The story is charmingly illustrated with cameos involving key players, some revealing things said *sotto voce*, even best left unsaid, that serve to brighten up the reams of details. Despite the eventually unchecked progress of the telescope from early idea to full completion, not everything was plain sailing, and the cliff-hanging description of the USA's very hesitant agreement at a late stage to accept the grossly enlarged budget for the telescope adds a welcome seasoning of excitement that brings its journalistic style alive. One aspect that could have been thought through differently was the wisdom to include specific costs in all their rather gory details. While indeed part of the journal, writing the exact figures with so many noughts might appear a bit vulgar to the general public (and to astronomers routinely strapped for cash), when descriptive words like 'several thousand million' would be more appropriate for a 'story'.

The book is generally well written, though the USA's habit of ignoring conventional grammar (including vital hyphens and commas) caused me some exasperation. Very few typos or other mistakes are apparent — until the final chapter, where the margins of several pages proved inadequate for me to pencil in all the corrections that I itched to make. The book includes a brief Appendix that explains the rudiments of radio astronomy and its attendant equipment, and (fortunately) it sports a 4-page 'Glossary' of the many acronyms that pepper the book freely, and (as with the costs) several could with advantage have been replaced by simple descriptive words. It will make interesting reading for the inquisitive public and for astronomers not directly involved, while primarily offering a fine set of reminiscences for the many who were so involved. It is a remarkable product of industrious archival research, and deserves a place on both science and departmental bookshelves. — Elizabeth Griffin.

Annual Review of Astronomy and Astrophysics, Volume 61, 2023, edited by E. van Dishoeck & Robert C. Kennicutt (Annual Reviews), 2023. Pp. 616, 24 × 19·5 cm. Price from $444 (print and on-line for institutions; about £365), $122 (print and on-line for individuals; about £100) (hardbound; ISBN 978 0 8243 0961 9).

The 2023 *Annual Review* begins with a remarkable story of a lady, raised in a Christian family in China, who rose to international prominence in the field of geodesy *via* long-baseline radio astronomy. Shuhua Ye overcame the turbulent history of her homeland in the latter half of the 20th Century to join the top ranks of the IAU and make a significant contribution to studies of Earth rotation and the establishment of accurate time services.

Starting at the beginning of time we find a tantalizing account by Klessen & Glover of the first stars to be formed — the so-called massive Population III stars (with masses up to $10^5 M_\odot$) — which will be hard to observe but particularly interesting because of their metal-free composition. Also at the 'Cosmic Dawn' we have a discussion of the earliest quasars by Fan *et al.*

A review I found particularly interesting was by Jewitt & Seligman on 'Interstellar Interlopers', a couple of which have been found wandering through the Solar System; it is thought that they may be planetesimals ejected from protoplanetary discs. The chemistry of volatile elements in such discs is examined by Öberg *et al.*

On the grand scale, we find a study of galaxy-cluster dynamics using hydrodynamical simulations by Crain & van de Voort, while swirling around those assemblies will be the circumgalactic medium whose processes are covered by Faucher-Giguère & Peng Oh.

On the smaller (but still vast) scale is the interstellar medium within the Milky Way, which is addressed by McClure-Griffiths *et al.* who consider the role of atomic hydrogen, and on an even smaller scale in accretion in the environment of binary stars by Lai & Muñoz. While we know quite a bit about the generation of magnetic fields in stars, it came as something of a surprise to me to find that galaxies themselves have dynamos, outlined in the work of Brandenburg & Ntormousi.

On the instrumental front we have a report on imaging spectroscopy of radio emission from the Sun by Gary, and on advances in interferometry, especially ESO's *GRAVITY* instrument on the *VLTI*, by Eisenhauer *et al.* And finally an elaboration of the benefits of Gaussian processes in the analysis of time-series data by Aigrain & Foreman-Mackey. — David Stickland.

America's First Eclipse Chasers. Stories of Science, Planet Vulcan, Quicksand, and the Railroad Boom, by Thomas Hockey (Springer, in association with Praxis Publishing), 2023. Pp. 444, 24 × 16·5 cm. Price £27·99/$37·99 (paperback; ISBN 978 3 031 24123 9).

Professor Thomas Hockey is well known for his authoritative and well-written historical studies. One recalls, for instance, his excellent *Biographical Encyclopaedia of Astronomers* and his *Jupiter before Voyager*. The present book looks back at the total solar eclipse of 1869, with the imminent prospect of yet another such event being visible from America in 2024.

In 1869, it had been four years since the Civil War of 1861–65, an apocalyptic national event. In those times, as the country was returning to normality, the recent growth of the railroad, racing ever westward to link the east and west coasts of America, was to play a key role in the eclipse expeditions of 1869 and later. It was now possible for astronomers and their bulky luggage to travel *en masse* to witness a total solar eclipse upon American soil.

Observations of total solar eclipses don't always go smoothly. When choosing a spot from which to watch one from India in 1995 I was threatened by an armed guard when innocently straying onto the pitch claimed by another group. Here, as Hockey follows the many and varied groups that travelled to position themselves beneath the long track of the Moon's shadow in 1869, the battle for legroom was hardly an issue: it was more a question of what facilities an isolated frontier town could offer to a scientific party. It is likely that Simon Newcomb carried a pistol in his luggage when he travelled to Des Moines, Iowa. Although there aren't any Tombstone-style shootouts in this book, some expeditions literally shot themselves in the foot through basic error and incompetence, while others succeeded admirably.

There is the story of the retired Naval Commander who bumped into his telescope, shaking his precious long-exposure photographs; how E. C. Pickering avoided the crowds and stayed safely in his hotel room to observe, simply propping up his telescope and spectroscope on a chair in an amateurish manner; and so on and so forth. Others were still wasting their time to look for the non-existent planet Vulcan. It is interesting that Asaph Hall, the leader of one party, once had to host President Lincoln when he had called unexpectedly one evening at the US Naval Observatory to do some practical observing, while Edward Curtis, who carried out spectroscopic work with Professor Harkness (also part of the USNO expedition), was a former pathologist turned photographer, and one who had performed the autopsy upon the assassinated Lincoln. The 1869 spectroscopic work was perhaps the most interesting from a