

## BOOK REVIEWS

**Die Geschichte der Universitätssternwarte Wien. Dargestellt anhand ihrer historischen Instrumente und eines Typoskripts von Johann Steinmayr, herausgegeben von Jürgen Hamel, Isolde Müller und Thomas Posch. Acta Historica Astronomiae 38. (Frankfurt am Main, Verlag Harri Deutsch Gmb, 2010), pp. 324, appendices, index, ca. 150 illustrations, ISBN 978-3-9171-1865-6 (softcover), €29.80, 210 x 150 mm.**

For someone looking for the definitive history of Vienna University Observatory, this book will be a disappointment. For others, looking for building blocks for such a history, the book is a treasure chest.

Essentially, this book consists of two parts. The first one is an inventory of historical instruments, kept almost exclusively at the museum of Vienna Observatory. Telescopes of the last four centuries, meridian circles, theodolites, photometers, spectrometers, measuring engines, clocks etc. are shown in black and white photographs, and their manufacturers and provenance are described—150 items in total. A short list of modern instruments, as well as an index of manufacturers, completes this section. An online inventory (with colour photos) is in preparation.

The second part is the edited version of a set of manuscripts used for lectures by the Jesuit, Johann Steinmayr (1890–1944), in the 1930s. No astronomer by profession, he was a clockmaker by training, and had not only studied philosophy and theology but had also taken courses in the natural sciences. He became a priest in Vienna in that part of the city near the Observatory; later he worked in Linz and Innsbruck, where he was a member of scientific circles. After Austria was annexed to Nazi Germany in 1937, he became a member of a resistance group. Arrested in 1943, he was sentenced by the ‘People’s law court’ in Berlin and was executed shortly afterwards.

After a biographical sketch of Father Steinmayr by Nora Pär, the book contains seven carefully-edited lectures by Steinmayr. They deal with the first Jesuit Observatory, the old Vienna University Observatory, the Vienna University Observatory in the nineteenth century (in two parts), the meteorological research of the eighteenth century astronomer Anton Pilgram, a collection of anecdotes, and finally, a lecture on instruments, measurements and finances of the old Vienna Observatory.

The authors—astronomy historian Jürgen Hamel (Berlin) and the Vienna astronomers, Isolde Müller and Thomas Posch—have produced a very informative source book on astronomical history and heritage.

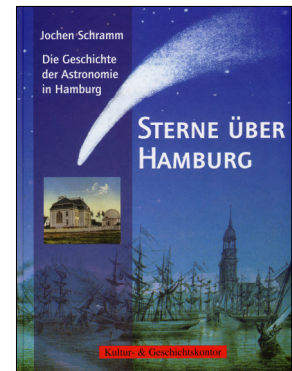
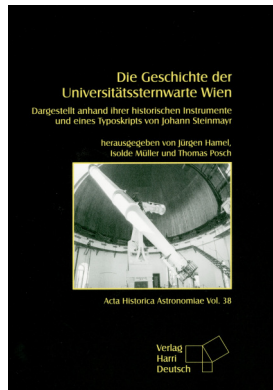
**Professor Hilmar W. Duerbeck**  
Centre for Astronomy, James Cook University

**Sterne über Hamburg - Die Geschichte der Astronomie in Hamburg, by Jochen Schramm, with contributions by Gudrun Wolfschmidt, Dieter Engels and Matthias Hünsch. (Kultur- und Geschichtskontor, Hamburg 2010), pp. 333, ca. 334 illustrations, ISBN 978-3-9811271-8-8 (hardcover), €24.80, 270 x 205 mm.**

The first edition of Jochen Schramm’s book, *Stars over Hamburg*, appeared in 1996, and since then the author has put large sections of it on the Internet. During my historical research, I was surprised how often I was led to these web pages in order to find some useful information that I had been looking for. Now the author has prepared a second revised edition, which updates the history from 1968 to about 1990 and contains additions on many earlier aspects. For example, a new access to the Zeiss Jena company archives permitted the author to include more technical facts and photographic documents of the Hamburg Observatory instrumentation.

