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(*b.* Hertfordshire, England, 16 April 1682; *d.* 14 February 1744)

optical instrumentation.

Hadley was the son of George Hadley, a deputy lieutenant and, after 1691, high sheriff of Hertfordshire, England, and Katherine Fitzjames. Nothing is known of his early life or of the places of his education.

Hadley was the first to develop the form of reflecting telescope introduced by Newton in 1668. By 1719 he had produced paraboloidal mirrors of speculum metal superior to any made by the London master opticians. He then constructed two Newtonian reflectors with an aperture of $5\frac{7}{8}$ inches and a focus of $5\frac{1}{4}$ feet and, in 1726, a small Gregorian reflector. He presented one of the Newtonian reflectors to the [Royal Society](#) of London, where it evoked great interest. [James Bradley](#) and James Pound compared it with an eight-inch object glass of 123-foot focus which [Christiaan Huygens](#) had made and presented to the Society. The reflector outperformed Huygens' refractor in both manageability and definition.

Hadley communicated his grinding and polishing methods to Bradley and Samuel Molyneux, who in turn instructed some of the London master opticians. He also befriended the Scottish optician James Short, then about to set up in London as a maker of Gregorian reflectors.

In 1731 [Thomas Godfrey](#), a young American glazier, made a reflecting octant. In the same year, quite independently, Hadley produced a similar instrument. Both instruments, precursors of the modern nautical sextant, were based on a mirror arrangement proposed by Newton but not described in print until 1742. After Bradley had tested Hadley's octant at sea and obtained altitude readings down to one minute of arc, the instrument was universally adopted.

Hadley played an active part in the affairs of the [Royal Society](#). Elected fellow in 1717, he was annually elected a member of council from 1726 until the year of his death and became vice-president in 1728. In 1726 he was one of the committee appointed by the Society to examine and report on the new instruments which [Edmond Halley](#) had obtained for the [Royal Greenwich Observatory](#).

BIBLIOGRAPHY

I. Original Works. Hadley's Newtonian reflector is described by him in "An Account of a Catadioptrick Telescope, Made by [John Hadley](#), Esq; F.R.S. With the Description of a Machine Contriv'd by Him for Applying It to Use," in *Philosophical Transactions of the Royal Society*, **32** (1723), 303–312. Also see "A Letter from the Rev. Mr. James Pound, Rector of Wanstead, F.R.S., to Dr. Jurin, Secretary R.S. Concerning Observations Made With. Mr. Hadley's Reflecting Telescope," *ibid.*, 382–384. The Society still possesses Hadley's mirror, five eyepieces, and the reflecting octant which is described in "The Description of a New Instrument for Taking Angles," *ibid.*, **37** (1731) 147–157. Hadley's own account of the grinding, polishing, and testing of concave specula comprises most of bk. 3, ch. 2, of R. Smith, *A Compleat System of Opticks* (Cambridge, 1738).

II. Secondary Literature. A most complete sketch of Hadley's work is contained in *Biographical Account of [John Hadley](#)*, an unsigned and undated tract in the library of the Royal Astronomical Society, London. The library also contains a similar tract, *The Invention and History of Hadley's Quadrant*. The significance of Hadley's instruments in the history of applied optics and astronomy is discussed by H. C. King, *The History of the Telescope* (London, 1955), pp. 77–84.

H. C. King