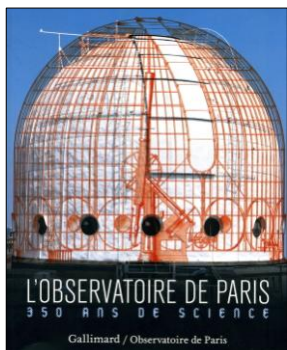


BOOK REVIEWS

***L'Observatoire de Paris: 350 Ans de Science*, edited by Laurence Bobis and James Lequeux; contributors: M. Combes, S. Débarbat, D. Egret, F. Launay and A. Saint-Martin (Paris, Gallimard/Observatoire de Paris, 2012). Pp. 176. ISBN 978-2-07-013806-7 (softbound), 188 × 230 mm, €26.**

The Paris Observatory holds the accolade of being the astronomical observatory that has been in the longest uninterrupted operation on its original site. Since its foundation in 1667 and completion of architect Perrault's grand but impractical building five years later, the Observatory has been a principal actor in French astronomy; and with a permanent staff today of some 650, accounts for almost a third of the country's professional astronomy. Furthermore, many astronomers working elsewhere in France have passed through the Paris Observatory, which has also built equipment for other observatories at home and abroad.



Anyone investigating astronomical history or heritage in France is thus likely to find that the Paris Observatory crops up somewhere in the tale, but a problem has been the relative inaccessibility of works over-viewing the history of the Observatory. A history of the institution's 'equipment and personnel' (but not its science) up to the French revolution and the consequent end of the Cassini dynasty was published a century ago by Charles Wolf (1902), and is now available from more than one source on the internet. More recently, a series of four very useful articles variously authored by Débarbat, Grillot, Lévy and Morando (1980-1983) reviewed buildings, people *and* science up to 1963, but this work was published in a difficult-to-access local-history journal. At the same time, the first three of these authors published a summary history (1984). This 70-page booklet was a successor to earlier ones of broadly similar length and detail, and predecessor to later revisions, but they were all only available through the Observatory and difficult to acquire outside Paris.

All this has changed with publication of *L'Observatoire de Paris: 350 Ans de Science*. It has many praiseworthy qualities. Firstly, being co-published with Gallimard, it is easily available through on-line and other booksellers. Secondly, it reviews both institutional and scientific history from foundation to the present. We learn that the Observatory was initially under the control of the newly-established Academy of Sciences. In 1785

this link was lost, and the fourth Cassini became Director and was able to control research and train apprentice astronomers. But it did not last. The French Revolution broke out, the apprentice astronomers rebelled, and Cassini was squeezed out. Then in 1795 supervision of the Observatory passed to a newly-created organisation, the Bureau des Longitudes. (It is these periods of external control that explain why key Observatory figures—I'm thinking of the first Cassini in the 17th century, or François Arago in the 19th—were never 'Director'.) Authority stayed with the Bureau des Longitudes until 1854, when Urbain Le Verrier of Neptune-discovery fame was appointed Director by Napoleon III. The Observatory then began to expand beyond its Parisian home. The pre-existing Marseilles Observatory became a 'branch' at a new site in 1862. The astrophysical observatory at Meudon, created in 1875, became administratively part of the Paris institution in 1926. Expansion continued after WWII under the energetic leadership of André Danjon. In 1953, the Observatory co-created the Nançay radioastronomy station in eastern France, while in the 1960s it began to build instruments for space astronomy, and from 1972 to 1989 it ran the Centre d'Études et de Recherches en Géodynamique et Astronomie (CERGA) in the foothills of the French Alps. There have also been offshoots such as the Bureau International de l'Heure, now replaced by the International Earth Rotation Service. Scientifically, the Observatory's activity has included geodesy, discovering the finite speed of light (and two centuries later measuring it), mapping France, setting up the metric system, fundamental astronomy and celestial mechanics, issuing meteorological bulletins, guiding the *Carte du Ciel* project, disseminating time by radio and via the world's first talking clock, developing electronic cameras, laboratory astrophysics and of course modern astronomy across all wavelengths. Further, the Observatory has become involved in outreach, and the education of doctoral students.

A third praiseworthy quality of this book is that it is attractively laid out and beautifully and copiously illustrated, mainly in colour. Among the many illustrations that caught my eye are an oil painting from Versailles in which academicians and the Observatory are presented to Louis XIV, photographs of the complex stereotomy of parts of Perrault's building, a photograph of Janssen's 'photographic revolver' for observations of the 1874 transit of Venus, a dinner menu from the Congrès Astrophotographique in 1887 (the feast included tortoise and peacock), the *Carte du Ciel* plate-measuring ladies, a Lœwy and Puiseux photograph of the Moon, a cluster of balloons used by Dollfus to obtain solar photographs from 6000 metres altitude, iced-up antennas at Nançay,

and old and modern timekeepers in the catacombs beneath the Observatory. Plans and an aerial photograph aid in understanding the layout of the Observatory site.

The fourth noteworthy quality of this book is that the text is very readable and does not shy away from delicate issues, such as the plunder of the library by the infamous 19th-century book-thief Guglielmo Libri; the long strike following the events of May 1968; the crisis of stagnating funding in the 1970s; and the 'stormy discussions' prior to setting up IRAM, the Institut de Radioastronomie Millimétrique (cf. Encrenaz et al., 2011). Explanation is available for those bewildered by French acronyms such as INAG, INSU, IMCCE, BIH or LPTF. A fifth praiseworthy feature of this book is that it is affordably priced.

L'Observatoire de Paris is aimed at the general reader, and visitors on the rare days when the Observatory is open to the public. By including the current and projected activity to the end of the decade, it lives up to its subtitle, *350 Years of Science*. For those interested in astronomical history and heritage it provides a splendid overview and a springboard from which to begin deeper studies. For these, let me mention (i) the six articles by Bigourdan (1928-1933) and thesis by Feurtet (2005) on the Bureau des Longitudes, which because of the interconnection of the two institutions contain much concerning the Paris Observatory; (ii) recent analyses such as those by Davis (1984) on the development of meteorological theory; by Chapin (1990) concerning the revolutionary period 1785-1795; by Canales (2001) discussing management styles and Wolf's *Histoire*; by Guinot (2000) on the Bureau International de l'Heure; by Aubin (2003) considering why the 19th-century Observatory did not move to a better observational site; and even my own work on the speed-of-light measurements (Tobin, 1993), and (iii) recent biographies of two key Paris Observatory scientists of the 19th-century, François Arago and Urbain Le Verrier (Lequeux 2008; 2009).

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