

he endangered the success of his own researches by the readiness of the aid he rendered to others.

Mayor cherished a great ambition to remove the equipment of the Tortugas Laboratory to some locality in the West Indies and make it a truly international meeting-place for biologists. Just before the war his opportunity seemed to have come, and he was about to enter into negotiations for a site in Jamaica when the storm broke. It was a bitter disappointment to Mayor that he was not able to proceed with his project after the war, not least because he hoped that, in his yearly assemblies, English biologists would be represented more fully than in the past, and that in this way the cause of Anglo-American unity, which he held very dear, would be furthered. F. A. P.

#### DR. ALEXANDER GRAHAM BELL.

ON August 1 Dr. Alexander Graham Bell, one of the world's greatest inventors, died at the age of seventy-five years. The effects of early upbringing and environment always leave their mark on a man's life, and in Graham Bell's case they are specially apparent. His father spent the first half of his life as a lecturer on elocution at Edinburgh, and was also a prolific author of books on the same subject. Among his son's earliest experiments were the recording of speech waves on smoked cylinders. Graham Bell was a student at Edinburgh University, and later he assisted his father when the latter was a lecturer at University College, London. In 1870, for reasons connected with Graham's health, the family migrated to Brantford, near Tutela Heights, Ontario. In 1873 Graham was appointed professor of physiology at Boston University. In 1874 he invented a system of harmonic multiple telegraphy, and in that year he began a series of experiments which led him at last to realise in practice his conception of an articulating telephone.

Considering the marvellous results achieved the mechanism of the telephone is wonderfully simple. Previous to its invention, elaborate devices had been proposed containing large numbers of tuned reeds so as to cover the whole gamut of the human voice. The final form of the instrument is fully described in Graham Bell's patents of 1876 and 1877. Although he made several other notable inventions, the telephone will always be outstanding as his supreme achievement. It first attracted world-wide attention at the Centennial Exhibition in Philadelphia in 1876. After Graham Bell had laid down all the essential principles of telephony, Edison developed his carbon transmitter.

In 1878 the first telephone exchange was established. There are now about twenty-one million telephones connected with the various exchanges throughout the world. In the early days Graham Bell regarded twenty miles as the limit to which articulate speech could be sent. It has now been sent over five thousand miles.

In 1917 the Bell Memorial Committee presented to Brantford, Ontario, a public park, the house in which Graham Bell lived when he made his epoch-making discovery, and a noble monument, to commemorate the invention of the telephone. Graham Bell in his later years took the keenest interest in aeronautics and geophysics. When Father Cortie recorded the mag-

netic storm of August 11, 1919, in NATURE (vol. 103, p. 483), Graham Bell wrote to say that he had noticed a display of the Aurora Borealis at Cape Breton Island on that date, "Pulsations of light swept upward to the zenith resembling clouds driven before a heavy wind" (vol. 104, p. 74). He was made a doctor of science at Oxford in 1906, and in 1913 the Royal Society awarded him the Hughes medal and the Institution of Electrical Engineers made him an Honorary Member. On his visit to this country in 1920 the freedom of his native city of Edinburgh was conferred on him. He was held in universal esteem. As the founder of a great and flourishing industry which ameliorates the conditions of life he was a great benefactor to humanity.

A. R.

WORKERS in many branches of science and education will deeply sympathise with Prof. W. A. Bone, professor of chemical technology in the Imperial College of Science and Technology, on the death of his wife on July 26. Before her marriage to Prof. Bone in 1916, Mrs. Bone, who was then Miss Liddiard, was headmistress of the St. Albans High School for Girls, and had previously been a member of the teaching staff of the Ladies' College, Cheltenham. She was a graduate in arts of the University of London, and possessed exceptional capacity for teaching as well as for organisation. While she was head of the St. Albans High School, the domestic economy school was inaugurated there. Mrs. Bone took an active interest in science progress in general, and her husband's researches in particular, and her death will be regretted by a large circle of pupils and friends who came under her strong and delightful influence.

ORIENTAL learning has suffered a serious loss by the death, at the age of eighty-five years, of Mr. Charles Henry Tawney, C.I.E. Educated at Rugby and Cambridge, where he gained the highest classical honours, and a fellowship at Trinity College, Mr. Tawney joined the Indian Educational Service, and became professor at the Presidency College, Calcutta, where he won the esteem of his pupils by his kindness and learning. He became Director of Public Instruction in Bengal, and retired from the Educational Service in 1892. On reaching England he became librarian at the India Office. Much of his time was occupied in assisting writers on Indian subjects, by whom he was regarded with the greatest esteem. He was an admirable Sanskrit scholar, and published several works, the best known of which are translations of two great collections of Indian folk-tales, the *Katha Sarit Sagara* and the *Katha Kosa*, enriched with valuable notes, which displayed a wide knowledge of the literature of folk-tales. One of his sons, Mr. R. H. Tawney, Fellow of Balliol, is a distinguished writer and lecturer on economic problems.

WE regret to see the announcement of the death, on July 25, of Dr. Arthur Ransome, F.R.S., lately professor of public health in Owens College and examiner in sanitary science in the Universities of Cambridge and Manchester.