

Foreword to James Clerk Maxwell Commemorative Booklet

by Sir Michael Atiyah, OM, FRSE, FRS.

He never sought fame, but with sacred devotion continued in mature life the labours which had been his spontaneous delight in childhood.¹

Although some eight Scotsmen² have won Nobel Prizes in either physics, chemistry or medicine and others, like Lord Kelvin, James Watt and Sir James Young Simpson would undoubtedly have been so honoured had the Prizes been in existence earlier, there seems little doubt that the greatest of all scientific figures to emerge from Scotland is James Clerk Maxwell. James Clerk Maxwell stands alongside Newton and Einstein as one of the creative geniuses of theoretical physics.

It is particularly appropriate to commemorate Maxwell on the occasion of the Fourth International Congress on Industrial and Applied Mathematics taking place in Edinburgh since Maxwell's connections with this city were very strong.

Maxwell was born in Edinburgh on 13 June 1831 in 14 India Street, a house that had been built for his father (now the home of the James Clerk Maxwell Foundation and the International Centre for Mathematical Sciences). He was educated for six years at the Edinburgh Academy and for three years at Edinburgh University before proceeding to Cambridge University. He presented his first scientific paper to the

¹ Campbell L. and Garnett W. (1882), *The life of James Clerk Maxwell*, London.

² Physics

1927 C.T.R. Wilson - for invention of the cloud chamber.

Chemistry

1904 Sir Wiliam Ramsay - for discovery of inert gases.

1957 Sir Alexander Todd - for investigation of the structure of large organic molecules.

Medicine

1902 Sir Ronald Ross - for research on malaria.

1935 John James R. Macleod - for discovery of insulin.

1945 Sir Alexander Fleming - for discovery of penicillin.

1949 Lord Boyd Orr - for research into nutrition.

1988 Sir James Black - for investigation of the principles of drug treatment.

Royal Society of Edinburgh when he was just 14 years old (or rather Professor Forbes, Professor of Natural Philosophy at Edinburgh University, presented it on Maxwell's behalf as Maxwell was considered too young!) and had presented three papers to the Society by the time he left Edinburgh for Cambridge at age 19:-

On the Description of Oval Curves, and those having Plurality of Foci (age 14)

On the Theory of Rolling Curves (age 17)

On the Equilibrium of Elastic Solids (age 18)

The Royal Society of Edinburgh elected Maxwell a Fellow in 1856 when he was just 24. He was awarded the honorary degree of LL.D. by the University of Edinburgh in 1870 and received the Keith Prize of the Royal Society of Edinburgh in 1872.

I have pleasure in welcoming to Edinburgh all the ICIAM delegates, who come from many countries in the world. We have an interesting scientific programme which illustrates the vast span of the applications of mathematics in the modern world. The increasing power of computers and the wide availability of applications software, which brings sophisticated mathematics within the compass of the user, is making the use of mathematics pervasive across an ever growing range of human endeavour. This trend seems likely to continue unabated and is an exciting development and one of which Maxwell, a supreme exponent of seeing how to apply mathematics to a whole range of physical phenomena, would surely have approved.

I should like to thank all the authors who have contributed essays to this commemorative booklet and the James Clerk Maxwell Foundation for their efforts in putting the booklet together. I hope that the delegates to ICIAM 99 will find within the booklet a rich source of information about Maxwell much of which has not received wide circulation before. The David and Lucile Packard Foundation, Los Altos, California have generously provided financial support and this is very much appreciated. The late David Packard was the joint founder of Hewlett-Packard, a highly successful company which has shown through its products the manifold applications of Maxwell's electromagnetic waves.