The format has also been improved: it is now an attractive hardcover volume (see the above photograph), with some pages in colour, and prefaces by Hamburg’s Senator of Culture and the President of the German Foundation of Monument Protection. There is also a plea by Professor Gudrun Wolfschmidt from the Institute for History of Science, Mathematics and Technology at the Hamburg University to include the Observatory as a UNESCO world heritage monument.

The book starts with astronomical and related events observed in Hamburg since the fifteenth century, with calendar-makers and globe-manufacturers, and continues with the astronomers of the eighteenth and nineteenth centuries, like Johann Elert Bode and Franz Encke. The activities of the instrument-maker and astronomer Johann Georg Repsold led to the founding of the first state observatory at the Millerntor (1825/1831). Parallel to these activities, the nearby Altona Observatory was run by Heinrich Christian Schumacher, the founder of the journal *Astronomische Nachrichten*. Christian Karl Ludwig Rümker, his son George Rümker, and later Richard Schorr, all became Directors of the Hamburg Observatory. While the small Altona Observatory closed in 1872 and was transferred to Kiel University, Hamburg Observatory was moved to the suburb of Bergedorf, on the outskirts of Hamburg, in 1912. With modern and large instruments, the Observatory then reached its prime, with Walter Baade as one of the observers, and Bernhard Schmidt as the optician. Very informative chapters follow on the Nazi times and the new start after the war, when Otto Heckmann was its Director (before he became the first Director General of ESO). A concluding chapter on present-day activities was contributed by Dieter Engels.



In addition to the purely astronomical activities, Schramm has also collected information on the history of the Seewarte (Naval Observatory), the Hamburg Planetarium, amateur activities (by Matthias Hünsch), and numerous instrument and clock makers. Also, a detailed chapter on the observatory's solar expeditions is included.

Written both for the interested layman and the historian of astronomy, Schramm's book can be wholeheartedly recommended as the definitive history of an important observatory

**Professor Hilmar W. Duerbeck**  
Centre for Astronomy, James Cook University

**Cultural Heritage of Astronomical Observatories. From Classical Astronomy to Modern Astrophysics**, edited by Gudrun Wolfschmidt (Berlin, Hendrik Bäßler Verlag, 2009), pp. 280, ISBN 978-3-930388-53-0 (softcover), €19.80.

*Cultural Heritage of Astronomical Observatories*, from classical astronomy to modern astrophysics, contains the proceedings of the International Council on Monuments and Sites (ICOMOS) Symposium, held on 14-17 October 2008 in Hamburg. After various introductory speeches, the book includes papers on the UNESCO initiative "Astronomy and World Heritage" by A. Sidorenko-Dulom (UNESCO, Paris), "Astronomical Heritage—World Perspective and Action" (R. Kochhar, IAU) and "Cultural Heritage of Observatories and Instruments" by the organizer, G. Wolfschmidt (Hamburg University).

Dedicated, often well-illustrated presentations of many observatories follow: Pulkovo (V. Abalakin), Paris (S. Débarbat), Hamburg (P. Müller), Lisbon (P. Raposo), Istanbul (C. Benoist, G. Danisan and F. Limboz), Brazil (M. Granato), Marseille (J. Caplan), Vienna (A. Schnell), Budapest (L. Balazs et al.), Bucharest (M. Stavinschi and C. Mosoia), Greenwich (C. Grifton), Tartu (R. Mägi), La Plate (J.C. Forte and S.A. Cora), Cape of Good Hope (I.S. Glass), USNO Washington (B. Mason), Strasbourg (J. Davoigneau), Prague and Ondrejov (M. Šolz), Stockholm (I.E. Söderlund), Kodaikanal (R. Kochhar) and Christiania (V. Enebakk and B.R. Pettersen). I. Chinnici gave a talk on Italian observatories, B.S. Shylaya on Indian ones, and F. Le Guet Tully and H. Sadsaout on Mountain Observatories on the Mediterranean Coast. After these 25 contributions dealing with various sites and institutions, special talks focus on the Hamburg telescopes and buildings and the preservation of devices of industrial culture in general, as well as on historical astronomical plate archives.

