

Biographical Encyclopedia of Astronomers

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Wren, Christopher

Born East Knoyle, Wiltshire, England, 20 October 1632

Died London, England, 25 February 1723

Sir Christopher Wren, remembered mostly for his architecture, was a key figure in the nascent Royal Society of London. Wren was the son of Reverend Christopher and Mary Wren, a royalist family. In 1634, the elder Christopher was appointed Dean of Windsor and Registrar of the Order of the Garter. Christopher was tutored by his father, who had some knowledge of mathematics, modern science, and architecture, and then by Reverend William Holder, later a fellow of the Royal Society. He entered Westminster School in 1642; John Dryden and John Locke were fellow students. Westminster was one of the few schools to offer mathematics. In 1647, Wren went to live in the London home of physician Charles Scarborough, first as a patient and then as a sort of student assistant. Here he met several prominent scientists, some of them refugees from the Puritan stronghold of Cambridge. Wren translated a tract on sundials by William Oughtred into Latin. It was appended to the 1652 edition of *Clavis Mathematica*, and Oughtred praised him as a youth who had already enriched astronomy and other sciences, prefiguring John Evelyn's famous words, "that miracle of a youth, Christopher Wren."

In 1649, Wren matriculated at Wadham College, Oxford, whose master, John Wilkins, became his mentor. Wren's talent and temperament led to his acceptance by his scientific seniors. Wren had an interest in instrumentation, a mechanical flair, and a bent for invention, which he used in his own research and also in setting up apparatus for others. His steady hand in dissection and artistic talent were also appreciated. Wren was a member, along with Robert Boyle, Seth Ward, and Robert Hooke, of the "Experimental Philosophical Club" formed by William Petty. Hooke praised Wren's pioneering work in microscopic illustration in *Micrographia*

Wren's interests turned to astronomy and mathematics. Ward had established an observatory at Wadham with telescopes of 6-, 12-, and 22-ft. focal lengths, where they made joint observations. Wren also joined the amateur Sir Paul Neile in observations through the 35-ft. telescope on his estate. Wren and John Wallis collaborated on an 80-ft. telescope that could supposedly view the full face of the Moon. Wren earned his AB in 1651 and his MA in 1653; he was awarded a fellowship in All Souls College

Wren was named professor of astronomy at Gresham College, London, in 1657, possibly through Oliver Cromwell's intervention. On Charles II's restoration in 1660, Wilkins and Ward lost their posts, but Wren, of a royalist family, was appointed to the Savilian Professorship of Astronomy in 1661. Both Oxford and Cambridge awarded him the Doctor of Civil Laws degree in the same year. Wren was frequently in Oxford during his Gresham years, and in London after assuming the Savilian chair, allowing him to attend meetings of what became the Royal Society; he was a charter fellow (July 1662) and president (1681–1683).

Wren undertook his first architectural assignments in the early 1660s and was appointed by King Charles to the commission to restore the dilapidated Saint Paul's Cathedral. He continued to make astronomical observations with Hooke. During his 1665 trip to study advanced French architecture, his most frequent companions were the astronomers Adrien Auzout (whose observations of the 1664 comet (C/1664 W1) agreed with Wren's), Henri Justel, and Pierre Petit, savants who shared his interest in both science and architecture.

The Great Fire of 1666 opened the way for Wren's great work. He was appointed Surveyor General (royal architect) in 1669, but not until 1673 did he resign the Savilian professorship. King Charles conferred a knighthood also in 1673

Wren married Faith Coghill in 1669. Their first son, Gilbert, died in infancy. But Christopher, Jr., lived to be his father's colleague, heir, and literary executor. The first Lady Wren died of smallpox in 1675. Wren remarried to Jane Fitzwilliam in 1677. Their daughter Jane was talented in music and art, but their son William was intellectually disabled. The second Lady Wren died in 1679, and Wren lived the rest of his long life as a widower

Wren's architectural achievements are self-evident. He invented the English Baroque style. Saint Paul's Cathedral, London, is his masterpiece. Wren built parish churches, hospitals, academic buildings, and the Royal Observatory in Greenwich. In addition, he found time to serve as president, vice president, and member of the Council for the Royal Society, on the Committee of the Hudson Bay Company, and for a couple of terms as a member of parliament.

Wren was singled out in Thomas Spratt's *History of the Royal Society* (1667), where contributions to refraction, theory of motion, the rings of Saturn, his lunar globe, and celestial mapping are mentioned. Wren was a Baconian experimentalist who seemed satisfied with a well-warranted hypothesis. Unlike Isaac Newton, he was disinclined to venture into comprehensive theory or write definitive papers. Some of his scientific papers were extant in 1740 when Ward wrote his *Lives of the Professors of Gresham College*. They are now lost

Wren's 1657 inaugural lecture at Gresham College, which survives, was considered a definitive statement of experimental philosophy. A 1659 paper on Johannes Kepler's second law of planetary motion was extremely helpful to English astronomers, most of whom accepted elliptical orbits but did not understand them. Wren was the leading authority on lunar geography, apparently incorporating a micrometer in the eyepiece of his telescope to refine his measurements. The public product was a 10-inch globe showing the visible face of the Moon in relief, which he presented to King Charles in 1661. Less triumphant was Wren's work on Saturn. He hypothesized that the planet's appearance was due to an elliptical corona. But the elegance of Christiaan Huygens' ring hypothesis appealed to him. Wren endorsed it and abandoned his own work (1659). Indeed, his 1658 copper model may illustrate Huygens' view better than his own!

The Great Comet of 1664 provided the occasion for joint observations and intense discussion with Hooke. Wren accepted the popular notion that comets traveled in linear paths, while Hooke speculated about closed, possibly circular, orbits. When a second comet appeared in 1665 (C/1665 F1), probably the same one outbound after passing behind the Sun, Wren remarked it might be the same comet, but apparently took the notion no further.

In 1663, Wren constructed a double telescope with a measuring scale that would enable two observers to focus on the same object and more accurately estimate the distance. Wren built the Royal Observatory in 1675. The building itself has an observation room where smaller telescopes could be used, but the heroic instruments of the day would be suspended from booms in the yard

In 1692, Wren was involved in a scheme to mount a 123-ft. telescope in a staircase at Saint Paul's, but it did not work. Wren also kept one of the west bell towers clear so that it could be used as an observatory.

At the time of Wren's death, he was combining the study of Scripture with efforts to solve the problem of determining longitude at sea by some astronomical method.

Christian E. Hauer, Jr.

Selected References

Bennett, James A. (1982). *The Mathematical Science of Christopher Wren*. Cambridge: Cambridge University Press.

Chambers, James (1998). *Christopher Wren*. Stroud, Gloucestershire: Sutton Publishing.

Gray, Ronald (1982). *Christopher Wren and St. Paul's Cathedral*. Minneapolis: Lerner Publications. (British ed., Cambridge, 1979.)

Hauer, Jr., Christian E. (ed.) (1997). *Christopher Wren and the Many Sides of Genius: Proceedings of a Christopher Wren Symposium*. Lewiston, New York: Edwin Mellen Press.

Little, Brian D. (1975). *Sir Christopher Wren: A Historical Biography*. London: Robert Hale.

Tenniswood, Adrian (2001). *His Invention So Fertile: A Life of Christopher Wren*. New York: Oxford University Press.

Wren, Jr., Christopher and Stephen Wren (1965). *Parentalia: Or, Memoirs of the Family of the Wrens*. (The "heirloom," or "interleaved" edition.) London: Gregg Press. (Original ed. 1750.)