Biographical Encyclopedia of Astronomers

Whiston, William

Born Norton-Juxta-Twycross, Leicestershire, England, 9 December 1667

Died Lyndon, Leicestershire, England, 22 August 1752

William Whiston popularized Newtonian physics and astronomy, which he incorporated into his own cosmogony that also reached wide audiences. He was born to Josiah and Katherine Whiston. Whiston's father, the rector of Norton, intended his son to become a clergyman. A year after his father's death in 1685, William matriculated at Clare Hall, Cambridge. In 1693, Whiston became a senior fellow of Clare and was ordained in the Church of England. At Cambridge, he continued his study of mathematics and Cartesian mechanical philosophy, but he was converted shortly afterward to the physics that Isaac Newton presented in his *Principia* (1687).

After meeting Newton in 1694, Whiston published his first book, *A New Theory of the Earth*, with a dedication to Newton. Whiston's *cosmogony*, the first book-length popularization of Newtonian physics and astronomy, was an attempt to correct Thomas Burnet's, which had used Cartesian physics to explain the biblical accounts of creation and the Flood. Whiston employed Newtonian physics and astronomy to account for physical mechanisms used by God to create the Solar System and bring about the Noachic Deluge, and also to describe the final apocalyptic conflagration. The chief mechanism came from Whiston's providentialist, Newtonian cometography. Whiston proposed that planets were comets captured by the Sun's gravitational pull. The most striking feature of the *New Theory* is its catastrophist model of Earth's history; for example, the close passage of a comet accounts for the diurnal rotation of the Earth and the distortion of the Earth's orbit from a circular to an elliptical shape. Whiston attributed the geological strata and buried marine fossils to the Noachic Flood, brought about by a later close passage of a comet that distended the Earth's crust, causing it to break open and release the subterranean waters. The rain described in the Genesis account of the Flood he attributed to escaping vapors from the comet, the tail of which he believed the Earth passed through during the Deluge. Whiston predicted that the gravitational attraction of yet another comet would pull the Earth out of its solar orbit in the future, leaving the Earth to travel freely through the Universe. Whiston answered some of his critics in his *A Vindication of the New Theory* (1698) and *A Second Defence of the New Theory* (1700).

Whiston became rector of Lowestoft cum Kessingland on the Suffolk coast in 1698, but returned to Cambridge in early 1701 after being asked to lecture as Newton's deputy. This appointment may have been, at least in part, the result of the *New Theory*, which Whiston claimed had been viewed with favor by Newton. Whiston evidently impressed the electors: He was elected Lucasian Professor in May 1702, shortly after Newton's resignation in late 1701

Whiston lectured on astronomy, mathematical physics, and ancient eclipses. Instrumental in the election of Roger Cotes to the Plumian Professorship of Astronomy and Experimental

Philosophy, Whiston went on to collaborate with Cotes in Cambridge's first experimental lecture course, which began in May 1707. While he was Lucasian Professor, Whiston published Newton's lectures on algebra (Arithmetica universalis, 1707). Unlike his immediate predecessor, Whiston attempted to reach his undergraduates with his lectures and textbooks, including various editions of Euclid's *Elements*

After Whiston became aware of Newton's antitrinitarian heresy, he began in 1708 to preach antitrinitarian views openly, much to the consternation of his Cambridge colleagues. Characteristically, Whiston refused to be dissuaded by friends who warned him away from such a legally dangerous path; on 30 October 1710, the college heads expelled him from Cambridge and his professorship. Newton remained silent through Whiston's trial by the Convocation of Clergy that followed, and by 1714 broke with his quod disciple completely.

With only the meager revenues from a small farm to support his growing family, Whiston moved to London and set himself up as a private mathematics tutor. By 1712, he began public lectures on experiments and formed a partnership with the instrument-maker Francis Hauksbee, Jr., whose shop, a few doors down from the Royal Society, provided the venue In collaboration with engraver and instrument-maker John Senex, Whiston published in 1712 a much-copied chart of the Solar System illustrated with the paths of 21 comets. The solar eclipses of 1715 and 1724 provided the enterprising Whiston with further opportunities to secure income from astronomy; he delivered lectures on these events and, along with Edmond Halley, produced some of the earliest eclipse charts. Whiston continued to bring together his theological and astronomical interests in his *Astronomical Principles of Religion, Natural and Revealed*. Written in accessible prose and published with engravings of the Solar System, this book served as an effective popularization of both the new astronomy and natural theology.

Although Newton blocked his nomination, Whiston made several appearances as a nonmember at meetings of the Royal Society, including presentations of magnetic experiments in 1720 and 1722. In 1734, he made a presentation to the society on a reflecting telescope he had invented. Whiston continued to devote energy to the longitude problem and the mapping of the coast of Britain in the 1730s and 1740s, resulting in *An Exact Trigonometrical Survey of the British Channel* (1745).

Whiston made few original contributions to astronomy aside from his cometographical theories, but he played a pivotal role in the dissemination of Newton's work through his popularizing program. A major luminary in the catastrophist tradition of Earth history, Whiston's New Theory helped foster mechanical explanations (including impact theory) to describe the origin and development of the Solar System. Although his own schemes proved unsuccessful, Whiston played a pivotal lobbying role in the creation of the Board of Longitude and the Longitude Act. Whiston's influence can also be detected in the work of his grandson, astronomer and meteorologist Thomas Barker (1722–1809), whose *An Account of the Discoveries Concerning Comets, with the Way to Find Their Orbits* (1757) played a minor but important role in the history of cometography.

Stephen D. Snobelen

Selected References

Farrell, Maureen (1981). *William Whiston*. New York: Arno Press.

Force, James E. (1985). William Whiston: Honest Newtonian. Cambridge: Cambridge University Press.

Howarth, Richard J. (2003). "Fitting Geomagnetic Fields before the Invention of Least Squares: II. William Whiston's Isoclinic Maps of Southern England (1719 and 1721)." *Annals of Science* 60: 63-84

Whiston, William (1696). *A New Theory of the Earth, from its Original, to the Consummation of All Things.* London: R. Roberts. (A second edition of the New Theory appeared in 1708, followed by third [1722], fourth [1725], fifth [1737], and sixth [1755] editions. A German translation appeared in 1713 and a French epitome in 1718. Buffon summarized the main principles of the book in the first edition of his Histoire naturelle [1749], Vol. 1.)

—— (1707). *Prælectiones astronomicæ*. Cambridge: Cambridge University Press.

—— (1712). *A Scheme of the Solar System*. London: J. Senex.

—— (1715). *Astronomical Lectures*. London: J. Senex and W. Taylor

—— (1716). *Sir Isaac Newton's Mathematick Philosophy more easily demonstrated*. London. J. Senex and W. Taylor.

—— (1717). *Astronomical Principles of Religion, Natural and Revealed*. London. J. Senex and W. Taylor.

Whiston, William and Francis Hauksbee, Jr. (1714). *A Course of Mechanical, Optical, Hydrostatic, and Pneumatic Experiments*. London.