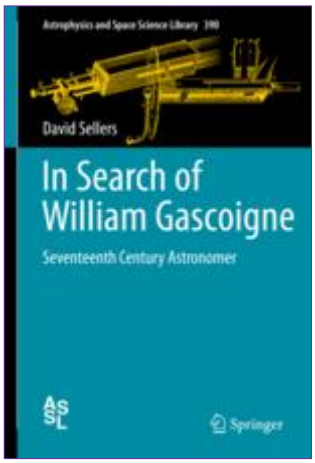
BOOK REVIEWS

In Search of William Gascoigne: Seventeenth Century Astronomer, by David Sellers (New York, Springer, 2012), ix + 222 pp., ISBN 978-1-4614-4096-3, ISBN 978-1-4614-4097-0 (ebook), 160 × 240 mm. US$129.



This book is well-titled: all I knew about William Gascoigne before I read it was that he lived in the seventeenth century and had something to do with the early development of the filar micrometer. Apparently I was not the only one whose knowledge was so limited, and David Sellers has indeed gone "… in search of William Gascoigne …" and has been to some extent frustrated by the fact that papers and correspondence known to have survived Gascoigne's death have since been lost. Perhaps those papers will one day be found in some dusty attic but, meanwhile, biographers must make do with the limited source material available. Considering the importance of the filar micrometer in positional astronomy and the study of visual double stars, Gascoigne certainly deserves a full-length biography.

Credit for the invention of the filar micrometer is often given to the French astronomer Adrien Auzout (a somewhat younger contemporary of Gascoigne but longer lived), and much of Sellers' account is given to establishing clearly Gascoigne's priority. Auzout himself, it seems, was perfectly willing to give Gascoigne the credit, but some of his compatriots were less generous—shades of the later conflict between the supporters of Adams and Le Verrier, although on that occasion the French had greater justification for their claims.

Also contemporary with Gascoigne were William Crabtree and Jeremiah Horrox (Sellers' preferred spelling), famed for being the first to observe a transit of Venus. All three lived in northern England and had short lives. Crabtree and Gascoigne met at least once and corresponded frequently. Unfortunately, Horrox died before Crabtree could arrange a meeting between the other two. One can only speculate what these three young men might have achieved had they been granted normal life spans. As it is, Flamsteed admired Gascoigne's work, and we owe a part of our knowledge of the latter to the former's efforts to preserve some of his writings.

Gascoigne's life and work were cut short by the civil wars of seventeenth-century England and Scotland. He joined the Royalist cause and probably was killed at the battle of Marston Moor in 1644, although even this is not certain. If he did die there, he would have been at most 33 years old. Horrox died even younger, three years earlier, and Crabtree died at the age of 34, in the same year as his friend Gascoigne.

Sellers' book gives a good account of what is known of Gascoigne's work, and also sets the man in his times. Some of this 'setting' occasionally may read like padding, but this can be forgiven in view of the paucity of information on which to base a full biography of Gascoigne. At times, a little more editing by the publisher would have been beneficial. For example, the "… bisection of the eccentricity …" is introduced on page 54 but not defined until page 93. I also found the lack of consistency in the capitalization of adjectives derived from proper names to be somewhat irritating: "Galilean" almost always gets upper-case, while "Keplerian" hardly ever does. On the other hand, an appendix of over 60 pages reprints much of Gascoigne's surviving correspondence (mainly with Crabtree). The general reader may skip this—I read it somewhat cursorily myself—but other historians of astronomy will find it extremely useful.

This book has clearly been a labour of love, and it fills an important gap in the history of English astronomy. Unless that hypothetical dusty attic does one day give up its secrets, Sellers has probably told us all that we can hope to learn about William Gascoigne. He does, however, leave us wondering how three young men, largely self-taught in astronomy, and remote from the centres of learning in the England of their time, came to achieve so much. Perhaps that will be the subject of another book.

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Nicolas-Louis de la Caille Astronomer and Geodesist, by I.S. Glass (Oxford, Oxford University Press, 2013), [vi] + 194 pp., ISBN 978-0-19-966840-3 (hardback), 160 × 240 mm. £35.

Nicolas-Louis de la Caille, also known as La Caille and Lacaille (his usual signature), is described by Ian Glass as "... one of the greatest astronomers of the eighteenth century …" (page 1), and in this book Glass sets out to explain why.

