

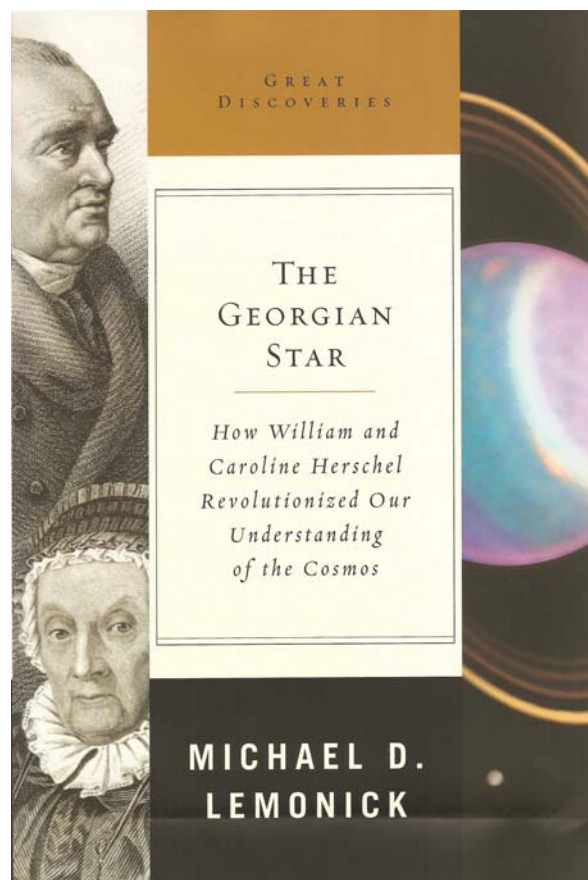
Book Review

The Georgian Star: How William and Caroline Herschel revolutionized our understanding of the cosmos, by Michael D. Lemonick. New York, NY: W. W. Norton & Company, 2009, 199 p., \$23.95 (ISBN 978-0-393-06574-9)

For many, including those within the planetary science community, William Herschel (1738–1822) is known for one principal reason: his 1781 discovery of the first planet beyond those known to the ancients. Now called Uranus, Herschel named it *Georgium Sidus*—The Georgian Star—after his patron, King George III. In this popular account of the personal and public lives of Herschel and his sister Caroline, science writer Michael Lemonick sets out to show that their contribution to astronomy was much more than this lone discovery. Perhaps surprisingly, in spite of the fame and honors which flowed from this discovery, Herschel privately viewed it as more of a minor achievement.

The book comprises eleven chapters and after placing the story in context, Lemonick introduces Herschel in the second chapter and quickly establishes beyond doubt that his subject is an extraordinary man of eclectic interests. Indeed, for much of the first half of his life, Herschel was not an astronomer but rather a highly regarded professional musician—composer, conductor, teacher, oboist, organist, and violinist. After introducing Herschel’s parents and siblings, including his sister Caroline, and discussing the children’s moves to England and their difficulties in getting established, the book takes up William’s growing fascination with mathematics and astronomy in the fifth chapter. The next two chapters cover his burgeoning astronomical career and professional relationships, the discovery of Uranus and his sponsorship by George III, his telescope making and the development of his scientific partnership with Caroline whom he had taken under his wing. The story continues with Herschel getting married and beginning to slow down, the construction of his famous 40 foot telescope, his speculations in fields such as solar astronomy and the birth and youth of his son John who went on to achieve great fame as an astronomer in his own right. The last two chapters of the book discuss William’s various trips to Europe, his death and Caroline’s final years.

The adjective extraordinary used above in reference to William is entirely apposite. Lemonick paints a picture of a man of tremendous energy, drive, focus, and stubbornness. In addition to the accomplishments already mentioned, numerous other discoveries for which he can be credited are mentioned or discussed (infrared radiation, hundreds of nebulae, satellites of Saturn and Uranus, the recession and



expansion of the Martian polar caps to name but a few). But beyond that, Herschel did not take up astronomy seriously until around age 35, and in spite of being self-taught, was able to become a renowned observational astronomer and theorist. Moreover, the telescopes which he designed and built far exceeded those produced anywhere else in the world at the time and were so good that other astronomers could not believe his claims concerning their magnifying power. The combination of passion and powerful instruments meant that he was able to undertake the great adventure of his life: an attempt to systematically observe and catalog the entire observable universe and understand its structure. In short, Herschel was a cosmologist at heart. Yet for all his abilities and insights, Lemonick makes it clear that he was by no means perfect: ideas such as extraterrestrials existing on the Sun were but one example of speculations completely in error.

The picture painted of Caroline is a mixed one. Certainly

she was indispensable to William as an assistant in recording and cataloging observations. She was likewise an astronomer in her own right having discovered eight comets, as well as having overseen the construction of the mammoth forty foot telescope. Fortunately, she received her share of prestigious honors toward the end of her life, such as the Astronomical Society of London's Gold Medal. That said, the disfigurement due to childhood smallpox, the attitudes of her parents towards her and her prospects, the attitudes of society towards women in the sciences, the fact that she was always playing second banana to William in spite of her own great intelligence together with other facts indicated by Lemonick suggest that hers was, at the core, a sad life.

One attractive feature of the book for the non-scientist is the use of occasional digressions to explain concepts such as parallax, the electromagnetic spectrum, and the advantages of reflectors over refractors. There were times, however, when I dearly wished for a footnote of explanation or reference, such as on p. 57 for the claim that some scholars assert Kepler may

have had a hand in the death of Tycho Brahe. Another example is the claim on p. 62 that Reverend John Mitchell "became the first to predict the existence of black holes."

As a whole, the story is well narrated and chockablock with interesting anecdotes which help flesh out the lives of William and Caroline. While I did not find any major new discoveries about the two of them and would have preferred to see chapter headings and the occasional footnote, the book is, in fairness, meant as more general reading than an academic treatise. It does come with an annotated bibliography and index.

In short, the book is an entertaining, informative biography of the Herschels and is recommended to those seeking an introduction to the lives and accomplishments of these landmark figures of 18th century astronomy.

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