

Gompertz, Benjamin | Encyclopedia.com

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(b. London, England, 5 March 1779; d. London, 14 July 1865)

Mathematics.

One of three prominent sons of a distinguished mercantile family that emigrated from Holland in the eighteenth century, Gompertz appeared destined for a financial career. Denied matriculation at the universities because he was Jewish, he joined the Society of Mathematicians of Spitalfields in 1797 and educated himself by reading the masters, especially Newton, [Colin Maclaurin](#), and William Emerson. He found in various learned societies the intellectual stimulation that led to many publications and a wide spectrum of accomplishments. Papers to the Royal Astronomical Society on the differential sextant and the aberration of light belie Gompertz's own statement that he was not a practicing astronomer. The [Royal Society](#), of which he was elected a fellow in 1819; the London Mathematical Society, of which he was a charter member; the Society of Actuaries; and the Royal Statistical Society were only a few of the learned and philanthropic organizations to which he gave of his talent and energy.

In 1810 Gompertz married Sir Moses Montefiore's daughter Abigail and joined the [stock exchange](#). In 1820, in a paper to the [Royal Society](#), he applied the method of fluxions to the investigation of various life contingencies. In 1824 he was appointed actuary and head clerk of the newly founded Alliance Assurance Company. A year later he published what is now called Gompertz's law of mortality, which states "...the average exhaustion of man's power to avoid death to be such that at the end of equal infinitely small intervals of time he lost equal portions of his remaining power to oppose destruction which he had at the commencement of these intervals". His rigid adherence to Newton's fluxional notation prevented wide recognition of this accomplishment, but he must be rated as a pioneer in actuarial science and one of the great amateur scholars of his day. [Augustus De Morgan](#) called Gompertz "the link between the old and new" when he mourned "the passing of the last of the learned Newtonians."

BIBLIOGRAPHY

I. Original Works. Gompertz's work on life contingencies appeared in the *Philosophical Transactions of the Royal Society*: "A Sketch of the Analysis and Notation Applicable to the Value of Life Contingencies," **110** (1820), 214–294; "On the Nature of the Function Expressive of the Law of Human Mortality, and on a New Mode of Determining the Value of Life Contingencies," **115** (1825), 513–585; and "A Supplement to the Two Papers of 1820 and 1825," **152** (1862), 511–559.

"The Application of a Method of Differences to the Species of Series Whose Sums Are Obtained by Mr. Landen by the Help of Impossible Quantities," *ibid.*, **96** (1806), 174–194, led to *The Principles and Applications of Imaginary Quantities*, 2 vols. (London, 1817–1818). The sequel to these two tracts is *Hints on Porisms...* (London, 1850).

A regular contributor to the *Gentleman's Mathematical Companion* from 1796, Gompertz was awarded their annual problem-solution prize every year from 1812 to 1822.

II. Secondary Literature. P.F. Hooker, "Benjamin Gompertz," in *Journal of the Institute of Actuaries*, **91**, pt. 2, no. 389 (1965), 203–212, is a competent biography with a complete bibliography of Gompertz's works (twenty-two titles) and works about him (twenty-four titles). [Augustus De Morgan](#), "The Old Mathematical Society," repr. in J.R. Newman, *The World of Mathematics*, IV, 2372–2376, contains a view by a close friend. Also worth reading is De Morgan's obituary in *The Athenaeum* (22 July 1865), p. 117. Other informative obituaries are *Monthly Notices of the Royal Astronomical Society*, **26** (1865), 104–109; and M. N. Adler, "Memoirs of the Late Benjamin Gompertz," in *Journal of the Institute of Actuaries*, **13** (Apr. 1866), 1–20.

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