

This is a review submitted to Mathematical Reviews/MathSciNet.

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Author: Wardhaugh, Benjamin

Title: Gunpowder & geometry.

MR Number: MR3887661

Primary classification: 01A70

Secondary classification(s): 01A50

Review text:

"Charles Hutton's was a long journey, in more ways than one, and he had known triumph and despair in more than common measure". These words summarize with accuracy the content of Wardhaugh's book. Through the pages we become acquainted with the life and work of this worth-knowing and worth-studying 18th century mathematician. The book is composed of twelve chapters and an epilogue, and although the whole is well constructed I find them unequal in interest. Until chapter eight, one can feel as if reading a mathematical novel, more or less in the style of Dava Sobel's *Longitude* or Daniel Kehlmann's *Measuring the world*. It is thrilling to read how the smart boy under difficult life conditions comes out of the pit and becomes established as one of the most renowned British mathematicians of his time. Hutton is a self-made man; he is presented as an excellent teacher -one we all would have liked to have-, caring for his students and then a fine professor at Woolwich military institution for a large part of his life. As author, he had changing styles, although there is a constant: he is a very prolific one. I cannot count the number of books, papers, reviews and re-editions of his books described in the book. I said he had changing styles because, according to Wardhaugh, he seems to have been very thorough and careful in his first works, particularly in *The School-Master's Guide*, but less in the last ones, as is the case in the ambitious *Mathematical Philosophical Dictionary*, with very unequal quality in the entries, in spite of which most of his works were reasonably well received. However, from chapter nine on, the book loses a bit the novelistic style to become more academic, with

more exhaustive data on the mathematical works developed by Hutton, his interest in developing a legacy, the discussion of the selling of his personal library, or other family details. This makes the book a bit longer than expected, but the particulars give proof of the very well documented work Wardhaugh has made. One of the most interesting parts of the book is the polemic with the famous Joseph Banks which brought as a consequence the impossibility of Hutton to become secretary of the Royal Society and many more unfortunate events for our hero. This story is told in a very interesting, fair and detailed fashion. It also provides us with an idea of how this important society functioned during the second half of 18th century. Similarly, the relation and the work carried together with Maskelyne and the experiment on the gravitational attraction before Cavendish's is worth reading. The book has also the added value of providing the chance to get familiar with the content of the British mathematical curriculum of the 18th century in a very comprehensive way: the role of pure and applied maths, the relevance of arithmetic for fortification, of geometry for different kinds of measures, calculation for gunnery and mechanics, etc. Also noticeable is the description of the use of instruments: pendulums terrestrial and celestial globes, etc. As well as other aspects of 18th century mathematics: manual calculation for the publication of Almanacs (Nautical Almanacs) and the elaboration of mathematical tables, the growing significance of journals -not only the very famous Philosophical Transactions but also The Ladies' Diary, The Mathematical Repository, The Monthly Review, and so on. There are also nice illustrations that help to make an idea of some of the characters. The only drawback I found is that I cannot understand the system used for the notes. There are no numbers that direct to the notes, and at the end of the book one finds around 50 pages full of notes and references that you have not read because there is no reference that guided you there. All in all it is an enjoyable and valuable book and a nice reading that highlights the relevance of mathematical culture.

Comments to the MR Editors (not part of the Review Text):

The following are book or journal titles and should be written in italics: Longitude Measuring the world School-Masters Guide Mathematical Philosophical Dictionary Nautical Almanacs Philosophical Transactions The Ladies Diary The Mathematical Repository The Monthly Review