Galaxies, by Or Graur (MIT Press), 2024. Pp. 195, 17·5 × 12·5 cm. Price $17·95 (about £14) (paperback; ISBN 978 0 262 54875 5).

According to the Foreword, books in MIT's *Essential Knowledge* series supply "foundational knowledge that informs a principled understanding of the world", which sounds a rather esoteric aim. Fortunately, the present book is much more interesting and informal than that introduction might suggest. The level would be suitable for, say, A-level school students or anyone with a general interest in science. The topics covered are wide-ranging, some history of the subject, galaxy types, structure of the Galaxy, star formation, supermassive black holes, clusters and the cosmic web, dark matter and energy, a spot of cosmology, galaxy formation, evolution, and mergers. Some colleagues may be a bit aggrieved at the shortage of mentions of X-rays, but largely the contents are as you might hope. There are a few things you could quibble about slightly, but (as the author quotes from *The Hitchhikers Guide to the Galaxy*), I think we can judge them "mostly harmless". Large numbers of references to original papers are included in the Notes, which is unusual for a book of this type, though I can't help thinking that going straight from reading an introductory text to, for instance, Binney & Tremaine's *Galactic Dynamics* could be somewhat ambitious, not to mention Einstein's *Kosmologische Betrachtungen zur allgemeinen Relativitätstheorie*. The book ends with things the reader can do besides reading, such as joining Galaxy Zoo or finding a dark-skies site. All in all, an excellent, short, non-mathematical introduction. Recommended. — Steve Phillipps.

The History of Our Universe in 21 Stars (That You Can Spot in the Night Sky), by Giles Sparrow (Welbeck), 2023. Pp. 351, 20 × 13 cm. Price £9·99 (paperback; ISBN 978 1 80279 505 9).

Having read another book[1] by the same author (positively reviewed in these pages[2]), I expected an enjoyable, well written, informative, and non-technical popular-science book; I was not disappointed. As the title indicates, twenty-one stars (and three 'impostors') are used as jumping-off points to illustrate aspects of stellar structure and evolution (and a bit more *via* the impostors) as well as basic astronomical knowledge such as distance determination and the main points of the history of astronomy. Each object has a finding chart and description of how to find it, also indicating its magnitude and what type of instrument, if any, is needed. The impostors are the globular cluster Omega Centauri, the Andromeda Galaxy, and the quasar 3C 273. As in the recent review[3] of another book[4], the only real mistake I noticed was towards the end of the book in the discussion of cosmology (jumping off from supernova 1994D to the magnitude–redshift relation for type-Ia supernovae and to observational cosmology in general): while it is a matter of taste whether one describes the cosmological constant as getting stronger over time (by definition, it is constant, though its effects dominate more and more over those of matter as the latter is thinned out by the expansion of the Universe), the 'Big Rip' scenario, in which even (gravitationally or otherwise) bound objects will be disrupted, will not happen if dark energy is just the cosmological constant, but rather involves a more exotic form of dark energy. (It is also probably not the case that the Michelson–Morley experiment influenced Einstein's thinking on Special Relativity, but any mistake here is more than made up for by the mention, in the same footnote, that Michelson appears as a character in an episode of the US Western television series *Bonanza*[5,6]. Interestingly, Lorne Greene, who played one of the main characters, Ben Cartwright, in *Bonanza*, later moved

to the stars, playing Commander Adama in the science-fiction television series *Battlestar Galactica* in the late 1970s.)

Although essentially no readers will be able to connect their own observations of the objects mentioned in the book with their scientific descriptions, the format nonetheless thus bridges the gap between amateur astronomy on the one hand and astrophysics on the other; the latter is presented non-technically but clearly and without loss of accuracy. The book also contains many footnotes providing tangential information. Somewhat odd is the reference format (for the handful of citations per chapter): title, author, year (*i.e.*, no journal or other information). While that is probably enough to track them down, full references and/or DOIs would have taken up negligible additional space.

Apart from the twenty-four chapters and the reference list, the book contains essentially only a page of acknowledgements and an introduction. In addition to the finding charts (with the figures represented by the constellations as grey backgrounds), there are a few other black-and-white diagrams and photos spread throughout the book as well as occasional 'boxes' with additional information. As usual, the editing could have been somewhat better, though there are only a few actual typos.

Using specific celestial objects as jumping-off points to discuss various astrophysical topics in more general terms is also the strategy used in another book[7] reviewed in this *Magazine*[8], although that book, fitting for one on galaxies, contains many large, high-resolution colour photos. That doesn't make sense for a book mostly about stars, though the idea of moving from what one sees in the sky to the physics behind it is the same. This could be a good first book on (mainly stellar) astrophysics for someone interested in astronomy. — 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) P. Helbig, *The Observatory*, **144**, 295, 2024.
(4) S. Graydon, *Einstein in Time and Space* (John Murray), 2023.
(5) https://bonanza.fandom.com/wiki/Look_to_the_Stars
(6) https://www.youtube.com/watch?v=2D1kIdoCrak
(7) M. König & S. Binnewies, *The Cambridge Photographic Atlas of Galaxies* (Cambridge University Press), 2017.
(8) C. Potter, *The Observatory*, **138**, 338, 2018.

An Introduction to Mathematical Astrophysics, by Neil R. Taylor (Observatoire Solaire), 2024. Pp. 317, 27 × 19 cm. Price £37 (on Amazon), £35 (directly) (hardbound; ISBN 978 1 9999044 2 5).

This book is intended for students with A-Level mathematics and physics, first- and second-year undergraduates in physics and astronomy, and amateur astronomers. In a little over 300 pages, it covers a vast amount of material, from history, through Solar System and dynamical astronomy, stellar astrophysics, the Galaxy, galaxies, cosmology, Special and General Relativity, and just about everything you want to know about astronomy. The author obviously has a huge comprehensive knowledge of the subject — but how successful is he in putting it over for the intended readership?

Unfortunately, it appears to have been privately published and printed, and has doubtless never been through the hands of a copy editor. While, like the curate's egg, it may be good in parts, I think I can safely say that I have never seen a book so riddled with mistakes on page after page from start to