James MacCullagh 1809–1847

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Abstract. The purpose of this paper is to set out in general terms the life of the Irish mathematician and theoretical physicist James MacCullagh, in its context of place and time. MacCullagh, who was born two hundred years ago in 1809, was best known for his significant contributions to optics and light propagation, and in particular towards the development of a model of the aether, a central scientific concern during his lifetime.

My purpose in this paper is to set out in general terms the life of James MacCullagh, the Irish mathematician and theoretical physicist, in its context of place and time\(^1\). MacCullagh was best known for his significant contributions to optics and light propagation, and in particular towards the development of a model of the aether, a central scientific concern during his lifetime. He was an accomplished geometer and his geometrical skills were central to his scientific work. General accounts of his life and work may be found in references\(^2\) [1,2].

James came from a Protestant family, living in County Tyrone, of modest but moderately comfortable means. He was born in 1809, in the house which had belonged to his grandfather, situated in a townland called Landahussy, within the parish of Upper Badoney, about ten miles from Strabane. We read the following description of the place, in an article by Albert A. Campbell published in 1902 in the Tyrone Constitution:

Landahuss is a sort of Sleepy Hollow, far removed from contact with the life of city, or town, or even village of any considerable size. Plumbridge, the nearest village, about two miles distant, could not have been more at that time than a cluster of thatched cabins, containing less than a hundred inhabitants.

And the author of the article goes on to quote from an unpublished manuscript in the Public Record Office which was written in 1814 by the clergyman who baptised

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\(^{1}\) This paper is based substantially on a talk given at a conference held in the Royal Irish Academy on 14th May 2009 to commemorate the bicentenary of James MacCullagh’s birth.
\(^{2}\) Biographical notices of MacCullagh are to be found in the DIB, DNB, and in Obituary Notices of the Royal Society and of the Royal Irish Academy. See also references [1,2].
James MacCullagh, the Reverend William McGhee who was the rector of the parish of Upper Badoney:

_There is neither poverty nor riches, none that arrogate to themselves pre-eminence, the equality is uncommon. . . Their general food, oat bread, potatoes, milk and butter. . . They make a decent appearance on Sundays, mostly clothed in cloth of their own manufacture, . . . English and Irish are spoken in common by the Protestants and the Catholics. . . We all carry well together, no party business, we have neither orange nor ribbon men._

It is still an idyllic place, just south of the Sperrin Mountains, in the valley of the Glenelly river, which in more recent times was selected for its scenic beauty to be part of the route of the Ulster Way.

When the grandfather died, his farm, which was a sizeable one – his lease extended over the whole townland – was divided among his four sons. The father of our James MacCullagh, who was also named James, was the second son; he and his wife Margaret had twelve children in all, of whom eight survived to adulthood. James was the eldest of the surviving children, five of whom were boys, three girls. The family circumstances were modest but there seems to be clear evidence of an interest in scholarship and a respect for education. Two of his brothers would in due course follow James to Trinity College in Dublin (The University of Dublin). There was also a commitment to their religion and their Church; this was a significant influence, one which would remain with him throughout his life.

Between 1815 and 1820 the family moved to Strabane, apparently motivated, at least in part, by the desire to have access to adequate schooling, without however disposing of the farm in Landahussy. In the entrance book in 1824, when James entered the university, his father’s occupation was still shown as Agricola, or Farmer, whereas when his younger brother William George matriculated in 1849 the father was shown as Generosus, or Gentleman.

James was sent to a school in Strabane taught by a Mr. O’Brien, When it was time to begin the study of classics MacCullagh moved to the Reverend John Graham’s school in Lifford and subsequently, for two and a half years, he attended a school in Strabane taught by the Reverend Thomas Rollestone where he was prepared for matriculation. He entered Trinity College Dublin [3], in November 1824, as a Pensioner, obtaining second place out of a hundred and thirty candidates. At the January, 1825 examination he was awarded the Classical Premium, and at the April examination he secured the Premium in Science and the Classical Certificate. At the examination in June for Sizarships, which are restricted to students of modest means, he was second out of ninety-five candidates. As a Sizar he was exempt from paying fees and he had free rooms and commons. He moved into College rooms, initially in House No. 14, and from then onwards, for the rest of his life, he resided in College.

Perhaps this is an appropriate point to digress and to say a few words about the wider context. When MacCullagh was born the revolution in France and its aftermath were still a recent memory. Britain was at war with Napoleon, who was still at the height of his power, although Nelson’s victory at Trafalgar had secured British maritime supremacy and control of the seas. The fledgling United States was feeling its way and extending its territory. In Ireland, following the rebellion of 1798, the Act of Union had put an end to the Irish Parliament. The promise of Catholic emancipation had not been honoured and would have to wait until 1829, when the government conceded to O’Connell and his Catholic Association. Prosperity in England, driven by the industrial revolution and enhanced by the war with France, did not extend to Ireland where, particularly in the south and west, the poverty of the rural population would continue and worsen until the ultimate disaster of the great famine in 1845 and succeeding years.