

Arrillaga, and Helmert. Copenhagen, Budapest, London, and Cambridge saw him at their meetings. It was at the London Conference of 1909 that he first became well known to British geodesists. Those of us who recall that Conference, at which Baron Eötvös also first made himself generally known, look back with regret on his manly figure and peculiar charm. During the War, he acted as president of that geodetic association of neutral countries which helped to keep international enterprise alive. In 1920, he was chosen to represent his country on the International Geodetic and Geophysical Union. We met him at Rome, at Madrid, and at Prague, and the memory we shall retain of him is that of a courteous, statesman-like gentleman whose ripe judgment and unfailing interest were of quite exceptional value to the Union.

Gautier was elected vice-president of the Geodetic Section of the Union in 1922. He was president of the Swiss National Committee for Geodesy and Geophysics; president of the federal meteorological committee, and a member of the international committee of weights and measures. It does not surprise one that he was also the chief engineer of the 1st Corps of the Swiss Army. We bid good-bye, then, to as versatile a man as modern science can show, and to one whose peculiar social and administrative gifts were of the greatest help in any international gathering.

DR. FREDERICK MUIR.

IN the death of Dr. F. Muir, which occurred on May 13, entomology loses one of its keenest and most experienced devotees. Born in 1872, Frederick A. G. Muir served in his early life with the Eastern Telegraph Company and was stationed during different times at various localities on the eastern shores of Africa and also at Aden.

Being an ardent entomologist from boyhood, Muir's tropical experience broadened and intensified his great natural ability as a student of insect life. It was while he was still in the telegraph service that he first came into touch with the late Dr. David Sharp. In 1905 it was through Dr. Sharp's influence that Muir adopted entomology as a profession and joined the scientific staff of the Hawaiian Sugar Planters' Association in Honolulu. The worst troubles of the sugar-cane growers in the Hawaiian Islands were imported insect pests, and it fell to Muir to explore many lands in order to discover the native countries of these pests, with the object of investigating their indigenous enemies. In this work Muir made repeated and often extremely arduous journeys to such lands as Japan, China, the Philippines, Formosa, the East Indies, Queensland, and other parts.

Few naturalists of recent years have had the same intimate knowledge of the Malay Archipelago as Muir. His duties took him on more than one occasion to Java, New Guinea, Amboina, Ceram, and other of the islands, where he had to face hardship and sickness, and to work under improvised conditions of the most primitive kind. Muir fortunately lived to see the results of his work

on biological control bear abundant fruit. The predaceous Capsid-bug *Cyrtorhinus mundulus* discovered by him in Fiji and Australia in 1919 was the agent which finally achieved complete economic control over the sugar-cane leafhopper. His work on the Tachinid fly, *Ceromasia sphenophori*, which, after much journeying, he eventually obtained in New Guinea, has been the major factor in the subjugation of the cane borer weevil. Perhaps his most striking success in the field of biological control was his introduction of the solitary wasp *Scolia manilae* from the Philippines into the Hawaiian Islands, in 1916, where it achieved, in a remarkably short time, a high degree of control over the *Anomala* beetle.

Muir's pioneer work in the field of biological control has had an enormous influence over the prosperity of the Hawaiian Islands, where his name is very widely known. His interest in entomology, however, covered almost all fields of the subject. On the taxonomic side he became the recognised authority on the difficult group of the Fulgoroidea. His skill in minute dissection led him to explore various aspects of morphology, and his fundamental study, in conjunction with Dr. David Sharp, on the genitalia of Coleoptera is a standard monograph. In his travels Muir had little opportunity to publish, and his many papers were mostly written during periods at headquarters or while on leave. In the few years of his retirement at Warnham, in Sussex, he took full advantage of the opportunity for unfettered research. Severe illnesses, however, incapacitated him for much of the time, but his optimism led him to plan work for the future. Long subjection to tropical conditions unquestionably sowed the seed of illnesses that led to his premature death. One of the last published contributions from his pen was in the form of a letter, dated May 11, entitled "Disease in Nature", which appeared in these columns so recently as May 23.

At the time of his death, Muir was still a member of the scientific staff of the Hawaiian Sugar Planters' Association, his services being retained in a consultative capacity. In 1918 he married Miss Margaret Anne Sharp, third daughter of Dr. David Sharp, and leaves one son. A few years ago he received the honorary degree of D.Sc. from the University of Hawaii, and in 1930-31 he was a member of the council of the Entomological Society of London, being a vice-president for the year 1930.

A. D. I.

WE regret to announce the following deaths:

Prof. I. P. Church, emeritus professor of civil engineering at Cornell University, on May 7, aged eighty years.

Prof. Louis Dollo, professor of geography and animal palaeontology in the University of Brussels and curator of the Royal Museum of Natural History, on April 19, aged seventy-four years.

Mr. T. T. Gray, president of the Gray Laboratories of Newark, New Jersey, known for his work in petroleum technology, on April 27, aged forty-nine years.

Mr. C. T. Heycock, F.R.S., Goldsmiths' reader in metallurgy in the University of Cambridge and Prime Warden of the Goldsmiths' Company in 1922, on June 3, aged seventy-two years.