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(b. Newcastle-upon-Tyne, England, 14 August 1737; d. London, England, 27 January 1823)

*mathematics.*

Hutton was the son of a colliery worker. Largely self-educated, he rapidly acquired enough knowledge of mathematics to establish himself as a schoolmaster in Newcastle. His pupils, drawn from the families of local landowners and leading citizens, included John Scott (earl of Eldon) and Hutton's future wife, Elizabeth Surtees. Hutton carried out a local land survey (1770) and wrote a tract on the equilibrium of bridges (1772), an elementary textbook on arithmetic (1764), and a more elaborate treatise on mensuration that was illustrated by [Thomas Bewick](#) (1767).

In 1773 Hutton was appointed professor of mathematics at the Royal Military Academy at Woolwich, where he remained for thirty-four years. He was elected to the [Royal Society](#) in 1774 and served as foreign secretary from 1779 to 1783. Hutton's resignation from office, requested by [Sir Joseph Banks](#) (then president of the Society) on the grounds that he failed to carry out his duties efficiently, led to a major attack by Horsley, F. Masères, Maskelyne, P. H. Maty, and others on Banks's management of the affairs of the Society.

Hutton wrote many papers and received the Copley Medal of the [Royal Society](#) for "The Force of Fired Gunpowder and the Velocities of Cannon Balls," published in 1778. That year he also presented a report to the Society on the mean density of the earth, deduced from Maskelyne's observations at Mount Schiehallion in Perthshire. With George Shaw and Richard Pearson he edited an abridgment of the *Philosophical Transactions* for the years 1665 to 1680.

Hutton was an indefatigable worker and his mathematical contributions, if unoriginal, were useful and practical. Throughout his life, he contributed assiduously to scientific periodicals through notes, problems, criticism, and commentary. He wrote textbooks for his pupils in Newcastle and the cadets at Woolwich; edited a great many almanacs, including the *Ladies' Diary* (1773–1818); and compiled several volumes of mathematical tables, one of which contained a comprehensive historical introduction (1785). In addition he translated from the French Montucla's four-volume edition (1778) of Ozanam's 1694 work *Recreations in Mathematics and Natural Philosophy* (London, 1803).

The *Mathematical and Philosophical Dictionary* (1795) is probably the best known of Hutton's works. Although it was criticized as unbalanced in content, unduly cautious in tone, and sometimes lacking judgment, the dictionary has served as a valuable source for historians of mathematics.

## BIBLIOGRAPHY

I. Original Works. Many of Hutton's contributions to the *Ladies' Diary* are included in the *Diarian Miscellany* (London, 1775). His land survey, *Plan of Newcastle and Gateshead* (1770), is now in the City Library, Newcastle-upon-Tyne. of his scientific papers the most important are "A New and General Method of Finding Simple and Quickly Converging Series," in *Philosophical Transactions of the Royal Society of London*, **66** (1776), 476-492; "The Force of Fired Gunpowder and the Velocities of Cannon Balls," *ibid.*, **68** (1778), 50-85; "An Account of the Calculations Made From the Survey and Measures Taken at Mount Schiehallion, in Perthshire, in Order to Ascertain the Mean Density of the Earth," *ibid.*, 689-778; "Calculations to Determine at What Point in the Side of a Hill Its Attraction Will be the Greatest," *ibid.*, **70** (1780), 1-14; "On Cubic Equations, and Infinite Series," *ibid.*, 387-450; and "Project for a New Division of the Quadrant," *ibid.*, **74** (1784), 21-34.

These works and other papers, including the tract *The Principles of Bridges* (Newcastle, 1772), are brought together in *Tracts, Mathematical and Philosophical* (London, 1786) and *Tracts on Mathematical and Philosophical Subjects*, 3 vols. (London, 1812). His textbooks include *The Schoolmaster's Guide* (Newcastle, 1764); *A Treatise on Mensuration* (Newcastle, 1767-1770); *The Compendious Measurer* (London, 1784); *The Elements of Conic Sections* (London, 1787); and *A Course of Mathematics for the Cadets of the Royal Military Academy* (London, 1798-1801). See also *Mathematical and Philosophical Dictionary*, 2 vols. (London, 1795); *The Philosophical Transactions to 1800 Abridged With Notes* 18 vols. (London, 1809); and the historical introduction to *Mathematical Tables* (London, 1785).

II. Secondary Literature. An adequate account of Hutton's life and work is that of R. E. Anderson in *Dictionary of National Biography*, XXVIII, 351-353. Background information is in J. Bruce, *A Memoir of Charles Hutton* (Newcastle, 1823). A

lengthy and eulogistic account is Olinthus Gregory, "Brief Memoir of Charles Hutton, L.L.D., F. R. S.," in *Imperial Magazine*, **5** (1823), 202-227. The local history collection in the City Library, Newcastle-upon-Tyne, contains many portraits of Hutton. A bust, executed before his death, stands in the Literary and Philosophical Society of Newcastle.

Many pamphlets (mostly anonymous) relate to the Royal Society controversy in 1784; see A. Kippis, *Observations on the Late Contests in the Royal Society* (London, 1784); 'A Friend to Dr Hutton' *Writes An Appeal to the Fellows...* (London, 1784), anonymous; and *An Authentic Narrative of the Dissensions and Debates in the Royal Society* (London, 1785), anonymous.

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