

OBITUARIES.

ÉMILE BERTRAND (1844-1909).

Émile Bertrand was a Corresponding Member of the Crystallogical Society, becoming an Honorary Member of the Mineralogical Society with the amalgamation of the two societies in 1888. He was one of the founders of the French Mineralogical Society, and twice its president. Coming of a wealthy family, he spent some years in travel; and in 1869 he attended the Paris School of Mines, with 'une véritable passion pour la Minéralogie'. It was in 1872 that he commenced his series of researches in mineralogy, but unfortunately his brilliant scientific career was only too short. A bad state of health, which increased with years, ended in an almost complete loss of memory. Since 1888 only two papers have been published by him, the last being in 1897.

His work was two-sided in its character: he perfected instruments of research, and he used these instruments to advantage in determining the constants of minerals. Several improvements in the mineralogical microscope were made by him, one of which was the addition of the now well-known 'Bertrand lens' between the objective and the eye-piece for the purpose of showing interference-figures in convergent polarized light. He also designed a small, convenient form of refractometer. A large number of mineral species were re-examined, and it was his intention to pass in review all those which appeared doubtful. Friedelite was one of the species he discovered and described. His paper 'on the law of twinning and hemihedrism of leucophane' appeared in the Proceedings of the Crystallogical Society.

An obituary notice, written by Professor G. Wyrouboff, together with a portrait and list of papers, sixty-one in number, has appeared in *Bull. Soc. franç. Min.*, 1910, vol. xxxiii, pp. 117-124.

MARIA ARISTIDES BREZINA (1848-1909).

Dr. Aristides Brezina was elected an Honorary Member of our Society in 1895. He was born at Vienna on May 4, 1848, dying there after a long and severe illness on May 25, 1909. He entered the Royal Mineralogical Collection at Vienna (k. k. Hofmineralien-Kabinet) as a pupil at the age of fourteen, and as an assistant at the age of twenty; and when this collection was transferred to the new Natural History Museum

(k. k. naturhistorisches Hofmuseum) in 1889 he was appointed director of the mineralogical and petrographical division, from which post he retired in 1896. During a portion (1874-92) of this period he also acted as teacher of crystallography in the University of Vienna. Besides studying at Vienna, he had also studied crystallography at Berlin and Paris, and graduated at Tübingen in 1872.

Much of his earlier work related to the crystallography of minerals and artificial compounds; and he described as new species the minerals herregrundite, schneebergite, and strüverite. On the retirement of Professor Gustav Tschermak from the Mineral Cabinet in 1878 he took special charge of the extensive collection of meteorites, and he then commenced to devote himself with much zeal to the study of these bodies, more especially the meteoric irons. It is through his work in this direction that he is most widely known.

A fuller account of his life, together with a long list of his published works, is given by Dr. C. Hlawatsch in *Verh. geol. Reichsanstalt, Wien*, 1909, pp. 181-187.

FREDRIK JOHAN WIIK (1839-1909).

Professor F. J. Wiik, an Honorary Member of this Society since 1880, died at Helsingfors on June 15, 1909. He was born in that city on December 16, 1839, graduated in 1865, and in 1877 was appointed Professor of Geology and Mineralogy in the University of Helsingfors, retiring with the title of Emeritus-Professor in 1898. His published work is not voluminous and relates almost exclusively to the geology and the minerals of his native country, though in 1893 he also propounded an elaborate crystallo-chemical theory of the silicates. The mineral wiikite, named in his honour by his successor, Professor Wilhelm Ramsay, is remarkable in containing a larger quantity of the rare element scandium (Sc_2O_3 1.17 per cent.) than any other known mineral.

HILARY BAUERMAN (1833-1909).

Although not a member of our Society, Professor Bauerman was always interested in our science. He was the first student entered at 'The Government School of Mines and of Science applied to the Arts' (now the Royal School of Mines), and he afterwards spent three years at the Freiberg Mining Academy. In 1856 he was appointed assistant geologist on the Geological Survey of Great Britain, and in 1858 was a joint-author of a catalogue of the rock specimens in the Museum of

Practical Geology. For nearly twenty years he was Professor of Metallurgy in the Ordnance College at Woolwich.

