Tribute to James Clerk Maxwell on the unveiling at Marischal College of the Institute of Physics plaque to be mounted at 129 Union Street, Aberdeen. 15th March 2017.

Around Aberdeen you can find over 60 plaques commemorating local heroes who have made their name in the city and often in the wider world. I can’t think of one who is more widely known all over the globe than James Clerk Maxwell – and that includes our Nobel Prize winning physicist commemorated on the opposite wall. Maxwell was the most innovative, the most influential physicist of the 19th century. He was a professor at only 3 Universities, Cambridge, London and here at Marischal College. His name has rightly been bracketed with those of Isaac Newton and Albert Einstein as one of the triumvirate of the world’s most outstanding physicists. Indeed, Einstein described Maxwell’s work as ‘the most profound and fruitful since the time of Newton’ and he had a portrait of Maxwell on his Princeton office wall.

Maxwell was professor here from 1856 – 1860. It was his first professorial post. He was in his 20s and like many early career scientists he was highly creative. Before mentioning some of his research achievements, I should say that he was appointed as the principal teacher of all 3rd year Arts students here. Science in those days was not a separate discipline. Maxwell valued his teaching - it gave him a chance to hone his basic ideas on a wide range of topics and interact with students from many walks of life, which he enjoyed. As was a custom in those days, he invited his students to breakfast on occasions and as one student reminisced “he always had some scientific marvel to tell his students about during breakfast”. Maxwell later wrote 3 undergraduate textbooks that ran to many printings well into the 20th century. Sadly, though, we likely wouldn’t be unveiling a blue plaque to even the best of teachers.

One extraordinary feature of Maxwell’s research by today’s standards was that it covered pretty well every branch of physics that one would expect in a student’s curriculum: mechanics, dynamics, optics, thermodynamics, properties of solids, liquids and gases, electricity and magnetism, and even astronomy. He wasn’t skimming the surface in these areas. As one famous successor to Maxwell in his London chair has commented: “there is scarcely a single topic that he touched upon that he did not change out of all recognition”.

Cheerful unveiling of the new Maxwell plaque with (L – R) Vice Principal Professor Jeremy Kilburn, Astronomer Royal and Hon Professor at the University of Aberdeen John Brown, Professor Peter Higgs, Dr John S. Reid. Image courtesy University of Aberdeen.
For example, Maxwell single-handedly laid the foundations of today’s quantitative colour science, substantially at Marischal College though not wholly so; he laid the foundation stone for statistical physics while at Marischal College and indeed was best known in his day as the leading ‘molecular scientist’ of his age. He submitted a book-length treatise while at Marischal College demonstrating on theoretical grounds why Saturn’s rings can’t be solid or liquid but must be made up of myriads of tiny objects almost independently orbiting.

Every student of physics from Beijing to New York in either direction around the world now meets Maxwell’s equations of electricity and magnetism, the definitive synthesis of what were earlier in his century seen as two separate phenomena of nature – electricity and magnetism. Electromagnetic radiation was his prediction. In physics, you can find at least 20 legacy ideas and natural objects named after James Clerk Maxwell. Maxwell was truly a visionary and concept maker. His work is a brilliant example of how curiosity driven research produces knowledge that benefits society, not only for decades but for centuries afterwards.

I must add that unlike Isaac Newton, Maxwell was also a thoroughly likeable person. He could converse knowledgably on many topics other than science. He read Latin, Greek, German and French and was widely read in English literature, drama and philosophy. Maxwell was poetically inclined, humorous, socially adept, compassionate, religious in a religious era and with the enviable skill of inspiring others to do their best: any University in the world would have been proud to have him on their staff and we at Aberdeen certainly are.

Maxwell’s rooms were on the first floor of the building just above us. Nothing original remains. I’d like to end with a quotation from another former pupil who described him as he walked daily through the arch and across the Marischal College quadrangle here from 1856 to 1860: a man of middling height, with frame strongly knit, and a certain spring and elasticity in his gait; dressed for comfortable ease rather than elegance; a face expressive at once of sagacity and good humour, but overlaid with a deep shade of thoughtfulness; features boldly but pleasingly marked; eyes dark and glowing; hair and beard perfectly black, and forming a strong contrast to the pallor of his complexion.

Thank you, James, for the time you spent here. 160 years on in Aberdeen we remember you with affection and awe.

John S. Reid