Obituary.

DR. SAMUEL RIDEAL.

SAMUEL RIDEAL was born in London in 1863. His father was John Rideal. He obtained a scholarship at Dulwich College, 1875–1878. For a short time he studied at the Royal School of Mines, but afterwards went to University College, London, where, in 1883, he became assistant to Dr. A. W. Williamson. He retained this post for a year or two under Sir William Ramsay, but in 1889 became lecturer on chemistry at St. George's Hospital Medical School. He was a brilliant student, and in 1884 took the degree of bachelor of science at the University of London, with first class honours, and a University scholarship in chemistry. Two years later he received the degree of doctor of science, his subject being inorganic chemistry. In 1888 he was elected a fellow of University College, London. Already in 1878 he had become a fellow of the Institute of Chemistry, upon the council of which he served during the years 1899–1902.

About the year 1890, Rideal became public analyst for Chelsea, and was also, for a short time, public analyst for Lewisham. He set up a consulting practice at 28 Victoria Street, S.W., and retained an active interest in the work for thirty-five years. He married Lilla, daughter of the late Samuel Keightley, of Bangor, Co. Down, and sister of Sir Samuel Keightley, barrister and novelist. Dr. Rideal's son, Eric K. Rideal, is Humphrey Owen Jones lecturer in physical chemistry at Cambridge, and fellow of Trinity Hall. He has taken up his father's work in conjunction with Mr. A. Sciver.

While at University College, Rideal published several researches in pure chemistry, such as the action of ammonia on chromyl dichloride, on tungsten compounds, and on the halogen compounds of boron. A new volumetric method for the estimation of nitrous acid depending upon the conversion of an acid solution of aniline into diazobenzene was published by Arthur G. Green and S. Rideal in 1884.

Dr. Rideal became a recognised authority on the disposal and disinfection of sewage, the purification of water and sanitation generally. His book on "Sewage and the Bacterial Purification of Sewage" went through three editions, while that on "Water and its Purification" published in 1897, had a new edition in 1901. With his son, Dr. Eric Rideal, he published "Public Water Supplies" in 1914. The Rideal-Walker method for determining the antiseptic value of disinfectants is widely used. Rideal also studied carefully the use of electrolytic chlorine and of ozone in the purification of sewage. He was well known as an expert witness in the courts and gave evidence in a large number of Parliamentary inquiries.

Rideal's indefatigable energy in overcoming difficulties and his frank manner gained the confidence of those who had to work with him. To the great sorrow of his many friends, his health gave way, so that he had to take a prolonged rest. He died at Hartley, in Southern Rhodesia, on Nov. 13 last, at the age of sixty-six years.

DR. A. N. A. NALEPA.

DR. AUGUST NEMESIUS ALFRED NALEPA, the well-known acarologist, of Baden, near Vienna, died after a short illness on Dec. 11 last. Nalepa was born at Versecy, in Hungary, on Dec. 15, 1856. He was educated at the University of Vienna and later joined the staff and became assistant zoologist at the University.

Nalepa commenced to study the gall-mites (Eriophyidæ) in 1880, and seven years later he published his fundamental and unique work entitled "The Anatomy of the Phytoptera". The gall mites are considered to be the most primitive animals of the order Acarina; they are all microscopic in size and are entirely herbivorous in their habits. Nalepa studied them mainly from a systematic point of view, and as a result of his researches more than four hundred new species have been described. He was a prolific writer, and his publications in relation to gall mites number about one hundred. Of these, his works entitled "Eriophyidæ", in "Das Tierreich" (Berlin, 1898), and "Eriophyiden, Gallenmilben", *Zoologica*, **61** (Stuttgart, 1910), are widely known, and are still recognised as the standard works on the subject.

For prominent services rendered to education and scientific research Nalepa was honoured with the Emperor Franz Joseph Order and also the title of State Councillor. He was very generous, and delighted in assisting and advising other students engaged in research on the Eriophyidæ, and his immense knowledge of the group, together with sound criticism, always proved of great value to those who had the pleasure of corresponding with him.

Nalepa took an active interest in gall mites until the last, and was about to publish a new paper in collaboration with the present writer on "The Habits of Gall Mites" at the time of his death. He possessed a magnificent collection of gall mites contained in small glass vials. This collection is unique, and will in all probability be presented to the trustees of the Vienna Museum of Zoology.

A. M. MASSEE.

DR. WILHELM MAYBACH.

THE death of Dr. Wilhelm Maybach at Stuttgart on Dec. 29 removes the last of the four great German pioneers whose names will always be associated with the perfection of the internal combustion engine and its application to road transport. Nicolas Otto, who died on Jan. 26, 1891; Gottlieb Daimler, who died on Mar. 6, 1900; Karl Benz, who passed away in April last; and Maybach, all made important contributions to this subject; and to their names might be added that of Eugen Langen, 1833–1895. Just as Maybach for many years was connected with Daimler, so seventy years ago Otto had found in Langen a most able collaborator and partner.

Otto began his long struggle with gas engine difficulties in 1854; with Langen in 1867 achieved partial success, and then ten years later, on Aug. 4, 1877, took out his great patent for the four-stroke