

to improve the operation of every machine encountered; his mental processes consisted in first gaining a thorough insight into the operation of the existent machine and then applying remedies to the weaknesses disclosed. This passion for improving and inventing continued to the end of his life. For example, during the last two years he had been working on an improved electrical tele-mechanism of great ingenuity.

In Catterston-Smith there was an unusual and happy blend of art and science. His artistic instincts called for craftsmanship and appropriateness, his scientific instincts for accuracy and efficiency. These qualities imbued all his work. In addition, he possessed a personality of great friendliness and charm. No wonder he gained the affection of all his students and colleagues.

W. H. ECCLES.

Prof. James Muir

By the death, on February 17, of Prof. James Muir, emeritus professor of natural philosophy in the Royal Technical College, Glasgow, there has passed a great teacher and a man singularly devoted to science and to the quest of knowledge for its own sake.

Dr. Muir was born in 1875, and his early interest in science was stimulated by his education at Allan Glen's School, Glasgow. On leaving school, he entered his father's business; but the influence of his school training led him to consult Prof. James Blyth, on whose advice he entered his evening class at the Technical College. Thus began a connexion with that College which was to remain unbroken throughout his life.

Muir graduated B.Sc. in 1896 at the University of Glasgow, with special distinction in engineering and astronomy, and D.Sc. in 1902, having obtained the associateship of the College in mathematics and physics in 1897, in which year he was awarded an 1851 Exhibition Scholarship at Cambridge. His researches at Trinity College, under Prof. Ewing, into the effect of temperature on recovery from overstrain were published in the *Proceedings of the Royal Society*, and he was awarded the B.A. degree of Cambridge, followed in 1904 by the M.A. Returning to Glasgow, he became chief assistant to Prof. Blyth, and then assistant to Prof. Andrew Gray at the University of Glasgow.

In 1906, on the death of Prof. Blyth, Dr. Muir succeeded to the Freeland chair of natural philosophy in the Technical College, Glasgow, and he entered upon his duties with a boundless enthusiasm which continued during the thirty-two years which ended with his retirement in 1938.

Prof. Muir always gave foremost place to his teaching and to the interests of his large classes of day and evening students. Nevertheless, he found time to use to the full the resources of his department in conducting many valuable researches on behalf of the industrial firms of Glasgow, and during the War of 1914-18 these researches were directed to the service of the country. He willingly and enthusiastically entered into any movement for promoting the welfare of the College, such as the work of the *College Research Journal* and the re-arrangement and cataloguing of the founder's library.

Prof. Muir will always be remembered as a great teacher whose constant aim was to induce his students to think for themselves, to abhor anything slipshod

and to enjoy hard work as he himself enjoyed it. The sincerity and love of truth shown in his scientific work was carried into his everyday life; 'he nothing common did or mean', nor could he compromise upon ethical principles. His students, like all his immediate colleagues, grew to look upon him with affectionate respect: they found him always approachable and eager to share and stimulate their interests. On his retirement, as an expression of their admiration and regard, his former students and colleagues founded and endowed the James Muir Prizes in natural philosophy, and presented to the College the fine portrait by David S. Ewart which now hangs in his old lecture room.

Dr. Muir's tastes were simple and his wants were few. From his student days he had a great love of the Scottish hills, and friends have most pleasant memories of holiday climbs in his company. At the time of his death he had prepared the manuscript of a text-book on physics and he was engaged on a memoir of the founder of the College. Prof. Muir was unmarried and is survived by three sisters.

Mr. F. R. S. Balfour, C.V.O.

By the death of Frederick Robert Stephen Balfour on February 2, arboriculturists and horticulturists have lost a valued friend and counsellor. Though primarily an arboriculturist he was also a keen naturalist and a true lover of all kinds of plants. He had the advantages of having the means of travelling and of inheriting from his mother the beautiful estate of Dawyck in Tweeddale which possessed a number of interesting and historical trees. In later life he had important business interests in the City of London, and it was probably his business ability which led him to include experimental forestry plots on a large scale at Dawyck.

Balfour was born on March 11, 1875, and was educated at Loretto and Trinity College, Oxford. In his early days he spent four years on the Pacific coast of North America, and, although he was greatly interested in all the plant and animal life, it was the trees which captivated his imagination. He was familiar also with the trees of eastern Canada and the north-eastern States and had a working knowledge of the wonderful forests of south Chile. He became, therefore, a recognized authority in Great Britain on American trees, especially conifers. When he returned to Scotland he developed the collection of North American trees at Dawyck, introducing several species for the first time, his favourite being the rare *Picea Breweriana*, and trying out practically every species which could be expected to survive. In addition to his New World conifers he had also a collection of the more hardy Asiatic species mostly introduced by E. H. Wilson, whose second expedition to China he helped to finance. He had a great knowledge of British birds and was proud of his notable collection of foreign ducks and pheasants. From the economic point of view his most important contribution to sylviculture concerned the trial of promising, but as yet unfamiliar, species under forestry conditions or on the mountainside.

Balfour's published communications are scattered throughout a number of journals; his account of David Douglas, his "History of Conifers in Scotland" which covered a wide field, and a paper read recently before the Linnean Society on Archibald Menzies being perhaps the most noteworthy.

As a member of the Home Grown Timber Com-