

partners to consent to the scrapping of inefficient plant and the substitution of improved appliances. A man of great energy, he was ready at all times to work twenty-five hours a day for several days together. He long lived on the works in the most modest quarters and his all-seeing eyes were everywhere. In Germany the success of the great chemical works has been mainly due to the effective co-operation of a variety of workers, representing the different sides of the business, supported by a small army of highly disciplined, qualified scientific assistants; but Messel did everything himself: his versatility was astounding; he was not only chemist but also engineer, works manager and business man; he had no scientific staff but only an assistant or two.

Though a German but a German fired with Jewish imagination, Messel appreciated and practised English methods. Aided only by the most modest resources, he long held his place successfully against his rivals in Germany. Probably much of his early success was due to his sympathetic attitude towards his workmen, by whom he was generally beloved; but Messel was not only a worker, he also played hard. In great social request, he knew everyone: Gilbert was one of his great friends. Of late years Messel had been one of the most familiar and popular figures at the Savage Club.

Messel's eminent scientific services to industry were recognised in 1912 by his election into the Royal Society. No other compliment could have given him greater satisfaction. Though a manufacturer, he lived for science and in the atmosphere of science and not the least of his merits is the example he has thus set. H. E. A.

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PROF. A. K. HUNTINGTON.

By the regretted death, on April 17, at sixty-four years of age, of Prof. Alfred Kirby Huntington so shortly after relinquishing the chair of metallurgy at King's College, University of London, which he had occupied since 1879, British technical science loses one of its old guard, and both metallurgy and aviation are the poorer by the loss of an indefatigable worker and an outstanding personality.

Though it be admitted that Prof. Huntington's name is linked with no spectacular discovery, his work, beyond its professional duties, was continuous, scholarly, and of marked originality. In both respects he therefore exercised a determinative moulding influence upon the two generations of men he trained in this rapidly widening field of science. His career, indeed, coincided with what we may justly regard as the Renaissance of non-ferrous metallurgy. For nearly forty years he was invariably abreast, more usually in the forefront, of the many new departures which have marked it. A physicist as well as a chemist, his researches on the micro-structure of metals and on "corrosion" have added essentially to our metallographic knowledge; his paper on "The

Concentration of Metalliferous Sulphides by Flotation," read before the Faraday Society in 1905, broke ground which has been gratefully cultivated by others, and provided the starting-point for fresh researches; whilst in the discussion of such diverse technics as those of copper-smelting, cyanidation, nickel metallurgy, etc., many have owed essential enlightenment to his suggestions and criticisms, imparted with a kindly, if somewhat gruff, sententiousness.

Prof. Huntington rendered yeoman service in the earlier development of several of our now important technical associations; thus one recalls his two papers (upon "The Mexican Amalgamation Process" and "The Metallurgy of Nickel and Cobalt") which were read at the first annual meeting of the Society of Chemical Industry in 1882. Later he was actively interested in the formation of the Institution of Mining and Metallurgy, becoming its second president in 1894, and remaining an honoured member of council until his death. The mere enumeration of his contributions to its Transactions occupies a whole page of index. In 1913 he succeeded to the presidential chair of the Institute of Metals, and to that society he gave of his energy and experience with equal freedom. During the war his specialised knowledge of high explosives was placed at the disposal of, and fully utilised by, the Admiralty.

A marked characteristic of Prof. Huntington's metallurgical outlook was its practicality and its constant insistence upon the economic aspect of the problem under consideration. His motto might seem to have been: "First write your equation in economics, and the remaining 20 per cent. of technics will be easily and better supplied thereafter"—though it must be admitted that he could be unsparing if that balance appeared faulty!

Prof. Huntington's intense practical interest in aeronautics, which advancing years were powerless to quench (since, in addition to his exploits in ballooning, he was until quite recently his own pilot and flew his own plane), made him famous to a wide circle; but it is to his services to modern metallurgy that special tribute is due.

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DR. A. J. CHALMERS.

THE death of Dr. A. J. Chalmers in Calcutta on April 5 causes a gap in the ranks of British workers in tropical medicine, and will also be deeply regretted by his many friends in this country, as well as in the various Colonies in which he held important posts. The son of a Wesleyan minister, Dr. Chalmers was born in London in 1870, but began his career at University College, Liverpool, which at that time formed part of Victoria University. His career in the Medical School during his student days was brilliant, and it was soon apparent that he had a bright future before him. He gained the Holt fellowship of his college in 1890 and 1891, and obtained honours on taking his degree as M.D. Soon after

taking his F.R.C.S. (England), he had a great desire to travel, the tropics especially having an attraction for him, and he joined the West African Medical Service in 1897. He served as a medical officer with the Ashanti Field Force in 1900, and was with the British troops that were besieged in Kumasi, who, after some time, gallantly broke through the native hordes and regained the coast. Dr. Chalmers attended to the sick and wounded with great energy and devotion and was mentioned in despatches by the commanding officer, and received the medal with a clasp. In 1901 he accepted a post under the Ceylon Government as registrar of the Ceylon Medical College. Here his capabilities as administrator and organiser were brought into full play. He soon developed this institution into an excellent medical school, the licence of which is now recognised by the General Medical Council.

