

Sir William Rowan Hamilton (1805-1865)

Post by Olive Morrin, Special Collections & Archives



Sir William Rowan Hamilton

The 150th anniversary of [William Rowan Hamilton's](#) death is on the 2nd September 2015. Special Collections in the John Paul II Library holds three volumes of the *Life of Sir William Rowan Hamilton: selections from his poems, correspondence, and miscellaneous writings* by Robert Perceval Graves published between 1882 and 1889. The Russell Library also holds a copy of W. R. Hamilton's *Theory of a system of Rays* which was published in 1828.

William Rowan Hamilton was born in Dominick Street, Dublin and at the age of three was sent to live with his uncle the Reverend James Hamilton in [Trim](#), Co. Meath. His uncle became his tutor and early on William was recognized as a child prodigy. He had a remarkable ability to learn languages and by the age of thirteen he was familiar with about thirteen languages. His interest in mathematics was sparked by the arrival of an American prodigy [Zenith Colburn](#). Hamilton was considered a worthy challenger to Colburn in a mental arithmetic contest. Although Colburn was the winner the event triggered in Hamilton a lifelong interest in mathematics.

In 1823 Hamilton entered Trinity College, Dublin where he studied mathematics and classics. He was appointed Professor of Astronomy in 1827 aged 22. He went to live in [Dunsink Observatory](#) with his sisters after their parents' deaths. Hamilton's other interests related to poetry and literature and it was through these he became acquainted with writers such as [Maria Edgeworth](#), [William Wordsworth](#), [Samuel Coleridge](#) and [Aubrey de Vere](#).

In 1827 Hamilton formulated a theory of a single function which brought together mechanics, optics and mathematics resulting in the wave theory of light. The title of the paper which was presented to the Royal Irish Academy was *Theory of Systems of Rays*. Parts 2 and 3 were published in *Philosophical Transactions* in 1834 and 1835. In these editions he developed the concept of "[varying action](#)". In 1835 at the age of 30 Hamilton was knighted for his scientific achievements.

Hamilton's other great contribution to mathematical science was his discovery of [quaternion](#) in 1843. He had long been struggling for ways to extend complex numbers to higher spatial dimensions. When out walking with his wife along the [Royal Canal](#) on 16th October 1843 a sudden flash of inspiration came to him. In his anxiety to record the

formulae he carved it out with his penknife on nearby Broombridge. This marked the discovery of the quaternion group.

Hamilton's personal life was not particularly happy. He met Catherine Disney in 1824 while still an undergraduate in [Trinity College](#). He fell in love with her and she with him but her father was not very encouraging and arranged her marriage to a clergyman 15 years her senior. Hamilton and Disney remained attached and periodically corresponded. Hamilton eventually married Helen Maria Bayly who lived near the Observatory. Neither of their marriages appeared particularly happy and Helen spent a considerable amount of time away from Dunsink and was often ill. In 1825 Hamilton wrote a Valentine ode to Catherine Disney which includes the verses:

*Perchance it may be mine to soar
Higher than mortal ever before,
Climb the meridian steeps of fame,
And leave an everlasting name,
If such my lot O then how sweet,
To lay my triumphs at thy feet.*

The last years of Hamilton's life were marred by alcoholism. He died on the 2nd September 1865 from the effects of gout and bronchitis. William Rowan Hamilton was one of Ireland's greatest scientists. He was a mathematician, physicist, astronomer and poet who made groundbreaking discoveries in the areas of mathematics and science.

Books in Special Collections

Elements of Quaternions by Sir William Rowan Hamilton (1899) edited by Charles Jasper Joly

Sir William Rowan Hamilton 1805-1865: an address delivered to the Royal Irish Academy by the Rev. Charles Graves D.D. at the stated meeting on Nov. 30th 1865

Life of Sir William Rowan Hamilton, Andrews Professor of Astronomy in the University of Dublin and Royal Astronomer of Ireland, etc. etc. including selections from his poems, correspondence and miscellaneous writings. 3 vols (1882) by Robert Perceval Graves

An examination of Sir William Hamilton's philosophy and of the principal philosophical questions discussed in this writings (1872) by John Stuart Mill.

Russell Library

Theory of a System of Rays (1828) by William Rowan Hamilton

References:

William Rowan Hamilton (1805-1865): Ireland's greatest mathematician by Fiacre Ó Cairbre. *Ríocht na Midhe* (2000) 11: 124-150.

Photo from *Life of Sir William Rowan Hamilton, Andrews Professor of Astronomy and Royal Astronomer of Ireland*. vol. 2.

Wikipedia