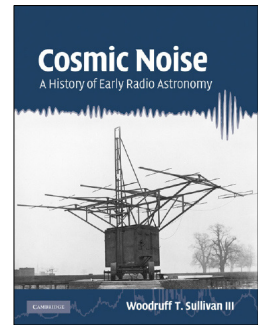
This is a very well prepared conference proceedings volume (although some of the illustrations would have benefitted from higher resolution originals), and it can be recommended to anyone interested in the history and preservation of astronomical observatories. However, due to the attractive price, in combination with an obviously small printing run, the book is already

out of print. Try to find it in a library, or hope that there will be an online edition in the near future.

**Professor Hilmar W. Duerbeck**  
Centre for Astronomy, James Cook University

**Cosmic Noise. A History of Early Radio Astronomy**, by Woodruff T. Sullivan III (Cambridge, Cambridge University Press, 2009), pp. xxxii+542, ISBN 978-0-521-76524-4 (hardcover), €85.00 and US\$140.00, 251 x 194

It is a great pleasure to review this long-awaited book. Woodruff T. Sullivan III—or 'Woody Sullivan' as he is affectionately known to his friends—is without doubt the world's foremost historian of radio astronomy, and over the past three decades has entertained us with two different books (in 1982 and 1984) and a succession of research papers, but all along 'the book' was hovering mysteriously in the background, never quite ready to make its grand entrance. Woody wrote most of it between 1984 and 1989, but then he was diverted by new subjects to teach—such as astrobiology—at the University of Washington and new books to write, and it was only in 2006 that he was able to take up the challenge and finish his history of world radio astronomy. Now it is out ... and the wait has been really worthwhile.



In more than 500 pages, *Cosmic Noise* relates the history of radio astronomy, from late nineteenth century abortive attempts to detect solar radio emission through to 1953. As Sir Francis Graham Smith explains in his Foreword,

This is perhaps the latest date for which a comprehensive history can be contained in a single volume, but it is a good date to mark the emergence of radio astronomy as an integral part of modern astronomy. There was by this time a basic understanding of the origin of cosmic radio waves, and the techniques of radio telescopes, spectrometers, and interferometers. Funding for large projects was becoming available, and research groups were consolidating. (page xxvii).

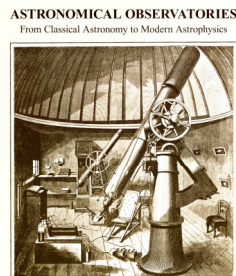
Basically we can identify a number of discrete sections within the book. The first 28 pages provide introductory material and outline the unsuccessful endeavours in England, Germany and France to record solar emission during the 1890s and the first decade of the twentieth century.

Then come two chapters about the 'founding fathers' of radio astronomy, Karl Jansky and Grote Reber, which between them span 50 pages.

The next section deals with the various independent discoveries of solar radio emission during WWII, and pre-war reports during the previous solar maximum

... when we can recognize in retrospect that radio amateurs and professionals around the world were frequently encountering solar noise. No one convincingly interpreted this noise as direct solar radio waves, but at least one case came within a hairbreadth. (pages 85-86).

Then follow individual chapters on the leading pio-



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neering teams of the immediate post-War era: Stanley Hey's Army group in England; Joe Pawsey's Division of Radiophysics team in Sydney, Australia; Martin Ryle's Cambridge group; and Bernard Lovell's Jodrell Bank group from the University of Manchester. Complementing these chapters is one that examines other less prominent pre-1952 radio astronomy groups in Canada, France, Germany, Japan, Norway, Sweden, the Soviet Union and the USA.

