

ings, to visit old friends whose names are now famous in the astronomical world, or to conduct optical follow-up observations of sources detected at Parkes. I found some of these accounts particularly appealing and informative. Also well worth reading was the discussion on whether or not Bolton should have been a co-recipient of the Nobel Prize awarded for the discovery of quasars.

These comments aside, *Radio Astronomer* ... is not just about scientific research and its just rewards—like John Bolton's long-awaited election as a Fellow of the Royal Society, his involvement at a very senior level in the IAU, his role in the development of the 3.9-m (150-in) Anglo-Australian Telescope; and his television appearances. We also learn about the problems created by the popularity of the Parkes Dish as a tourist destination and how the (eventual) construction of a visitor centre effectively solved this; and about the Dish's involvement in the American Space Program, including the first manned landing on the Moon.

Nor is this book solely about radio astronomy, notwithstanding the title, for Peter Robertson also traces John Bolton's short sojourn in RP's cloud physics and rain-making group prior to his move to Caltech.

In 1992 Peter Robertson produced what for more than two decades has remained the standard reference on the Parkes Radio Telescope, and he has now written another well-researched and very readable tome about one of Australia's and the world's foremost radio astronomers. This very affordable work belongs on the bookshelves of all those with an interest in radio astronomy, and like its 1992 predecessor is bound to become a classic.

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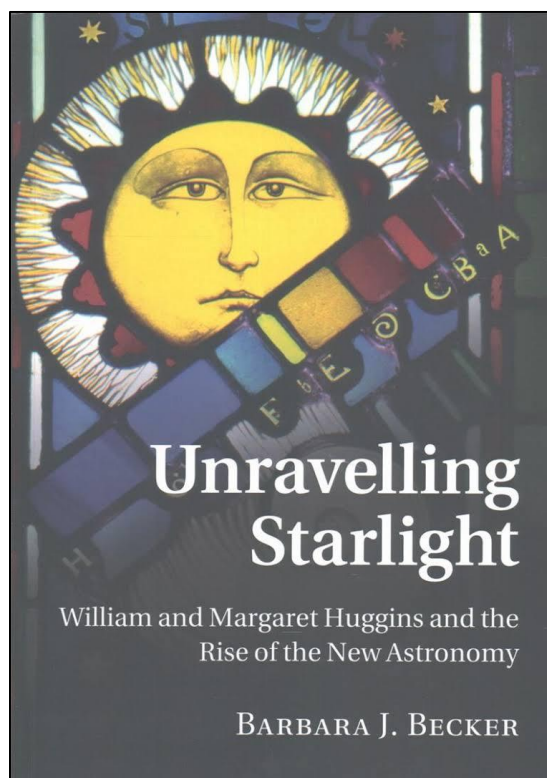
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***Unravelling Starlight: William and Margaret Huggins and the Rise of the New Astronomy*, by Barbara J. Becker. (Cambridge University Press, Cambridge, 2016). Pp. xx + 380. ISBN 978-1-316-64417-1 (paperback), 170 × 244 mm, £36.99.**

Six years after the publication of the original hard-copy version of *Unravelling Starlight* ... Cam-

bridge University Press has produced a paperback edition, thereby bringing this important volume within the price-range of all astronomers. And by “all astronomers” I include amateurs, for William Huggins was surely one of the world's foremost nineteenth century amateur astronomers.



William Huggins was—by his own admission—one of the ‘founding fathers’ of astrophysics, the ‘new astronomy’ of the nineteenth century. As Barbara Becker reminds us in *Unravelling Starlight*

....

Astrophysics is built on a range of questions and methods that were unimaginable to individuals in the first half of the nineteenth century [and in 1824, when Huggins was born]. At that time, positive knowledge of physical and chemical structure of celestial bodies was presumed to be unattainable by proper scientific methods, and hence relegated to the no-mans-land of mere speculation. (page 2).

William Huggins, with substantial help from his wife Margaret, was one scientist who completely changed this.

But as Barbara Becker recounts, Huggins came from a business background, and some of his pioneering research was opportunistic and aimed not only at progressing science but also increasing his own international standing as a scientist. Huggins was a master astronomical entrepreneur, something that is not apparent from reading earlier accounts of him written by others. As pointed out on page 156, after conducting

spectroscopic observations of prominences outside of an eclipse, Huggins

... became more aware of the need to establish and preserve his priority whenever he engaged in some research project he believed to be original.