La Caille—as we shall call him—was born in a small town near the border of France and Belgium in 1713. After completing his schooling, he

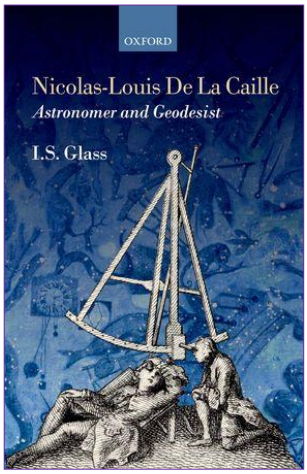
studied rhetoric, philosophy, theology, geometry and eventually astronomy at colleges that formed part of the University of Paris, and soon after graduating he found employment at Paris Observatory, where he impressed the Director, Jean-Dominique Cassini I. However, three and a half years later he moved to a Chair in Mathematics at the Collège Mazarin in Paris, and remained there for the rest of his working life. In 1742 and 1748 he arranged for two observatories to be erected on the spacious roof of the building, and with research at Paris Observatory in decline, the well-equipped Collège Mazarin Observatory soon became the most important observatory in all Paris.

Although he conducted research on the shape of the Earth and on the motions of the planets, La Caille is best remembered for his one and a half year visit to the Cape of Good Hope in 1751-1752, and this occupies Chapters 2-4 in Glass' book. After some introductory comments there is information about La Caille's observatory and instruments before Glass describes La Caille's pioneering survey of the southern sky which "… was the first really systematic one ever to have been made in either hemisphere. Every part of the sky south of the Tropic of Capricorn was examined …" (page 50). This survey started on 6 August 1751 and ended on 18 July 1752 and resulted in the charting of 9766 'stars' (actually some of the 'nebulous stars' would later turn out to be clusters or gaseous nebulae). La Caille also prepared a large (1.95-m diameter) planisphere; identified and defined fourteen new constellations; and either re-organized or completely abolished three constellations that previously had been established by other astronomers. But La Caille did more than this, for while at the Cape he observed the Moon, Venus, Mars, and Jovian satellite phenomena; determined the latitude and longitude of his observatory; and used triangulation to measure the height of nearby Table Mountain.

In Chapter 3 Glass has La Caille returning to the first major project he embarked on when he joined Paris Observatory: researching the shape of the Earth. Geodesy was then deemed a branch of astronomy, and with five months 'to kill' before he could return to Paris La Caille determined to measure an arc of the meridian while in South Africa. This involved an initial reconnaissance near Cape Town, followed by a more ambitious full-scale expedition, which showed that the Earth was an oblate spheroid but was more heavily flattened in the southern hemisphere than in the northern hemisphere.

While at the Cape and during his geodetic surveys La Caille kept a diary in which he recorded a wealth of non-astronomical local information. This fascinating document is reviewed by Glass in Chapter 4, and after the preceding scientific chapters is a welcome diversion that also reveals something of La Caille, the man.

After leaving Cape Town La Caille returned to Paris via Mauritius and Réunion Island, and then published his astronomical observations, other books on astronomical topics and a map of the Cape region. He also had teaching duties at the Collége, and among his students were some who would go on to achieve international reputations. Glass discusses these in Chapter 5 (titled "Later Years"), along with La Caille's on-going astronomical research programs and observations. His last astronomical observations were made on 28 February 1762 and he died three weeks later, on 21 March.



The final chapter ("Paradox Resolved") in this interesting book looks mainly at later scientists who critically investigated La Caille's geodetic conclusions. Some of them even tried to retrace La Caille's steps and identify his trig survey stations. Thomas Maclear, HM Astronomer at the Cape from 1833 to 1870, also managed to pin down the precise location of La Caille's observatory in Cape Town.

Rounding out this well-written, nicely-researched, copiously-illustrated and very modestly-priced book are six Appendices and an Index, but I was rather surprised to find Knobel's 1917 paper on Frederick de Houtman absent from Glass' 6-page Bibliography. To me, this was the one thing missing from the book: a brief discussion of Houtman and Keyser's earlier survey of the southern sky, published in 1603, and the extent to which La Caille's work built on this (which it certainly did).

But this is a minor quibble, as this is an excellent book that is well worth buying and reading.

References

Knobel, E.B., 1917. On Frederick de Houtman's catalogue of southern stars, and the origin of the southern constellations. *Monthly Notices of the Royal Astronomical Society*, 77, 414-432.

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