While in Ceylon Dr. Chalmers first turned his attention to the tropical diseases that came under his notice, and never spared himself in working among the resident Europeans and natives who came to him. Resigning his position in Ceylon in 1902, so that he might devote more time to the study of tropical diseases and parasitology, he returned to England. It was then that he conceived the idea of writing a much-needed manual on tropical medicine; and in collaboration with his colleague, Dr. Castellani, in Ceylon, he began the work which will remain a monument to his memory. The preparation of "The Manual of Tropical Medicine," which has now reached its third edition, cost him a great amount of time and labour. He was an ardent worker in many fields, and carried on research not only in pathology and bacteriology, but also in parasitology, especially in connection with diseases of the tropics. His work on the Mycetoma will always be connected with his name.

From 1912 Dr. Chalmers devoted more than a year to the study of the cause of pellagra, and in company with Dr. Sambon visited Italy and Rumania. On his return he carried on researches in this country, with the result that cases of pellagra, a disease unknown to be endemic in Great Britain, were found in Hertfordshire and Scotland. Later he visited Egypt and travelled up the Nile with the same object, and accumulated much valuable data in connection with the study of pellagra and other diseases such as endemic hæmaturia.

On his return to England Dr. Chalmers gave some time to the study of the history of medicine, and became an enthusiastic lover of ancient literature—especially that dealing with the medical art. After some time he felt again the call of the East, and often expressed a wish to return there. In 1913 he accepted a post as director of the Wellcome Research Laboratories at Khartum, which he filled with conspicuous success. He became a member of the Central Sanitary Board, and also of the Sleeping Sickness Commission of the Sudan.

Dr. Chalmers continued there until a short time ago, when he left the Sudan, accompanied by his wife, with the object of returning home *via* India, Japan, and America, and when in Calcutta was unfortunately seized with his fatal illness.

PROF. L. T. O'SHEA.

LUCIUS TRANT O'SHEA, professor of applied chemistry in the University of Sheffield, who died suddenly from cerebral hæmorrhage on April 18 at sixty-two years of age, was educated at the Grammar School and at Owens College, Manchester, and went to Sheffield in 1880 as assistant lecturer and demonstrator in chemistry at Firth College. In 1890 he became lecturer in mining chemistry, and in 1905 professor of applied chemistry, in the university. For the past twenty years he had specialised in the study of explosives as applied to mining operations, and of the coking of coal in retort ovens. He also did much work on the safety of coal mines, particularly with regard to the effect of the gases given off by the coal and of coal dust on explosions in mines. He was a fellow of the Chemical Society, a member of the Society of Chemical Industry, and hon. secretary of the Institute of Mining Engineers.

Prof. O'Shea published "A Contribution to the History of the Constitution of Bleaching Powder," and "The Retention of Lead by Filter Paper," about the time of the lead-poisoning epidemic in Sheffield more than thirty years ago, and some years later, with Dr. W. M. Hicks, he produced electro-iron of almost perfect purity, which the present writer had the privilege of using for experiments when helping to lay the foundations of theoretical steel metallurgy, for which pure iron was required as a basis for study. He also published "A Note on the Woolwich Testing Station," "A Testing Station for Mining Explosives," and "The Safety of High Explosives, with Special Reference to Methods of Testing."

In 1901 Prof. O'Shea went out to the South African War in command of a detachment of the 1st West Yorks Royal Engineer Volunteers, remained until the declaration of peace, and was given the Queen's medal with five clasps. In 1914 he was made O.C. of the O.T.C., Sheffield University, with the rank of captain in the unattached Territorial Force, and he was an energetic and inspiring leader.

Prof. O'Shea was not able to devote a large proportion of his time to research, but he will be greatly missed for the painstaking work he did in the training of students in chemistry as applied to mining and to the coking of coal, and in the general preparation of fuel for industry.

A. McW.

A MAN who had great influence in the applications of science to the use and convenience of man has passed away in MR. THEODORE N. VAIL, well known to many in England, as well as in