## Reviews

the President's Council of Advisors on Science and Technology, meeting with Obama for an hour or so about three times a year, and later to the post of treasurer of the American Association for the Advancement of Science. The last two chapters provide a close look at the transition from the administration of Obama to that of Trump and Press's response to COVID (with which he might have been infected), which included writing the book during the lockdown, before a twenty-one page small-print index ends the book. (The book otherwise consists of a preface and seventy occasionally sectioned chapters; there are no footnotes or figures, and language and style are very good; Press credits Kip Thorne with teaching him how to write.)

Although also published as a traditional book, Press has chosen to publish it *via* Creative Commons License CC BY-NC-ND 2.0, which means that anyone can redistribute it (even commercially) as long as credit is given and it is reproduced in its entirety. It is thus legally available as an eBook in various formats (including PDF — which I have — which presumably corresponds in appearance to the printed version). I'm sure that he doesn't need the money, and the book will thus reach an even wider readership.

All interested in the history of academia in general and astronomy in particular in the last sixty years will surely benefit from this memoir, a real page-turner which is not only highly entertaining but also from which almost everyone will learn something interesting. There isn't much time left, but I would like to see similar works by others of Press's generation (and, later, by younger people, though my guess is that, for various reasons, Press's generation of astronomers probably had the most fun). — PHILLIP HELBIG.

## References

- (I) D. Walsh, R. F. Carswell & R. J. Weymann, Nature, 279, 381, 1979.
- (2) J. Pelt *et al.*, *A&A*, **286**, 775, 1994.
- (3) J. Pelt et al., A&A, 305, 97, 1996.
- Accreting White Dwarfs: From exoplanetary probes to classical novae and Type Ia supernovae, by Edward M. Sion (IoP Publishing), 2023. Pp. 233, 26 × 18.5 cm. Price £120/\$159 (hardbound; ISBN 978 0 7503 2040 5).

Author Edward M. Sion of Villanova University begins this volume beautifully, with a chapter on what is known about non-accreting white dwarfs. There are all the familiar equations for degenerate matter (relativistic or non-relativistic), the Chandrasekhar limit but Chandra is not cited, only a 2007 book ascribed to Ostlie & Carroll (though the reference list says Carroll & Ostlie), the historic cooling curve, ways of holding metals in atmosphere *versus* letting them sink, and so forth. There is also a wonderful colour–magnitude diagram for 15000 white dwarfs as observed by *Gaia*. The bright ones track a cooling curve for CO stars of 0.8  $M_{\odot}$ ; a second concentration appears at around Ao following a track for a mass around 0.75 solar masses; and the cool, faint end turns up, as expected from extra energy input when the CO core starts to crystallize. The author claims this as the first empirical evidence for the phenomenon.

This chapter, the ensuing six, and two appendices, however, suffer from the now-common problems of no unified list of references and no index of any kind. Those 15000 white dwarfs do not all appear individually, but very many stars do, and I was left wishing that Chapter 1 had included a paragraph on "naming of white dwarfs." Quite a few of the accreting ones are variables, with decodable names like WZ Sge, V471 Tau, and U Gem. SDSS is recognizable as

Sloan Digital Sky Survey, and some memory-dredging yielded EG = Eggen-Greenstein (who are not cited anywhere for their then-enormous lists) and LTT = Luyten Two Tenths (meaning the proper motions), but is G for Giclas or Gliese, and who are GD, HE, and HS? Oh, yes! One of those non-existent indices should surely have listed the more prominent stars by name.

Topics treated in some detail include (i) metals in WD atmospheres (ground up planetary material has replaced accreted interstellar stuff as the best-buy explanation), (ii) "Roche-Lobe detached Post-common Envelope Main Sequence-White Dwarf Binaries" candidate for longest list of modifiers, but also a good discussion of weak, strong, and very strong magnetic fields, with plausible mechanisms for creation of the strong fields, and (iii) the zoo of cataclysmic-variables, historically introduced with initial basic understanding of explosions and the importance of donor companions, properly credited to Leon Mestel, Willem Luyten, Robert Kraft, and John A. Crawford (not any of the Crawfords we knew). Not a word, however, for the Gaposchkins, who apparently coined the cataclysmic variable name, and who over decades compiled very many light-curves of eclipsing binaries and other variable stars. Chapter 7 ends with the 'single degenerate' scenario for producing type Ia supernovae. The double-degenerate case is barely mentioned, and perhaps "accreting a whole other star" would not be the best description of the process of two merging. The dedication on page vii tells us that the book was written during a twoyear period when the author was mourning the death of his wife of 52 years. I therefore refrain from a compilation of grammatical and similar infelicities, but the volume contains some excellent and very useful material, and one might wish for a second edition with a publisher who values whole books and not just 

**Galaxy Formation, Third Edition**, by Malcolm S. Longair (Springer), 2023. Pp. 798,  $24 \times 16$  cm. Price £89.99 (hardbound; ISBN 978 3 552 65890 1).

A volume of Springer's *Astronomy and Astrophysics Library*, this third edition brings previous editions up to date without leaving out too much history of the field. The result is a very long book, perhaps the reason why the preface ends with "Good Luck!" Probably no stranger to most readers, Longair is a prolific scientist, has written several books, and is an excellent lecturer. (I had the pleasure of hearing him, along with Allan Sandage and Richard Kron, at the 1993 Saas-Fee course *The Deep Universe*<sup>1</sup> (reviewed here<sup>2</sup>) — his second stint as a lecturer there, after 1978 with Martin Rees and Jim Gunn<sup>3,4</sup>. Some of his lectures can be found in good audio and video quality on YouTube.) The first edition has also been reviewed in these pages<sup>5</sup>.\*

Others have noted, confirming my impression, that Longair's presentations are often much more general than their titles. That is also the case here, with, of the twenty chapters, arguably only one complete chapter and one section of another actually about galaxy formation. However, rather than much forest and few trees, it surveys the entire landscape including the forest and many other types of tree (as well as other plants and animals) within it. As such, this book, aimed at final-year undergraduates and/or first-year postgraduates, would be a good introduction to a number of topics: theoretical cosmology, observational cosmology, the cosmic microwave background, star formation, dark matter, the early Universe, large-scale structure, General Relativity, Big-

\*A sentence from Pagel's review in this *Magazine* is quoted on Springer's web page for the book, where one can also learn that it is available in paperback for \$69.54 and as a PDF file for \$53.49.