hudson), 2024. Pp. 256, 37 × 27 cm. Price £50 (hardbound; ISBN 978 0 500 02714 1).

This is a very magnificent book to own in terms of its historical coverage, Moon lore, graphics, and the sheer scale of this work. You certainly need widely vertically spaced shelves in order to fit this book onto a book shelf, and it's good value at just £50. The main theme of the book celebrates the pioneering efforts by United States Geological Survey (USGS) geologists and cartographers to map the Moon's geology in the 1960s–1970s, initially through Earth-based telescopes, and later using *Lunar Orbiter* and Apollo imagery. So these maps are not surprisingly the main colourful theme pervading the book; I only wish they were larger at times in order to make their wealth of detail more visible. But in view of the large size of the original maps, this is not possible. Interspersed between the map pages are nuggets of fascinating information about old telescopic observations, spacecraft imagery, the Moon in multi-cultural folklore, paintings, and movies, *etc.* Unsurprisingly, with modern-era lunar missions, there are now more up-to-date geological maps, but what is shown here is still a good basis for selenophiles to brush up on their geology and a great place to find nuggets of interesting facts for lectures or the media. Although the book is very comprehensive and wide-ranging in terms of its coverage, it may have missed out, though, on the opportunity to mention the work of US Army and USAF cartographers, such as James Greenacre, who, spent many hundreds of hours, often during very cold nights, sketching the Moon at the eyepiece end of the Clark refractor at Lowell Observatory, Flagstaff. Their work formed the basemaps on which the colourful geological maps were overlaid. However, I guess it is not possible to mention everyone who contributed to the USGS map series and the author had to be very selective.

Anyway, I am sure that *Lunar*, through its addictive graphics and illustrations, will inspire many readers to take a greater interest in the Moon, especially now with the run up to Project Artemis in the next few years. — ANTHONY C. COOK.

Einstein and the Quantum Revolutions, by Alain Aspect (University of Chicago Press), 2024. Pp. 95, 19 × 12.5 cm. Price £13/\$16 (hardbound; ISBN 978 0 226 83201 2).

Alain Aspect shared the 2022 Nobel Prize in physics with John Clauser and Anton Zeilinger for their independent but complementary work involving entangled photons, which experimentally demonstrated the Bell inequalities and led the way to quantum information science. That is certainly one reason for the publication of this little book (less than eighty pages of main text, small format, large print). However, it was originally published as an essay, in French, in 2019 in the collection *Les Grands Voix de la Recherche* which presents the work of the winners of the CNRS Gold Medal (given in all fields of science and one of the highest scientific awards in France). It is nice to have a description of this very topical subject in the (translated) words of one of the main players in the field. It is aimed at a very general readership and in terms of style, level of content, and even with regard to the physical book, reminds me of another book¹ reviewed in these pages², also a book for a general readership written by a practising physicist.

There were two quantum revolutions, in both of which Einstein played an important role. The first was quantum mechanics itself, in particular the aspect of wave–particle duality, as developed during the first three decades or so of the 20th Century. The second can be defined to start with John Bell’s publication of his famous inequalities; measurements on entangled particles more correlated than the upper limit set by Bell’s inequality demonstrate that quantum mechanics is not compatible with local realism, though the latter was the hope of Einstein, Schrödinger, and Bell himself. Einstein had laid the groundwork for the second quantum revolution in his famous paper³ with Podolsky and Rosen (EPR) almost thirty years earlier, though their hope was that a hidden-variable theory could be constructed in order to avoid spooky action at a distance. Bohr is famous for rebutting Einstein’s arguments about Bohr’s view of quantum mechanics, and most physicists agree with Bohr in that respect. Aspect makes the point that Bohr’s rebuttal of the EPR arguments is much less convincing, but nevertheless there was little further debate during the next thirty years or so due to the practical successes of quantum mechanics, which are independent of its philosophical interpretation.

There is a bit more material on the second quantum revolution, also covering topics such as the manipulation of quantum objects (*e.g.*, single ions), quantum cryptography, and the question whether experiments similar to those discussed will show a limitation to quantum theory. I haven’t read the original, but it all seems to have been translated well. There are a few black-and-white figures, but no notes, bibliography, or index; the book is very well produced and would make a nice gift. Those wanting to explore the themes of this book in more detail should read *Quantum Drama*⁴ (reviewed in these pages⁵), which is a bit longer and more technical than a typical popular-science book, while this book is a bit shorter and less technical, but provides an easily digestible summary of the topic, in keeping with Einstein’s dictum to make everything as simple as possible but not simpler. — PHILLIP HELBIG.

References

- (1) C. Rovelli, *Seven Brief Lessons on Physics* (Allen Lane), 2015.
- (2) P. Helbig, *The Observatory*, **136**, 155, 2016.
- (3) A. Einstein, B. Podolsky & N. Rosen, *Physical Review*, **47**, 777, 1935.
- (4) Jim Baggott & John L. Heilbron, *Quantum Drama: From the Bohr–Einstein Debate to the Riddle of Entanglement* (Oxford University Press), 2024.
- (5) P. Helbig, *The Observatory*, **144**, 257, 2024.

Parallel Lives of Astronomers: Percival Lowell and Edward Emerson Barnard, by William Sheehan (Springer), 2024. Pp. 687, 24 × 16 cm. Price £44.99 (hardbound; ISBN 978 3 031 68799 0).

In this massive and copiously illustrated biography, William Sheehan constructs a meticulous comparison of the lives of two very different personalities. Percival Lowell (1855–1916) was born with the proverbial silver spoon in his mouth into a Boston family that had grown rich upon the textile industry, and for whose education no expense was spared, whereas E. E. Barnard (1857–1923) had an extremely humble origin in Nashville, with almost no schooling, and he would become a self-made man through sheer necessity. His employment as a photographer’s assistant was to prove fortuitous.

Lowell started his career as an Orientalist, but after reading Flammarion’s monumental Mars book, turned his attention to the heavens. A born wordsmith and superb mathematician, yet hampered by his preconceived ideas about the