# Biographical Encyclopedia of Astronomers

Maclaurin, Colin

Born Kilmodan, Argyllshire, Scotland, February 1698

Died Edinburgh, Scotland, 14 June 1746

Colin Maclaurin was, perhaps, the last of the great British mathematicians of the period following Isaac Newton. His geometrical methods influenced French work in celestial mechanics. An equilibrium shape of a rotating fluid body called a Maclaurin was thought for many years to be relevant to the formation of binary stars from single, rotating gas clouds

Maclaurin's father, a parish minister, died six weeks after Colin's birth, and his mother died when he was nine. His uncle, Daniel Maclaurin, minister in Kilfinnan on Loch Fyne, took responsibility for him. In 1709, Maclaurin entered the University of Glasgow and, although a career in the church was originally intended, he was introduced to Euclid's Elements and turned his attention to mathematics and physics. After four years, he graduated with a Master of Arts degree with a thesis, "On the Power of Gravity."

In 1717, Maclaurin was appointed professor of mathematics at Marischal College, Aberdeen, aged only 19 (the youngest professor recorded at any university). Shortly afterwards, he became a good friend and disciple of Newton and, at this time, was elected to a fellowship of the Royal Society of London. Maclaurin traveled widely in Europe between 1722 and 1725. In 1724, he was awarded a prize from the Academy of Sciences in Paris for his work, "On the Percussion of Bodies."

Early in 1726, Maclaurin was appointed to the chair of mathematics at the University of Edinburgh, which he held for the remaining 20 years of his life. During this period, he was a major force in the world of mathematics. His contributions were not only to analysis and geometry but also to physics and astronomy

During his time in Edinburgh, Maclaurin's efforts were important in the formation of scientific societies. A member of the Society for the Improvement of Medical Knowledge from 1731, he helped broaden its purview. The result was the new, more inclusive organization, the Philosophical Society of Edinburgh, founded in 1737. It was the latter society that, in 1783, was the catalyst for the founding of the Royal Society of Edinburgh, which is still Scotland's premier learned society.

In 1733, Maclaurin married Anne Stewart, and this union produced seven children

An assessment of Maclaurin's place amongst the great mathematicians is obscured by, among other things, the difficulties in assigning priorities to certain mathematical discoveries. Nowadays, his name is known to all mathematicians because of Maclaurin's series. This result appeared in his book, *Treatise of Fluxions*, published in 1742, but the author acknowledged that it was a special case of an earlier result due to Brook Taylor in the latter's book, *Methodus Incrementorum* (1715). In any case, this result was, at least in some form, known to earlier

workers, including Jacob Bernoulli and the Scottish mathematicians, James Gregory and James Stirling. On the other hand, Cramer's rule for systems of linear equations, Cauchy's integral test for convergence, and Bezout's theorem on the intersection of curves were developed by Maclaurin several years before those mathematicians whose names are now associated with them

In the *Treatise of Fluxions*, Maclaurin gave a systematic account of Newton's theory of fluxions, mainly in response to an attack on these ideas by the Irish philosopher George Berkeley, in the latter's *Analyst* of 1734. Maclaurin's book also contained an account of his work on the gravitational stability of ellipsoids was accomplished by employing classical mechanics rather than fluxions. Alexis Clairaut, after reading Maclaurin's text, reverted to geometrical methods to attack the figure-of-the-earth problem.

Maclaurin also dealt with the tides (based on material that had previously been awarded a prize by the Paris Academy in 1740). In addition to the above, there were two other posthumous books, *Treatise of Algebra* and *An Account of Sir Isaac Newton's Philosophy*.

Maclaurin was also involved in some more practical branches of mathematics and in the organization of the defenses of Edinburgh against the Jacobite forces in 1745. When Edinburgh fell, Maclaurin fled to York. Although he soon returned, these exertions, together with a fall from a horse, seriously weakened his health, and he died shortly afterward.

*Graham Hall*

**Alternate name**

Cailean MacLabhruinn

**Selected References**

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