Annual Review of Astronomy and Astrophysics, Volume 63, 2025, edited by E. van Dishoeck & Robert C. Kennicutt (Annual Reviews), 2025. Pp. 523, 24 × 19 cm. Price from $481 (print and on-line for institutions; about £360) (hardbound; ISBN 978 0 8243 0963 3).

Sadly, the latest volume of *Annual Review* does not start with the traditional autobiographical account by one of astronomy's grandees, but is nonetheless full of beautifully presented accounts of the hot topics in the field.

Planetary science looms large this year with the formation of giant planets discussed by Ikoma & Kobayashi, be they local or around more distant stars. With observations from ground-based and space telescopes, we can now examine the spectra of exoplanet atmospheres, as revealed by Snellen, while Vidotto models the interactions those exoplanets may have with their host stars. A further article on exoplanet research is that by Kenworthy & Haffert showing how high-contrast coronagraphy can now be used to probe such systems.

Moving on to stars, their formation processes, for both high- and low-mass objects, are compared and contrasted in the leading paper by Beuther *et al*. Perhaps the most interesting topic for me was the discussion of 'Blue Stragglers & Friends' by Mathieu & Pols, in which the results of binary interaction during evolution is now seen to produce not only blue stragglers — a field in which I once wandered — but also yellow stragglers.

Edging on to more massive objects still, a comprehensive study of how galaxies come together — entitled 'Extragalactic Archaeology' — is described by van de Ven *et al*., while the kinematics of the Local Group is considered by Strigari. Coming on to high-energy matters, the impact of ionizing radiation from galaxies on the intergalactic medium is outlined by Jaskot; X-rays from AGN due to super-massive black holes are considered by Kara & García; energy production by relativistic magnetic reconnection sparked by black holes and neutron stars is described by Sironi *et al*.; and the nature and origin of ultrahigh-energy cosmic rays are whimsically portrayed by Globus & Blandford. — David Stickland.

The Solar System, by William Sheehan & Clifford J. Cunningham (Reaktion), 2025. Pp. 407, 22 × 18 cm. Price £25·00 (hardbound; ISBN 978 1 83639 064 0).

This work published by Reaktion Books, one of thirteen volumes in a series edited by Peter Morris entitled *Kosmos*, investigates historical, contemporary and future developments in Solar System astronomy. Both authors are accomplished writers and researchers, uncovering many new insights into what could be considered a well-worn subject. They have created both a fine literary work and an accurate and authoritative account that has been a pleasure to read. Their commanding use of the English language is impressive. Be prepared both to be entertained by their prose and to learn some deeper truths about stories from the past. Evidence of their in-depth knowledge is provided by way of 19 pages of references covering the ten chapters of text and splendid illustrations.

In many places, they write to put the historical record straight given that 2025 provides the truest perspective yet of observational astronomy over the centuries leading up to the Space Age, and the almost seven decades of space-probe exploration of the Solar System since — a privileged vantage point indeed! A nice touch used throughout the book, which makes it very readable, is the wealth of apposite quotations and extracts from the literature, not only scientific but also many of literary merit. Some are verbal quotes — well-founded views of astronomers currently working in the relevant field.

I would have liked more detail in the last chapter, 'The Outer Solar System', in that it covers a diverse range of topics, including interstellar objects, yet occupies only one-eighth of the main text. The style is necessarily more concise there than in the rest of the volume. Illustrations and new findings made possible thanks to the *James Webb Space Telescope* are included, as are many fine *HST* and space-probe images, but more could have been made

of the future impact of high-tech ground-based observatories such as *Rubin* and the *E-ELT* that are coming on-stream in the present decade.

The writers have also between them authored other books in the *Kosmos* series covering the topics of *Mercury*, *Venus*, *Asteroids*, *Jupiter*, and *Saturn*. Bill Sheehan particularly has been a prolific life-long writer and his passion for Solar System studies is plain to see. It's not so surprising that this most recent publication is one of the very best to have been written with respect to the Solar System. — Richard Miles.

Discordance: The Troubled History of the Hubble Constant, by Jim Baggott (Oxford University Press), 2025. Pp. 328, 24 × 15 cm. Price £20 (hardbound; ISBN 978 019 286406 2).

Recently, I reviewed a book in these pages by Baggott & Heilbron [1]; this book is dedicated to John Heilbron, who died around the time their joint book was completed. In about 1975, I read one of the many books I've read by Isaac Asimov [2]; despite being the title of the book, the neutrino doesn't appear until about half-way through. Asimov spent the first half of the book on the history of conservation laws, which of course are essential for understanding why the neutrino was originally postulated, and why it was accepted long before it was actually discovered. Baggott follows a similar but more exteme approach, with the Hubble tension appearing only in the tenth and final chapter. The Hubble tension refers to the fact that 'local' measurements of the Hubble constant H ($\dot{R}/R$, where R is the scale factor of the Universe; often, H_0 is discussed, where, as with other cosmological parameters, 0 refers to the value today) tend to give a higher value ($\approx$ 73 km/s/Mpc in the usual units) whereas deriving H_0 from measurements of the cosmic microwave background (CMB) tends to give a lower value ($\approx$ 67). Older readers might remember when the tension was between 50 and 100. The situation today is different, though. The Hubble tension of a few decades ago was primarily between different groups (with Allan Sandage and his followers favouring low values, sometimes even lower than 50, and Gérard de Vaucouleurs and collaborators preferring high values), whatever methods they used. Today, it is primarily between different methods, the size of the error bars has decreased proportionally by more than the difference between the two values (resulting in a statistically significant tension), the cause of the tension is not as clear, and it is more common to see it as possible evidence of new physics. There is also tension *within* the high-value camp, with Adam Riess and collaborators preferring a somewhat higher value while Wendy Freedman and her team advocate a lower value with of course less tension with the CMB value but perhaps even without a significant statistical discrepancy.

I'm not sure why the zeroth chapter is a prologue rather than a proper chapter (at 15 pages, it is only slightly shorter than the other chapters, which average about 25); it introduces the basics of stellar astrophysics. From there, we get nine chapters which introduce enough cosmology (often in the form of a historical narrative, and including many quotations) to place the Hubble tension in the proper perspective: Leavitt's law; the scale of the Universe; the Hubble constant; Lemaître's cosmology, stellar populations, Big Bang nucleosynthesis, and the cosmic microwave background; cosmological parameters; the much larger Hubble tension of a few decades ago and the debate between the low value of Sandage and the high value of de Vaucouleurs; inflation; dark energy and the accelerating Universe; and the standard or concordance model of cosmology. Of course, many books have been written about each of those topics; the still rather long summary here is intended to set the background for the Hubble tension, but is a good summary in itself.

Baggott gets some things right which many authors get wrong, such as the explanation of the cosmological redshift. But he makes common mistakes (about which I've complained in many reviews in these pages) by recounting the relationship between geometry and destiny*

*If there is no cosmological constant, a spatially closed universe will collapse after initial expansion, whereas