

Topic	Historical Anecdotes
Sub Topic	Text Book Notes - Simpson
Summary	A brief history on Simpson
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Last Revised	June 3, 2007
Web Site	http://numericalmethods.eng.usf.edu

You know how “basket weaving” always turns up during discussion of “easy” college courses. One of the great mathematicians of our time, especially for the subject of numerical methods, might have fallen victim to basket weaving had it not been for a rare celestial occasion.

Thomas Simpson, born on August 20, 1710, in Market Bosworth, Leicestershire, England, was the son of a self-taught weaver. Simpson’s father naturally expected his son to take up the same profession as his “ol’ man”. However, with the occurrence of a solar eclipse in 1724, Thomas Simpson turned to “mathematical interests”, changing his life forever. After a little help mastering Cocker’s *Arithmetic* and the concepts of algebra, Simpson became an “usher” (“the most distinguished of a group of itinerant lecturers who taught in the London coffee-houses”), which greatly improved his mathematical skills. By 1735, he was able to solve puzzles concerning infinitesimal calculus. In 1737, he wrote the first of his mathematical texts, the first of two volumes of *The Doctrine and Application of Fluxions* (the second volume was finished and both volumes were published in 1750).

Not only did Simpson work on mathematics, but he also delved heavily into probability theory and the concept of approximation and error. Publishing *The Nature and Laws of Chance* and his *Essays* in 1740, Simpson worked on proving that the arithmetic mean of a number of observations was of more analytical value than a single one. Simpson went as far as applying himself to publish a theory on *Annuities and*

Reversions in 1742. This “branch” of mathematics, originated by James Dodson, deals with things such as mortality rates and life insurance. In 1743, he published *Dissertations*, which dealt mostly with planetary and interplanetary physics: subjects like lunar tides and “the force of attraction at the surface of a nearly spherical body”. What better subjects were there for Simpson to apply his mathematical skills toward? After all, a solar eclipse “eclipsed” his world of weaving.

Among other works, Simpson published a series of mathematics “texts”, *Algebra* (1745), *Geometry* (1747), and *Trigonometry* (1748), “in which he introduced the current abbreviations for the trigonometrical functions”. Simpson died on May 14, 1761, a very brilliant and well-rounded mathematician, but today, he is usually remembered for his contribution to numerical integration: “Simpson’s Rule”. Discussed here at the Holistic Numerical Methods Institute, Simpson’s Rule “has become a popular and useful special case of the Newton-Cotes formula for approximating an integral”.

References:

1. O’Connor, J. J. and Robertson, E. F. “Thomas Simpson.” MacTutor History of Mathematics. JOC/EFR, 1996. <http://www-groups.dcs.st-and.ac.uk/~history/Mathematicians/Simpson.html>
2. “Thomas Simpson (1710-1761)”. From ‘A Short Account of the History of Mathematics’ (4th edition, 1908) by W. W. Rouse Ball. http://personal.stevens.edu/~vmazmani/RB_Simpson.html