Sir Thomas Muir, Kt., C.M.G., M.A., D.Sc., LL.D., F.R.S.

THOMAS MUIR, who died at Rondebosch, South Africa, on March 21, 1934, was born on August 25, 1844, at Stonebyres, Lanarkshire, and educated at Wishaw Public School and the University of Glasgow, where he came under the influence of Kelvin. Muir showed equal ability in classics and mathematics, but was persuaded by Kelvin to devote himself to the latter. After holding a mathematical tutorship in the University of St Andrews, and enjoying a period of travel on the Continent, he was appointed in 1871 to an assistant lectureship in Glasgow, and in 1874 to be chief mathematical and science master in the Glasgow High School, where for eighteen years he worked with notable success, acquiring a reputation as a great teacher. His powers of organisation attracted the attention of Mr Cecil Rhodes, then Premier at the Cape of Good Hope, who was looking for a suitable Superintendent-General of Education at the Cape: and Muir was duly elected to the post. He reached the Cape in May 1892, and with the enthusiasm of a pioneer pulled together a loose educational system into a systematic whole. He served with conspicuous success until his retirement in 1915: and so far as there is now a broad and liberal spirit in the Cape educational system, it owes its origin predominantly to the work and teaching of Muir.

He initiated three educational reforms. First, the abolishment of the elementary examination in the schools, instead of which he enlarged the usual curriculum with such subjects as domestic economy, woodwork, and drawing. Secondly, the encouragement of the teaching of science, which at first he found to be almost non-existent. Thirdly, the substantial improvement in the training of teachers. He paid careful attention to the erection of properly equipped training institutions and of schools. As a friend has lately remarked, "To whatever little village you go, you will find there no better building than the school."

During these busy years, and more especially in the subsequent nineteen years of retirement from official duties, Muir devoted his leisure with unstinted singleness of purpose to mathematics. His writings upon determinants have already become classical. His first book, the *Treatise on the Theory of Determinants* (Macmillan) appeared in 1882, and a second in 1890. These were followed by the well-known four-volume *History of Determinants* (vol. i, 1906; ii, 1911; iii, 1920; iv, 1923),

together with a supplementary fifth volume (Blackie, 1929). This History has recorded with almost complete success the name, place, and contents of every published book, thesis, and note upon determinants from the earliest records up to 1920. Such a work, in the hands of an unimaginative writer, could be valuable, perhaps, but certainly dull. Muir, who had considerable literary and poetic gifts, made it positively gay! Forty-nine years separate the date of the first list of writings on determinants from the publication of Volume V. Altogether, Muir wrote 307 mathematical papers, continually supplementing and improving existing proofs and adding fresh material. He rendered notable service by making accessible to all mathematicians the pioneering work in algebra of Laplace, Bezout, Cauchy, Schweins, Jacobi, Reiss, Bazin, Sylvester, and Cayley. But Muir had an artistic sense of form, and by his use of a telling notation and of judicious commentary he moulded countless isolated and over-lapping propositions into a convincing whole. Muir showed his great-ness, not in intuitive discoveries, but in his eminent reasonableness. He reaches through his books a wide public, and has taken an essential part in the algebraic discoveries associated more particularly with Edinburgh, where so much of his work has been published.

Many honours fell to him: in 1874 he became a Fellow of the Royal Society of Edinburgh, and was awarded the Keith Prize in 1884 and again in 1899, and the Gunning Victoria Jubilee Prize in 1916. He was a pioneer and an early President of the Edinburgh Mathematical Society. In 1882 he received the honorary LL.D. degree of the University of Glasgow, and in 1901 was the first recipient of the honorary degree of D.Sc. at the University of the Cape of Good Hope, where he was Vice-Chancellor. In 1892 he became Fellow of the Royal Geographical Society, in 1900 Fellow of the Royal Society: he was given the C.M.G. in 1901, and knighted in 1915.

Muir had wonderful health: until he was eighty he had occasion to consult a doctor only four times and a dentist but twice. A rooted intention to attend a certain meeting in 1925 was a factor in his recovery from a severe illness, after which he completed his fifth volume. From sixty to eighty-four he played tennis, and later took exercise by sawing wood. He had a gentle, kindly manner, a quick smile, and a keen sense of humour. He loved flowers, was a scholarly musician, and had a fine literary sense. To the end he preserved an unclouded brain and an acute and investigating spirit. In a recent letter to a mathematical friend Muir "welcomed the light matrix proofs in contrast to the heavy-footed method of thirty-five years ago": a generous tribute indicative of extra-ordinary flexibility of mind at an age little short of eighty-seven years.

By a deed of gift Muir has bequeathed his wonderful library of mathematical books and periodicals to the Public Library of South Africa. In 1876 Muir married Margaret Bell of Dumbartonshire, who predeceased him by many years. He is survived by three generations. (See also *Obituary Notices of Fellows of the Royal Society*, No. 3, December 1934.)

H. W. T.