The orientation of the book now shifts from national overviews to astronomical subjects and methodology, with two successive chapters (collectively spanning more than 50 pages) that deal with radar observations of meteors and the Moon. Woody Sullivan has to remind us that during this early period these radar investigations were deemed an integral part of the overall portfolio of radio astronomy.

Continuing the thematic focus, the next four lengthy chapters discuss solar radio emission, 'radio stars' and the nature of discrete sources, 'Galactic noise', and investigation of the hydrogen line. These four chapters run from page 284 to page 417, and as in other areas of the book the text is well supported by direct quotes from archival records and oral history interviews, historical photographs and line drawings.

The penultimate chapter takes us in yet another direction as Woody Sullivan places early radio astronomy within a history and philosophy of science framework. Among other topics, the chapter titled "New Astronomers" (pp. 418-456) discusses "... the role of WWII in kickstarting radio astronomy ..."; introduction of the terms 'radio astronomy', 'radio astronomer' and 'radio telescope'; and the emergence of radio astronomy as a specialist area of astronomy.

Finally, "A New Astronomy" (pp. 457-471) focuses on intellectual issues. While astronomy *per se* made great strides through the emergence of radio astronomy, Sullivan merely views this as part of a wider *gestalt* involving X-ray, infrared, ultraviolet and gamma-ray astronomy. Thus, instead of seeing radio astronomy as a scientific revolution,

... I argue that radio astronomy (or more generally, the opening of the entire electromagnetic spectrum) was the mid-twentieth century's *New Astronomy*, with an impact every bit as important as New Astronomies of previous centuries such as those of Galileo or William Herschel or the first nineteenth century astrophysicists. Each of these New Astronomies was caused by researchers applying new technology to observing the sky, and each in its time profoundly transformed the perceived Cosmos. (Page 457).

Closing out this fascinating book are three appen-

dices, a 21-page list of references and an Index.

*Cosmic Noise* is a *tour de force*, and provides an excellent overview of the key developments in radio astronomy up to 1953. Many areas of the book appealed to me, and although I only began my own involvement in Australian radio astronomy in 1961 when I joined the Division of Radiophysics in Sydney—long after the book's cut-off date—I personally knew most of the Australian 'players' and worked with many of them. I particularly found the use of oral history interviews and extensive use of archival records rewarding, while the 15-page annotated table of contents near the start of the book was an invaluable aid in searching out areas of special interest. With most books or papers that I read I find footnotes a distraction and tend to gloss over them, but for the most part I found those that Woody supplied to be both interesting and informative, and I religiously read them. I also enjoyed some of the 'Tangents' at the ends of chapters, designed to introduce definitions, basic concepts or expand on material in the body of the chapter. Something else I enjoyed reading about (and have written about myself) is what I like to call 'Appleton's obsession': his need to claim priority for important discoveries in which he played no part (despite his publications sometimes suggesting, or even stating, otherwise).

Finally, despite the lengthy treatment of the subject it is fortunate that *Cosmic Noise* is not *the* final word and that there is still room for further detailed research that can only serve to flesh out the excellent framework that Woody Sullivan has supplied. Thus, those in the IAU Working Group on Historic Radio Astronomy are free to investigate early developments in Canadian and Japanese radio astronomy for instance, along the lines of the Early French Radio Astronomy Project which is now nearing completion. And despite Woody Sullivan's scholarly and lengthy treatment of the subject, it is heartening to know that there are still viable Ph.D. projects for students who wish to research aspects of early radio astronomical history, but of course the post-1953 era is even more appealing, and is less charted territory.

*Cosmic Noise* is a thoroughly researched, well written and beautifully illustrated volume that will remain the standard work on this topic for years to come. Given its length and the scholarship involved, it is excellent value at €85.00 or US\$140.00, and is a 'must' for the bookshelves of all those with a passion for radio astronomical history.

**Associate Professor Wayne Orchiston**  
Centre for Astronomy, James Cook University