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(*b.* Market Bosworth, Leicestershire, England, 20 August 1710; *d.* Market Bosworth, 14 May 1761)

mathematics.

Simpson's father, a weaver, wanted him to take up the same trade. After limited education the son moved to Nuneaton, where he was influenced by the son moved to Nuneaton, where he was influenced by the 1724 eclipse and by a visiting peddler, who lent him a copy of Cocker's *Arithmetic* and a work by Partridge on astrology. Young Simpson made such progress with his studies that he acquired a local reputation as a fortune-teller. He was able to leave his weaving and marry his landlady, a widow Swin-field, whose son was a little older than her new husband. About 1733 an unfortunate incident obliged him to move to Derby, where he taught at an evening school and resumed his trade as a weaver during the day.

By the beginning of 1736 Simpson had moved to London and settled in Spitalfields, where the Mathematical Society had flourished for two decades. In 1736 his first mathematical contributions were published in the well-known *Ladies' Diary*. One of these showed that he was already versed in the subject of fluxions, which had elicited a growing interest, as illustrated by the famous controversy sparked by Bishop [George Berkeley](#) in 1734.¹ In December 1735 Simpson had issued proposals² for publishing his first book, *A New Treatise of Fluxions*, which appeared in 1737. Although publication may have been delayed by the author's teaching duties, it indicated his success, which enabled him to bring his family from Derby, and his future career as a mathematics teacher, editor, and textbook writer.

Robert Heath's accusation of plagiarism probably brought Simpson useful publicity, which was supplemented by the publication in 1740 of *The Laws of Chance and Essays on Several Subjects*. They were rapidly followed by *Annuities and Reversions* (1742) and *Mathematical Dissertations* (1743), the latter being dedicated to Martin Folkes, then president of the [Royal Society](#), with whom he had been in correspondence for some months. Apart from Francis Blake, Simpson's other correspondents were relatively humble philomaths. Largely through Folkes's support, Simpson was appointed second mathematical master at the Royal Military Academy, Woolwich, in August 1743 and was elected fellow of the [Royal Society](#) two years later.

Simpson seems to have been quite successful as a teacher, and his duties left him time for other activities. Three subsequent textbooks were bestsellers, partly because of his position and partly because of their scope: *Algebra*, with ten English editions in 1745–1826, five at Paris, and one at Amsterdam; and *Trigonometry*, five London editions in 1748–1799, besides French and American versions, *Geometry* which led to an argument with Robert Simson (whose editions of Euclid became very popular), represented a significant revision of the original Greek treatment along the lines of Clairaut and other Continental mathematicians.

Simpson's influence on English mathematics was extended by his editorship of the annual *Ladie's Diary* from 1754.³ This post demanded an extensive correspondence with contributors throughout the country, in addition to the normal responsibility of seeing the work through the press; and Simpson seems to have worn himself out with his many activities and aged prematurely. In 1760 he became involved as a consultant on the best form for a new bridge across the Thames at Blackfriars.⁴ The intense work on this project accelerated his death.

Simpson obtained a reputation as "the ablest Analyst (if we regard the useful purposes of Analytical Science) that this country [Britain] can boast of" and as author of one of the two best treatises "on the Fluxionary Calculus."⁵ He was aware of the importance of Continental mathematicians, for the first book on the subject he read was a translation from the French of L'Hospital's *Analyse des infiniment petits*; and the final paragraph of the preface to his last work, *Miscellaneous Tracts* (1757), was by nature of a testament. Having mentioned in the latter that he had "chiefly adhered to the analytic method of Investigation," he warned that "by a diligent cultivation of the Modern Analysis...Foreign Mathematicians have, of late, been able to push their Researches farther, in many particulars, than [Sir Isaac Newton](#) and his Followers here, have done..."

