

Wilson, Alexander

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WILSON, ALEXANDER

(*b.* St. Andrews, Scotland, 1714; *d.* Edinburgh, Scotland, 18 October 1786)

astronomy.

Wilson was the son of Patrick Wilson, the town clerk of St. Andrews, and of Clara Fairfoul. He was very young when his father died, and he was brought up under the care of his mother. He studied at the College of St. Andrews, receiving an M.A. in 1733. He then was apprenticed to a surgeon-apothecary, first in St. Andrews, later in London. A chance visit to a typefoundry brought about a change in his career. Struck by an idea for an improved method of making type, he returned to St. Andrews in 1739 and set up a typefoundry there in 1742 with the assistance of a friend. The foundry was enlarged and moved to Camlachie, near Glasgow, in 1744. Since his student days Wilson had maintained an active interest in astronomy, and in 1760 was appointed—mainly through the influence of the duke of Argyll—first professor of practical astronomy at the University of Glasgow. He retained this post until 1784.

In 1774 Wilson published some observations, which showed that sunspots were depressions in the luminous matter surrounding the sun. This was not an entirely original hypothesis, for it had been suggested earlier by Christoph Schemer, Philippe de La Hire, and Jacques Cassini. Nevertheless, Wilson's use of strict geometrical reasoning in his demonstration made his argument very forceful, and led to a renewed burst of enthusiasm for sunspot observations.

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By carefully studying the apparent change in appearance of a spot as it crossed the solar disk, Wilson observed that the penumbra appeared narrowest on the side of it that was nearest the center of the sun, and widest on the side nearest the edge. He noted that this could be explained as an effect of perspective if the spot were a funnel-shaped depression, with the umbra corresponding to the bottom of the funnel and the penumbra to the sloping sides. Going beyond his observational data, Wilson conjectured that the sun was an immense dark globe surrounded by a thin shell of luminous matter. According to this view, sunspots were excavations in the luminous matter caused "by the working of some sort of elastic vapour, which is generated within the dark globe."

Wilson's interpretation of sunspots was challenged by Lalande in France, but supported by [Sir William Herschel](#) in England. Herschel then developed the interpretation into a general description of the solar constitution, which remained standard until the advent of spectroscopic investigations.

Wilson also speculated on a question posed by Newton in his *Opticks* (4th ed. [London, 1730], query 28): "What hinders the fixed stars from falling upon one another?" His answer, published in a short anonymous tract entitled *Thoughts on General Gravitation*, was that the entire universe partook in a periodic motion around some "grand centre of general gravitation."

Wilson was awarded an honorary M.D. from St. Andrews in 1763, and was one of the original members of the [Royal Society](#) of Edinburgh. In 1752 he married Jean Sharp. His portrait, a medallion by James Tassie, hangs in the National Portrait Gallery, Edinburgh.

BIBLIOGRAPHY

I. Original Works. Wilson's works are "Observations of the Transit of Venus Over the Sun," in *Philosophical Transactions of the [Royal Society](#)*,**59** (1769), 333–338; "An Account of the Remarkable Cold Observed at Glasgow, in the Month of January, 1768," *ibid.*,**61** (1771), 326–331; *A Specimen of Some of the Printing Types Cast in the Foundry of [Alexander Wilson](#) and Sons* (Glasgow[?], 1772); "Observations on the Solar Spots," in *Philosophical Transactions of the Royal Society*,**64** (1774), 1–30; "An Improvement Proposed in the Cross Wires of Telescopes," *ibid.*,**64** (1774), 105–107; *Thoughts on General Gravitation, and Views Thence Arising as to the State of the Universe* (n.p., 1777[?]); and "An Answer to the Objectives Stated by M. De la Lande, in the Memoirs of the [French Academy](#) for the Year 1776, Against the Solar Spots Being Excavations in the Luminous Matter of the Sun, Together With a Short Examination of the Views Entertained by Him Upon that Subject," in *Philosophical Transactions of the Royal Society*,**73** (1783), 144–168.

II. Secondary Literature. For a brief biographical sketch of Wilson's life, see the article by George Stronach in the *Dictionary of National Biography*, XXI, 545–546.

Good but brief accounts of Wilson's theories can be found in Agnes M. Clerke, *A Popular History of Astronomy During the Nineteenth Century* (Edinburgh-[New York](#), 1886), and Robert Grant, *History of Physical Astronomy From the Earliest Ages to the Middle of the Nineteenth Century* (London, 1852).

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