One of the advantages Huggins had as an amateur astronomer was that he was not swayed by the dictates of observatory or university policy, and could follow his own interests and inclinations. Thus, he attacked a wide range of spectroscopic research programs, involving the Sun (sunspots, prominences, the corona, a total solar eclipse), stars (including variable stars, and a nova), nebulae and meteors. Arguably the most important of these related to unravelling the true nature of (gaseous) nebulae and revealing that by marrying the spectroscope and the Doppler effect astronomers could determine the line-of-sight motions of individual stars. Nor were all Huggins' observations spectroscopic, for he also carried out visual observations of the anomalous lunar crater Linné over a 6-yr interval.

One of the strengths of this book is the space assigned to Huggins' involvement in astropolitics (e.g. the Devonshire Commission and British Government funding of astronomy and observatories). Barbara Becker also skilfully presents the deteriorating relationships between Huggins and Norman Lockyer and Huggins and Dr Henry Draper, and the growing friendship between Huggins and George Ellery Hale. She also reveals the critical part played by Margaret Huggins (née Murray) in her husband's research, and in continuing to actively promote his public persona after his death in 1910 (see Chapters 10, 12 and 15). Margaret was 24 years younger than William Huggins, but in her "... he found both a lifelong and devoted companion as well as an interested and capable collaborator." (page 170). Largely through Margaret, astronomical photography became an important part of the research strategy at Huggins' Tulse Hill Observatory.

It was only when he was in his 70s that Huggins

... began reaping the recognition of colleagues and the nation for the fruits of his life's work. Knighthood [in 1897] and other honours were capped by election as President of the Royal Society. Although he had no interest in retiring yet as an active investigator, he nevertheless became increasingly nostalgic and wary of encroachment upon his past accomplishments. In this important phase of his career, he – with the invaluable assistance of his wife Margaret – began the challenging task of carefully laying out the groundwork for what would become the foundations of his historical image. (page 267).

That "historical image" appeared in a 23-page paper by William Huggins titled "The new astronomy: a personal retrospect", which was published in 1897 in *Nineteenth Century: A Monthly Review*. It is this 'sanitised' autobiography that later scholars used to recount Huggins' life, but through access to original letters, observational notebooks and other archival sources, Barbara Becker has been able to create a more realistic account of the life of Sir William and Lady Huggins.

Barbara has an appealing style of writing, and consequently *Unravelling Starlight* ... is an entertaining and easy read. For those wishing to go further, most chapters are accompanied by numerous endnotes, and a 28-page Bibliography (including a listing of all of the Huggins' published papers) and a 6-page Index round out this fascinating book. My only regret is that the paperback review copy I received was very poorly bound, so that the book literally fell apart as soon as I opened it.

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***Charles Olivier and the Rise of Meteor Science*, by Richard Taibi. (Springer International Publishers, 2017). Pp. xxxii + 497. ISBN 978-3-319-44518-2 (hardback), 165 x 240 mm, €99.99.**

When I began visual meteor observing in 1960 I wrote to Professor Charles P. Olivier from the American Meteor Society seeking advice on observing programs and techniques. He was quick to reply with encouragement that led eventually to the publication of my first two, albeit very short, research papers (Orchiston, 1963, 1964). Although I was a rank unknown from the Antipodes, even as a busy academic Professor Olivier found time to assist me, and I was suitably impressed. Now, upon reading Richard Taibi's book I realise that I was not alone: over the decades Professor Olivier helped wean thousands of amateur astronomers—many, like me, still in their teens—into meteor astronomy.

So who is this remarkable man? Charles Pollard Olivier was born in Charlottesville, Virginia, in 1884. The family lived quite close to the University of Virginia's Leander McCormick Observatory and from an early age Charles Olivier showed an interest in astronomy, which was encouraged by Professor Ormond Stone. In 1898 14-yr old Olivier observed the Leonid meteor shower, which launched what would become a lifelong commitment to meteor research. After graduating with B.A. and M.A. degrees in Astronomy from the University of Virginia Olivier went to Lick Observatory, where he completed a