

THURSDAY, OCTOBER 27, 1881

SCIENTIFIC WORTHIES

XVIII.—JAMES CLERK MAXWELL

Born June 13, 1831; Died November 5, 1879

WE have already (vol. xxi. pp. 43 and 317) said so much on the life and work of the late Prof. Clerk Maxwell, that in presenting his portrait as one of our Scientific Worthies, little more is necessary than to refer to the leading facts of his life. Born on June 13, 1831, he was the son of John Clerk Maxwell of Middlebie, a scion of a well-known Scottish family, the Clerks of Penicuik. When James was only eight years of age, he lost his mother, after which his father led a retired life, devoting himself to the care of his estates and of his son. The latter was educated in the first instance at the Edinburgh Academy, where in 1845 he gained the Academical Club Medal for Geometry, and the Silver Medal for Mathematics in 1847. A visit to William Nicol at this period was a marked event in his life, leading him, with apparatus of his own construction, to make observations on polarised light. A pair of prisms presented to him by Nicol were treasured by him throughout life, and three weeks before his death they were deposited in one of the show-cases of the Cavendish Laboratory.

After leaving the Academy, Maxwell, to quote the words of Prof. Tait (NATURE, vol. xxi. p. 317), "spent the years 1847-50 at the University of Edinburgh, without keeping the regular course for a degree. He was allowed to work during this period, without assistance or supervision, in the Laboratories of Natural Philosophy and of Chemistry: and he thus experimentally taught himself much which other men have to learn with great difficulty from lectures or books. His reading was very extensive. The records of the University Library show that he carried home for study, during these years, such books as Fourier's *Théorie de la Chaleur*, Monge's *Géométrie Descriptive*, Newton's *Optics*, Willis' *Principles of Mechanism*, Cauchy's *Calcul Différentiel*, Taylor's *Scientific Memoirs*, and others of a very high order. These were read through, not merely consulted." In October, 1850, Maxwell went to Cambridge, entering at Peterhouse. Soon after his entry at Peterhouse, however, in December, 1850, he migrated to Trinity, where he found spirits of tastes similar to his own in the matter of physical research; here he soon became a leader among his fellows. In 1854 he came out Second Wrangler, and was bracketed as First Smith's Prizeman. In 1855 Maxwell became a Fellow of Trinity, and in 1856 he obtained the Professorship of Natural Philosophy in Marischal College, Aberdeen. To quote the memoir by Mr. W. Garnett in NATURE, vol. xxi.:—"In 1858 he married Katherine, a daughter of Principal Dewar of Marischal College, thus vacating his fellowship at Trinity. In 1860 he succeeded Prof. Goodeve as Professor of Natural Philosophy and Astronomy in King's College, London, but after the death of his father he retired in 1865 to his estate in Scotland, where he subsequently carried out his father's plans for completing the house and offices at Glenlair. In 1871 he was invited by the Senate of the University of

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Cambridge to accept the Chair of Experimental Physics which had just been created, and on October 25, 1871, he delivered his inaugural lecture as Professor of Experimental Physics in the University of Cambridge. At first the most important part of his work consisted in arranging the details of the Cavendish Laboratory which the Duke of Devonshire had offered to present to the University, and the building of which was personally superintended by Prof. Maxwell from first to last. The whole of the arrangements which render the Cavendish Laboratory so admirably adapted for Physical investigations, are due to the care and forethought of Prof. Clerk Maxwell. When the building had been completed and formally presented to the University, the Duke of Devonshire further signified his desire to provide it with a complete equipment of apparatus, and all this was procured under the personal supervision of the Professor. In 1872 he was elected Honorary Fellow of Trinity College, Cambridge."

During the winter of 1878-9, Prof. Clerk Maxwell's health began to give way, and with some transient gleams of hope he gradually sank, dying on November 5, 1879. He received many honours during his lifetime; he was a Fellow of the Royal Society, LL.D. of Edinburgh, and D.C.L. of Oxford; Honorary Member of the American Academy of Arts and Sciences, the American Philosophical Society, and the New York Academy of Sciences; Corresponding Member of the Imperial Academy of Sciences, Vienna, and Associate of the Amsterdam Royal Academy of Sciences.

In 1860 the Rumford Medal of the Royal Society was awarded to Prof. Clerk Maxwell "for his Researches on the Composition of Colours, and other Optical papers." In his address on the presentation of the medal, Major-General Sabine alluded to Prof. Maxwell's calculation showing the connection of the "mechanical strains to which elastic solids are subjected under certain conditions with the coloured curves which those solids exhibit in polarised light."

To Clerk Maxwell's private character, to the position he unobtrusively took as a Christian, to his qualities as a poet and humorist, and to the varied work he has accomplished, it is scarcely necessary again to allude here; all these points will be found clearly brought out in the articles by Prof. Tait and Mr. Garnett above referred to. Nor is it necessary to repeat here the list of his principal papers and publications, and the great and important additions which Clerk Maxwell made to the sum of scientific knowledge, or the light he shed on the principles of the departments of science which he specially cultivated. Besides the references already given we would commend the reader who desires to have a fairly complete notion of the value of the work of the remarkable man whose portrait we give to-day, to the articles by Prof. Tait on Clerk Maxwell's "Electricity and Magnetism," vol. vii. p. 478, "Matter and Motion," vol. xvi. p. 119, and the numerous papers by Maxwell himself scattered through the volumes of NATURE.

DR. SIEMENS ON TECHNICAL EDUCATION

FEW can read the address of Dr. C. W. Siemens to the Midland Institute, which appears in another place in our columns (p. 619), without admitting that of

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