His textbooks on 'Systematic mineralogy' and 'Descriptive mineralogy' were published in 1881 and 1884 respectively, and he was the author of standard works on metallurgy. A favourite hobby of his was the construction of crystal-models by the folding of paper. By his will he left a considerable sum on trust, subject to a life interest, for the encouragement of the study of mineralogical science at the Royal School of Mines.

Obituary notices have appeared in several scientific and technical journals, and a portrait is given in the Mining Journal of December 18, 1909.

FELIX CORNU (1882-1909).

Dr. F. Cornu was born at Prague on December 26, 1882, and spending most of his boyhood in the district of the Mittelgebirge in northern Bohemia, he became a keen collector of zeolites and other minerals. In 1902 he entered the University of Vienna, graduating there in 1906, and from 1904 acting as demonstrator under Professor F. Becke. In 1907 he was appointed assistant in mineralogy in the Royal Mining School at Leoben in Styria. Never very strong, he brought on by overwork a nervous breakdown from which he only partially recovered; and he died by his own hand during the night of September 22-23, 1909.

Although not twenty-seven years of age, he had accomplished more work than many investigators do in a full life-time. His capacity for work and his versatility seem indeed to have been extraordinary. The list of his notes and papers, from 1903 till the time of his death, includes no less than eighty-five titles, and papers from his pen still continue to appear. Although some of his notes appear to be trivial and to have been hastily prepared, there are many of his papers which indicate very careful work. It would have been much better, both for the individual and for the science, had he been advised to look always to the quality as well as the quantity of *published* work. Unfortunately the keen competition for posts in these days rather offers an inducement to work of this kind.

Many of Cornu's earlier papers were on the zeolites and rocks of the Bohemian Mittelgebirge; and one of his best pieces of work was on the 'micaceous zeolites', gyrolite, zeophyllite, and a new species reyerite. He also described the existence of regular contraction fissures in zeolites. In 1907, with the aid of a travelling scholarship from the University of

Vienna, he visited the zeolite localities of Scotland and the Faroe Islands. Later, he became interested in more general problems, one of which was the cause of the peculiar blue colour of rock-salt, and it was in this mineral that he discovered the phenomenon of piezopleochroism. More recently, he turned his whole attention, day and night, to the study of the colloidal forms of minerals, which appear to be of some importance in the products of weathering and in soils.

HANS CHRISTIAN ALBERT HAUSWALDT.

Dr. Hans Hauswaldt, a counsellor of commerce (Kommerzienrat) of Magdeburg, died on March 27, 1909. He possessed a private laboratory well equipped with instruments, in which he obtained a large number of beautiful photographs of the optical interference-phenomena of crystals and photo-micrographs illustrating various kinds of crystalline structure. Many of these photographs were published in his work 'Interferenz-Erscheinungen an doppeltbrechenden Krystallplatten im konvergenten polarisirten Licht' (Magdeburg: J. G. Hauswaldt, 1902, 1904, and 1907), the three portfolios of which contain a total of 185 magnificent quarto plates reproduced in black and white. In a posthumous publication, in conjunction with D. Vorländer, is given a series of nineteen plates of the interference-figures shown by liquid crystals (Abh. Leop. Carol. Akad. Halle, 1909, vol. xc).

REVIEWS.

Crystallography, an elementary manual for the laboratory. By Professor M. EDWARD WADSWORTH. Pp. xvi [+ xx] + 299, with 25 double plates. (Philadelphia: J. J. McVey. 1909. Price \$3.00).

This book is intended to give to students of geology and mining, as well as to prospectors, an idea of the forms of crystals, which will be of assistance to them in the determination of minerals in the field or laboratory. The detailed description of the forms of the six systems commences at p. 9 with the triclinic system, and ends at p. 147 with the isometric system. The student is then taken through the whole of this again three times in the succeeding chapters headed 'Crystallographic