

& Jao pick over the characteristics of M-type dwarfs, stars that have not really started to evolve in any dramatic way yet. The composition of such stars and any putative Earth-like exoplanets is discussed by Teske. And spectrum synthesis of stellar spectra is described by Lind & Amarsi in which many factors, like convection, are included — so much more sophisticated than my dabblings in the late 1970s.

Star and planet formation is considered in several chapters. Schinnerer & Leyroy start with the examination of molecular gas in nearby galaxies, while Hunter *et al.* study the ISM in dwarf irregular galaxies, and Birnstiel looks at dust growth in planetary discs, with *ALMA* now a valuable tool; related work on proto-stellar systems is reviewed by Tobin & Sheehan. And at the end of it all, *Gaia* results examined by Hennebelle & Grudić give us the IMF that should be produced!

On the larger scale, how galactic development is affected by the products of massive-binary evolution is described by Marchant & Bodensteiner, with Thompson & Heckman viewing an even bigger picture featuring winds from star-forming galaxies.

Away from the observatory and in the laboratory, Cuppen *et al.* make a study of the ices found in the ISM, adding detail for the observers to hunt down.

And last but not least it is time to see, in the company of Verde *et al.*, where we are in the determination of the Hubble Constant. Not a pond in which I ever poked a toe! — DAVID STICKLAND.

The Short Story of the Universe: A Pocket Guide to the History, Structure, Theories & Building Blocks of the Cosmos, by Gemma Lavender (Laurence King), 2022. Pp. 224, 21.5 × 15.5 cm. Price £14.99 (paperback; ISBN 978 0 85782 938 2).

After studying astrophysics in Cardiff and holding various jobs in publishing, Lavender now works in Communications, Content & Outreach at the European Space Agency and has written a few other books. This book is one of a series ‘The Short Story of...’, others including photography, architecture, film, *etc.* Obviously, such topics, much less the Universe, will not fit into one book, especially if it’s just the short story. The strategy is to choose a wide range of topics and offer a summary of each. It is thus similar to other books^{1–8} which select a (small, medium, or, as in this case, 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. The many chapters are collected into four parts: ‘Structure’ (two pages per chapter), ‘History and Future’ (one), ‘Components’ (usually two), and ‘Theories’ (one). Some examples: ‘Spacetime’, ‘Stars’, ‘Elements’, ‘Forging the Elements’, ‘Birth of the Moon’, ‘The Future of the Universe’, ‘Elliptical Galaxies’, ‘Wolf-Rayet Stars’, ‘Uranus’, ‘Multiverse’, ‘Stellar Spectroscopy’, ‘Galaxy Evolution’; the second part is by far the longest.

Each chapter contains a picture (usually colour; exceptions are historical black-and-white images) and a few paragraphs of text. At the bottom of the page are references to related chapters. Otherwise, the format depends on the part. In the ‘Structure’ part, each chapter mentions one or more scientists together with a relevant topic, place, and time; a brief biography (sometimes of a ‘key scientist’, sometimes of some other relevant person); and key publications (authors, titles, and years). ‘History and Future’ has key scientists and a key development as well as the time since the Big Bang of the corresponding event; ‘Components’ has a list of notable examples of the corresponding component

and a brief biography of someone who has worked in that field; ‘Theories’ is like ‘History and Future’ but without the timeline. I’m reminded of the professor (whose main job was theoretical particle physics and who looked very much like James Clerk Maxwell) who taught me classical mechanics: for the exam at the end of the course, he allowed us to bring one sheet of paper containing anything we wished to write on it. (Of course, and that was probably the intent, the act of thinking about what is important and writing it down meant that it wasn’t actually used as much as we might have thought would be necessary.) This book is similar but covers more than a hundred topics. All of the parts range over (but, of course, don’t really cover) essentially the whole of astronomy in about the expected proportions except that ‘Components’ devotes about half of its chapters to the Solar System, which reminded me of the previous book I had read⁷.

‘Paperback’ is a bit of a misnomer; the cardboard cover (with somewhat thinner front and back flaps) is a bit stiffer than is the case with most paperbacks, and the binding is more like a hardcover. The paper is slick, the images are in high resolution, there are almost no typos, and I noticed no factual mistakes. Apart from the chapters (including a couple of introductory ones) and the seven-page index, that’s it, but that is all that is needed. This is a beautiful and well-produced book and would provide not only a good introduction to astronomy, astrophysics, and cosmology but also, despite the lack of full traditional references, enough information so that the interested reader could easily find further information on the topic. — 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) J. Scudder, *The Milky Way Smells of Rum and Raspberries: ...and Other Amazing Cosmic Facts* (Icon Books), 2023.
- (8) P. Helbig, *The Observatory*, **145**, 65, 2025.

The Universe, by Andrew Cohen (William Collins), 2023 (originally published 2021). Pp. 272, 19.5 × 13 cm. Price £9.99 (paperback; ISBN 978 0 00 838935 2).

Andrew Cohen is Head of the BBC Studios Science Unit and this book is based on the BBC series of the same name, which is presented by Brian Cox (who contributes a foreword). I haven’t seen the programme, but the book stands well on its own. The title is something of an exaggeration, as there are only five major topics (each with its own chapter). However, any book broad enough to cover the entire Universe would be very shallow. 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. The areas covered — exoplanets, stars, galaxies, black holes, and the early Universe — are a mixture of major subjects in the field and those with a large public interest (or both). At about fifty pages each, the chapters are long enough to explore the corresponding topics in some detail. Of those covered, I know the least about exoplanets, and learned a lot from the corresponding chapter. The book is a good introduction