Some examples: 'The Universe is beige, on average', 'The galaxy is flatter than a credit card', 'It rains iron on some brown dwarfs', 'Europa might glow in the dark'. Forty-five pages of small-print endnotes point the reader to more details, either technical papers (standard bibliographic references but including DOIs) or URLs; footnotes are proper footnotes. It is thus similar to other books[1–8] which select a (small, medium, or large) number of topics and discuss them in some detail without trying to cover too much ground, a welcome alternative to introductory books which cover all of (some branch of) astronomy but necessarily at a rather superficial level. There are a few black-and-white figures scattered throughout the book, but no index. This is a nice book suitable as an introduction to those interested in astronomy but with pointers to more information, but probably everyone could learn something new from it. — Phillip Helbig.

References

(1) G. Sparrow, *50 Astronomy Ideas You Really Need to Know* (Quercus), 2016.
(2) P. Helbig, *The Observatory*, **137**, 30, 2017.
(3) G. Sparrow, *The History of Our Universe in 21 Stars (That You Can Spot in the Night Sky)* (Welbeck), 2023.
(4) P. Helbig, *The Observatory*, **145**, 40, 2025.
(5) A. Cohen, *The Universe* (William Collins), 2023.
(6) P. Helbig, *The Observatory*, **145**, 78, 2025.
(7) G. Lavender, *The Short History of the Universe: A Pocket Guide to the History, Structure, Theories & Building Blocks of the Cosmos* (Laurence King), 2022.
(8) P. Helbig, *The Observatory*, **145**, 77, 2025.

Honoring Charlotte Moore Sitterly: Astronomical Spectroscopy in the 21st Century, edited by David R. Soderblom & Gillian Nave (Cambridge University Press), 2024. Pp.133, 25·5 × 18 cm. Price £110/$145 (hardbound; ISBN 978 1 009 35192 8).

I suppose it might just be possible, if you are not at all involved in spectroscopy, that you might not be entirely familiar with the name Charlotte Moore-Sitterly. I think, however, that anyone who has done any work in atomic spectroscopy would agree that Charlotte Moore-Sitterly was one of the greatest spectroscopists of the 20th Century, and, as this volume shows, her pioneering work extends far into the 21st. It is probably not possible to make any attempt at interpreting an astronomical spectrum without extensive reference to her tables of *Atomic Energy Levels* (*AEL*) and her *Revised Multiplet Table* (*RMT*) *of Astrophysical Interest*. The spectroscopic notations of atomic energy levels, terms, and multiplets, with which we are today so familiar, is largely the work of Moore-Sitterly, who, as Donald Menzel wrote, "turned chaos into order"

This slim (but exceedingly important) volume represents the Proceedings of the 371st Symposium of the International Astronomical Union, held in Busan, South Korea, in 2022.

The first two plenary papers in the volume are first, a brief biography of Moore-Sitterly (about whom relatively little has previously been written) and how her legacy extends into the present century. These two papers alone are surely of great interest to any spectroscopist interested in the history and development of the subject, and of Moore-Sitterly's role. How often has Moore-Sitterly's work been cited? That is impossible to calculate. For one reason, according to this volume, about 2500 different spellings of *Atomic Energy Levels* are to be found in the literature. Furthermore, since about 1995, the work started by Moore-Sitterly in her three *AEL* volumes has now been hugely

expanded into and cited as NIST ASD (National Institute of Standards and Technology, Atomic Spectra Database).

Of course there have been tremendous advances this century and literally billions of spectrum lines have been measured or calculated by someone or other. How far have we succeeded this century in turning "chaos into order", as Moore-Sitterly did in the last? There have been many compilations, some small, some vast, of spectroscopic data, and the modern user of spectra has to know where to turn to find these data. It is for this reason that any user of laboratory astrophysical data (atomic and molecular spectroscopy, astrochemistry of small and large molecules, oscillator strengths, collision rates, aerosol data) will need this book. Herein are to be found descriptions and whereabouts of all such compilations and how to use them. Also described are the many intrinsically useful quantities for which accurate laboratory data are not yet determined. There is much work yet to be done in laboratory astrophysics, and this volume should give young researchers some profitable ideas.

I have only one tiny disappointment. I see that most of the authors are still using the old term "transition probabilities" for what are better termed Einstein A coefficients. The Einstein coefficient is not in any sense a "transition probability" such as is used in probability theory. It is much more akin to the decay constant of a radioactive nuclide with dimensions T^{-1}.

Included as well as compilations of laboratory data are the capabilities of large telescopes (such as the *Very Large Telescope* (*VLT*) and the *Extremely Large Telescope* (*ELT*)) and their associated spectrographs. For example, one of the échelle spectrographs of the *VLT* is capable of measuring radial velocities with a precision of 10 cm s^{-1}. In units that we can understand, that is about 0·22 miles per hour, corresponding to a Maxwell–Boltzmann kinetic temperature of hydrogen atoms of 0·4 μK. I don't know whether astronomers can really make use of such exquisite precision.

This book will cost you about 83 pence or US$1·45 per page, and it is well worth every penny of it. I don't know how many copies were printed in excess of those needed by delegates to the symposium, but you should hurry to get a copy before they run out. — Jeremy B. Tatum.

Robert Hooke's Experimental Philosophy, by Felicity Henderson (Reaktion), 2024. Pp. 183, 22 × 14·5 cm. Price £17·95 (hardbound; ISBN 978 1 78914 954 8).

The latter part of the 17th Century was an exciting time for science in Britain. The freedom of thought encouraged by the Restoration led to many things, including the foundation of the Royal Society, the establishment of the Royal Observatory at Greenwich, and the remarkable advances made by Isaac Newton. It also witnessed the rise to prominence of the amazing polymath Robert Hooke, often just remembered for his Law (on the extension of springs) and the row he is said to have had with Newton over the Law of Gravity. There was, however, much more to Hooke than that. He was interested in *everything* and his Experimental Philosophy was built on applying his vast knowledge to every problem. His practical expertise came from his work as the Curator for the Royal Society, which meant demonstrating all manner of experiments and processes before an audience of his peers; for that task he was perhaps the first salaried scientist. He gained insights from innumerable conversations with manufacturers in their factories and fellow scientists in the coffee houses of London. And he was a first-rate artist as shown by the astonishing drawings of a range of subjects viewed through his microscope.