

C. G. KNOTT, 1856-1922.

CARGILL GILSTON KNOTT was born on June 30, 1856, at Penicuik, in Midlothian. At the age of 16 he went to the University of Edinburgh, an age customary at that period, and one that had much to recommend it. He became a student under P. G. Tait and worked in his laboratory. This laboratory has been described as an ill-equipped attic, where, without preliminaries, the students were engaged at once upon research, any research that at the moment occupied their professor's thoughts. With the right professor and the right student it proved an extraordinarily stimulating method. Knott, like many other of Tait's students, never lost his love for research. His contributions to science amounted in the end to more than eighty papers, great and small. His loyalty to Tait would have been called veneration if it had not been so evidently an act of affection. The "Life" of Tait, which he subsequently published—Camb. Univ. Press, 1911—is one of the most interesting scientific biographies in the language.

He acted as Tait's assistant from 1879 to 1883, when he was appointed Professor of Physics in the Imperial University of Japan. In this appointment he succeeded an Edinburgh fellow-student—now Sir J. A. Ewing. The period passed in Japan by Ewing and Knott, with Milne, had the very important consequence of calling the science of seismology into life, a science whose inception Knott was fond of tracing to an Edinburgh professor, J. D. Forbes, who first constructed and named a seismometer in 1841. Ewing's interests were afterwards diverted, Milne conceived and organised his world-wide survey, and devoted his whole energies to shaping its problems. Knott continued throughout his life to contribute papers on the dynamical aspects. His last important memoir, 'Proc. R.S.E.,' vol. 39, (1919), is a valuable discussion of the accepted times of transmission of earthquake waves over large arcs of the earth's surface, with their interpretation as to the paths followed by the waves, and the light they throw on the elastic state interior to the earth. In a more general sphere Knott was a ready and agreeable writer. He contributed several encyclopædic articles. He published, in 1908, a handbook, 'The Physics of Earthquake Phenomena,' which made the then rapidly-growing subject widely known, and is still to be ranked as a valuable work, one of the best of its kind.

Next to seismology, the bulk of Knott's studies were devoted to magnetism, especially ferro-magnetism. While in the East, in 1887, he carried out, in association with Tanakadate, a magnetic survey of Japan. For this, among other services, he was decorated, before his return, with the Order of the Rising Sun (Fourth Class), an order which he used punctually to wear on occasions of ceremony. He returned to Edinburgh in 1891, where he held in the University successively the post of Lecturer and Reader in Applied Mathematics. He was also Official Adviser to students of science, and to

those taking the honours degree in Mathematics and Physics. His kindly, painstaking, cheerful character peculiarly fitted him for such work.

From Tait, Knott imbibed a zeal for quaternions, amounting nearly to a passion. He would embark on fierce controversies about its merits. It cannot be said, however, that he, any more than his master, succeeded in establishing it in favour as a general method of physical research. In strict sequence of tradition, Knott's interest in the Royal Society of Edinburgh was always very active. He became a Fellow in 1880. Most of his writings are found in its publications. He received the award of its Keith Prize (period 1893-5) for his work on magnetic strains in iron and nickel. In 1912, he became General Secretary of the Society, succeeding Chrystal, who had succeeded Tait. In this post his wide genial sympathies found in a new sphere the same scope that they had found in the duties of Official Adviser at the University. The Napier Tercentenary celebration fell in 1914. The chief share of the organisation fell upon Knott, and he edited the Memorial Volume of writings contributed by those who took part in it. In the same capacity he edited for the Society the Collected Papers of Dr. John Aitkens, F.R.S., which were in the press at the time of his death.

Dr. Knott held the degrees of D.Sc. of Edinburgh and honorary LL.D. of St. Andrews. He was elected F.R.S. in 1920. His death occurred on October 26, 1922, after a few hours' illness. He was at work, in his usual health, during the day, and died in the course of the night. He had a happy life, which he owed more than anything else to imperturbable good nature, and I think he can never have had an enemy.

R. A. S.