William Rowan Hamilton

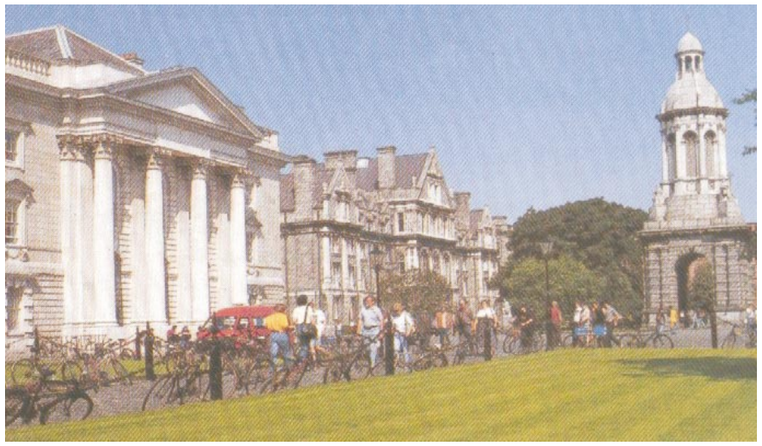
1805 - 1865

In the history of mathematical physics the most notable milestone between Newton and Einstein is the work of William Rowan Hamilton, who brought the theory of classical mechanics to a level of great sophistication. Newton's straightforward statements about forces and accelerations were replaced by mathematics that was both elegant and useful. It belonged to the French tradition of Laplace, Lagrange and others, which was deliberately introduced into Trinity College, Dublin in the early 19th century.

Hamilton was born into the privileged upper class of Ireland, and enjoyed the benefits of personal tuition from an early age. Stories of his mastery of many languages while still very young are probably an exaggeration, but there can be no doubting the precocious intellect of a man who was appointed to a prestigious chair of astronomy by Trinity College Dublin while still an undergraduate! In due course he became the Royal Astronomer of Ireland.

This appointment was to be held in an isolated observatory some way from the city and university. There he produced a great mass of mathematical work. Eventually he seems to have lapsed into a rather morose obsession with his studies. One story tells of a housekeeper so concerned about his health that she forced his food (usually a mutton chop) upon him every day and the desiccated slices of meat turned up later in the piles of papers that he left behind.

He worked out a new system of Algebra, whilst sitting on a canal bridge!



He held the chair of Astronomy at Trinity College, Dublin.

He rose to yet greater eminence with the award of a knighthood and the first foreign membership of the National Academy of Sciences of the United States.

In addition to his work in mechanics, he made important contributions to optics, including the prediction of the effect of conical refraction in certain crystals. While largely forgotten today, this caused a sensation at the time because it was quite unexpected. It was considered a triumph for the wave theory of light, when the effect was experimentally confirmed by his colleague Humphrey Lloyd.

Mathematicians remember him as someone who opened new doors in their minds, particularly in admitting the possibility that ***ab*** might not have to equal ***ba*** in algebra. This led to his invention of "quaternions", a system of algebra which he scribbled on a canal bridge while out for a walk.

Hamilton liked to try his hand at poetry, in the florid 19th century style, and would correspond with Wordsworth for an appraisal of his efforts. The latter was surely constrained to be polite to the great man, but he and many others must have been tempted to advise **"Don't give up your day job!"**. But his mathematics was itself pure poetry.

D.W.