Although Simpson clearly was more interested in the applications to problems in series and mechanics⁶ than in the foundations of analysis, he avoided the difficulties of infinitesimals by his definition: "The Fluxions of variable Quantities are always measured by their Relation to other; and are each expressed by the finite spaces that would be uniformly described in equal Times, with the Velocities by which those Quantities are generated." F. M. Clarke has detailed the correspondence with Francis Blake, author of an anonymous but influential pamphlet, *Explanation of Fluxions* (1741), which clarified his and Simpson's ideas on the subject before the appearance, in an enlarged and revised form, of Simpson's *Doctrine and Applications of Fluxions* (1750); this work inspired another polemic.

Until his death in 1754, one of the leading mathematicians in England was Abraham De Moivre, whose well-known *Doctrine of Chances* (1718) included work on annuities. In *Laws of Chance* (1740) Simpson wrote approvingly of De Moivre but claimed to have investigated two problems in probability for which the latter had given only the results; two years later he issued *Annuities and Reversions*. The latter was criticized by De Moivre, and Simpson replied immediately with an appendix that seems to have effectively terminated the dispute. In 1752 Simpson issued a supplementary essay that included his much-quoted tables on the valuation of lives according to London bills of mortality. Paradoxically he is now best remembered for Simpson's rule, discovered long before him, for determining the area under a curve,

obtained by replacing the curve by a parabola with vertical axis going through the points a , b , and c .⁷ Fifty years after Simpson's death Robert Woodhouse and his disciples achieved Simpson's aim with the reform of mathematical analysis at Cambridge, which brought English mathematics once more into the front rank of European developments.

NOTES

1. Details are in F. Cajori, *A History of the Conceptions of Limits and Fluxions in [Great Britain](#) From Newton to Woodhouse* (Chicago, 1919), chs. 3, 4.
2. D. F. McKenzie and J. C. Ross, *A Ledger of Charles Ackers* (Oxford, 1968), no. 398, quotes 750 copies costing £1 each. The only known copy is that in the Simpson papers, IV.
3. Simpson also contributed to other periodicals. See R. C. Archibald, "Notes on Some Minor English Mathematical Serials," in *Mathematical Gazette*, **14**, no. 200 (Apr. 1929), 379–400.
4. A brief account in F. M. Clarke, *Simpson and His Times*, can be supplemented by J. Nichols, *The History and the Antiquities of the County of Leicester*, **IV** (London, 1811), 510–514.
5. The assessments by R. Woodhouse and J. Playfair are quoted in Simpson's *fluxions* (1823), iv.
6. See I. Todhunter, *A History of the Mathematical Theories of Attraction* (London, 1873), ch. 10, for an estimate of Simpson's contributions to this subject and (sec. 294) his estimate that Simpson was "at the head of the non-academical body of English mathematicians" and second only to Newton.
7. Given in *Mathematical Dissertations* (1743), p. 110, for the equidistant ordinates Aa , Bb , and Cc .

BIBLIOGRAPHY

- I. Original Works. Clarke (see below) gives the full titles, but not details of the eds., of Simpson's works except the last: *Miscellaneous Tracts on Some Curious and Very Interesting Subjects in Mechanics, Physical-Astronomy and Speculative Mathematics: Wherein the Precessions of the Equinox, the Nutation of the Earth's Axis, and the Motion of the Moon in Her Orbit, Are Determined* (London, 1757). Simpson's books reprinted many of his *Philosophical Transactions* articles, listed in Pogendorff, II, 937.
- II. Secondary Literature. The main source for this article is Frances M. Clarke, *Thomas Simpson and His Times* ([New York](#), 1929), based on her 1929 [Columbia University](#) thesis but incompletely documented and unindexed. This often quotes from the 8 vols. of Simpson papers in [Columbia University](#) Library, which kindly sent a microfilm to the writer. Most other biographies depend on Charles Hutton, "Memoris of the Life and Writings of the Author," prefixed to Simpson's *Select Exercises* (London, 1792), itself an extended version of an account in the *Annual Register*, 1764), 29–38.

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