

decorative work. He was also responsible for a method of protecting magnesium and its alloys by depositing selenium, which, however, had certain practical disadvantages.

Much of Bengough's later work was done for the Joint Corrosion Committee of the Iron and Steel Industrial Research Council and the Iron and Steel Institute, and after retiring from Teddington in 1936, he continued to act as consultant to that body and to the Department of Scientific and Industrial Research, being chairman of the Marine Corrosion Sub-Committee.

Bengough's work was marked by a high standard of accuracy. He devised methods by which extraneous factors were so far as possible excluded, so that the results were reproducible. By using carefully designed apparatus, he determined the course of the corrosion process by measuring the absorption of oxygen and when necessary the evolution of hydrogen, so that characteristic corrosion-time curves could be drawn. Such carefully selected conditions cannot, of course, reproduce those of attack on a ship's plate or a condenser tube, and the relations between laboratory results and practical experience have been the subject of much controversy. Bengough laid most stress on the properties of the products of corrosion in determining its subsequent course, whereas Dr. U. R. Evans and his collaborators attached chief importance to the principle of differential aeration. The two investigators were approaching the problem from different angles, and their views were less irreconcilable than they had seemed at first, so that in 1938 a joint statement was issued which showed how great was the measure of agreement. A series of six papers by Bengough and his colleagues in the *Proceedings of the Royal Society*, of which he was elected a fellow in 1938, contains an account of a long series of quantitative experiments on corrosion. Other laboratory work is described in the reports of the Corrosion Committee published by the Iron and Steel Institute, and here his chief service was that of laying down the conditions which must be observed in making standard tests of corrodibility.

Tall and military in appearance and seemingly robust, Bengough had long periods of serious illness before that which led to his death. He was a good chairman and always showed good temper and courtesy in dealing with a notoriously controversial subject.

Dr. Bengough married Constance Helen, daughter of Lieut.-Colonel Jelf-Sharp, who survives him.

C. H. DESCH.

#### Prof. V. I. Vernadsky

PROF. VLADIMIR IVANOVICH VERNADSKY, one of the leading mineralogists and geochemists in the U.S.S.R., died on January 6. He was born at St. Petersburg on March 12 (February 28, Old Style), 1863. After graduating at the University of St. Petersburg in 1886, he spent some time in Paris working in the laboratories of Le Chatelier and Curie, and in 1896 was appointed professor of mineralogy at the University of Moscow. In 1906 he was elected a member of the Russian Academy of Sciences.

Prof. Vernadsky's early work was devoted to a chemical study of aluminosilicates, a subject which he later expanded and applied in a wider field of the structure of silicates and especially of kaolinite, feldspars and chlorites. At the same time he was

working on descriptive mineralogy and he described and named a number of new minerals. In his lectures at the University he began to break new ground by stressing the genetic aspect in mineralogy. This genetic approach to mineralogy was fully developed in his books: "Essay on Descriptive Mineralogy" (1908, 1910) and "History of Minerals of the Earth's Crust" (1925, 1933). Eventually genetic mineralogy overstepped its proper boundaries and became merged in the far wider field of geochemistry. Thus Vernadsky may be considered the founder of the new Russian school of geochemistry, which has made such gigantic strides during the last three decades.

The greater part of Vernadsky's work on geochemistry appeared in the form of numerous papers, but a good presentation of it may be found in his book "La géochimie", published in French in 1924. It is a most stimulating book, full of daring ideas and wide generalizations. But even more daring is his book "La biosphère", published in 1929, in which he made an attempt to incorporate biological processes into his general scheme of geochemistry.

Endowed with a versatile genius and full of tremendous energy and enthusiasm, Vernadsky spread his activities far and wide. He organized regular research in mineralogy and geochemistry, helped to establish the Mineralogical Museum in Moscow, promoted the establishment of numerous scientific institutions—such as the Biogeochemical Laboratory, the Radium Institute, a permanent committee for the study of meteorites, and others. He was also the founder and the first president of the Ukrainian Academy of Sciences. Vernadsky was well known outside the U.S.S.R. Since 1920 he spent some years in Paris and Prague working and lecturing. He was a member of the Paris Academy of Sciences and the Czechoslovak Academy. He visited Great Britain in 1923, when he took part in the meeting of the British Association in Liverpool.

Vernadsky's direct contributions to science are considerable, but they are dwarfed by the greater importance of his influence on the development of new ideas in geochemistry and mineralogy. As a teacher he was most stimulating. He could easily divert the wealth of his erudition into fresh channels and mark out new lines of research. He was greatly admired and loved by his pupils and colleagues, even by those who violently opposed his views.

A bibliography of Vernadsky's works up to 1936 was given in the 'Vernadsky Jubilee Volume' published by the Academy of Sciences of the U.S.S.R., two articles in *Bull. Acad. Sci. URSS*, Géol. Sér., No. 1 (1944), one by D. P. Grigoryev (p. 25) and the other by V. G. Kryzhanovskiy (p. 35) give an account of his work, and a short account of the development of geochemistry in the U.S.S.R. has appeared in *Nature* (154, 814; 1944). S. I. TOMKIEFF.

WE regret to announce the following deaths:

LORD DAWSON OF PENN, P.C., G.C.V.O., K.C.B., president during 1931-38 of the Royal College of Physicians, on March 7, aged seventy-nine.

Prof. F. W. Eurich, emeritus professor of forensic medicine in the University of Leeds, known for his work on anthrax, on February 16, aged seventy-seven.

Sir Duncan Wilson, C.V.O., C.B.E., until 1940 chief inspector of factories (Home Office), and secretary during 1918-30 of the Industrial Health Research Board, on March 1, aged sixty-nine.