

OBITUARIES.

MAX HERMANN BAUER (1844-1917) was born at Gnadenthal in Württemberg and was a great-grandson of the Stuttgart mineralogist J. F. W. Widenmann (1764-98). Since 1884 he was Professor of Mineralogy and Petrology in the University of Marburg. Previously he was professor at Königsberg, and for a time was attached to the Prussian Geological Survey. Since 1884, also, he was one of the joint editors of the 'Neues Jahrbuch für Mineralogie, Geologie, und Paläontologie', and of the 'Centralblatt für Mineralogie', &c., since its commencement in 1900. To these journals he contributed a very large number of abstracts and reviews. Beilage-Band xxxix of the Jahrbuch was issued as a 'Festschrift Max Bauer' on the occasion of his seventieth birthday: this contains an excellent portrait. He was the author of several papers on crystallized minerals and on petrography; special mention may be made of those on the crystallography and twinning of scheelite (1871) and on laterite (1898 and 1907). His 'Lehrbuch der Mineralogie' passed through two editions (1886 and 1904); and the same was the case with his large volume on precious stones ('Edelsteinkunde', 1895-6 and 1909), by which work he is perhaps best known. An obituary notice by R. Brauns, one of his old pupils, has been given in the Centralblatt, 1918, pp. 73-84, with bibliography.

GEORGE FERDINAND BECKER (1847-1919) was born in New York and studied at Harvard University, Heidelberg (Ph.D., 1869), and the Mining Academy at Berlin. In 1875 he was lecturer in mining and metallurgy in the University of California, and he joined the United States Geological Survey in 1879. His well-known monograph on the Comstock Lode in Nevada (1882) was one of the earliest books containing good coloured figures of micro-sections of rocks. In his monograph of the quicksilver deposits of the Pacific Slope (1888) he described kuoxxvillite, metastibnite, napalite, and redingtonite as new mineral-species, and drew attention to the recent formation of many minerals in the hot springs of this region. Although he wrote specially on the geology of ore-deposits, he had a very wide range of subjects; one paper, for example, being on the experimental determination of the linear force of growing crystals.

FRIEDRICH MARTIN BERWERTH (1850–1918) was born at Segesvár in Transylvania, and, after studying chemistry at Graz and Vienna, he graduated at Heidelberg in 1873. The following year he entered the Royal Mineralogical Collection at Vienna, then under the directorship of G. Tschermak; and at the same time he acted as Tschermak's assistant in the University. This collection was transferred to the new Natural History Museum in 1889, and Berwerth succeeded A. Brezina as director of the mineralogical and petrographical division in 1896. From this post he retired only shortly before his death. His place is taken by R. Koechlin. His life's work was thus in the museum; but he was also Professor of Petrography in the University of Vienna. Several of his earlier papers dealt with the jade minerals, while later he turned his attention to meteorites. He issued a series of coloured plates illustrating the different types of structure met with in igneous rocks ('Mikroskopische Structurbilder der Massengesteine', 1895–1900). After his retirement, he was preparing a second edition of Tschermak's 'Die mikroskopische Beschaffenheit der Meteoriten', and he had in view a much-wanted treatise on meteorites. (Verh. Geol. Reichsanstalt, Wien, 1918, pp. 244–247.)

AMOS PEASLEE BROWN (1864–1917) was Professor of Mineralogy and Geology in the University of Pennsylvania, and at one time was on the staff of the Geological Survey of Pennsylvania. He wrote several papers on the mineralogy and palaeontology of Pennsylvania, and was responsible for the third and fourth editions of Erni's 'Mineralogy simplified'. His principal published work, however, dealt with the crystallography of the haemoglobins. (Bull. Geol. Soc. Amer., 1918, vol. xxix, pp. 13–17, with bibliography and portrait; Amer. Min., 1918, vol. iii, pp. 21–23.)

CHARLES BARRINGTON BROWN (1839–1917) was born at Cape Breton in Nova Scotia, and was educated at Harvard University and the Royal School of Mines in London (1862–4). He did geological survey work in the West Indies and in British Guiana, explored the Amazon, and was connected with gem-mining in North Carolina, Ceylon, and New South Wales. After the conquest of Burma, he visited (in 1887) the famous ruby mines and reported on them to the Government of India, but the detailed account, written in collaboration with Prof. J. W. Judd, was not published until 1896. (Geol. Mag., 1917, pp. 235–238, with portrait.)

JOSEF BRUCKMOSER (-1914) fell in battle in the eastern Carpathians. He was born in Vienna, and for a time was demonstrator and later assistant (1904-6) under Tschermak in the Mineralogical Institute of the University of Vienna. Here he published papers on the cause of the colour of blue rock-salt and on the constitution of the silicic acids separated from harmotome and titanite. Later, he became a schoolmaster at Berndorf in Lower Austria, working in his spare time at the petrography of Asia Minor. (Min. Petr. Mitt., 1915, vol. xxxiii, p. 280.)

AUGUST BRUNLECHNER (1846-1916) was curator of the mineral collection in the Carinthian Museum and also at one time professor in the Mining School at Klagenfurt. He wrote on Carinthian minerals and ore-deposits, and was the author in 1884 of the book 'Die Minerale des Herzogthums Kärnten'. (Mitt. Wiener Mineralog. Gesell., 1916, No. 79, p. 36, issued with Min. Petr. Mitt., 1917, vol. xxxiv.)

REGINALD COOKSEY BURTON (1890-1916) took the degree of B.Sc. at Durham University (Armstrong College) in 1910, and joined the Geological Survey of India as assistant superintendent in 1912. He had written on the origin of bauxite and on twinned crystals of hambergite from the sapphire mines of Kashmir, and was a promising worker. He joined the Indian Army in 1915, and was killed in Mesopotamia. (Rec. Geol. Survey India, 1916, vol. xlvii, p. 143.)

GEORGE STEUART CORSTORPHINE (1868-1919) was born at Edinburgh, where he was trained as a teacher. He was, however, specially interested in geology and became assistant to J. Geikie in the University of Edinburgh. In 1895 he graduated at Munich with a thesis on the igneous rocks of the southern portion of the island of Arran (Min. Petr. Mitt., 1895, vol. xiv, pp. 443-470). The same year he was elected Professor of Geology in the South African College at Cape Town, where he was also Keeper of Geology in the Museum and Director of the Geological Survey of Cape Colony. In 1902 he moved to Johannesburg as consulting geologist, and since 1913 was Principal of the South African School of Mines and Technology at Johannesburg. In collaboration with F. H. Hatch he wrote 'The Geology of South Africa' (1909), and gave a description of the 'Cullinan' diamond; he also described the occurrence of diamond in eclogite.

SIR WILLIAM CROOKES (1832-1919) was so well known in many fields of inquiry that it is necessary here to refer only to his connexion

with mineralogy. He was a member of this Society since 1888, although he never took any active part in its affairs. Crookesite, the rare selenide of copper and thallium, and for many years the only known mineral containing thallium as an essential constituent, was named by A. E. Nordenskiöld in 1866 in honour of Crookes's discovery, in 1861, of this chemical element. His well-known studies of the rare-earths led him to the examination of various rare-earth minerals; and from wilkite, of which he published an analysis in 1908, he isolated scandium for his researches on this element. The spectroscopic analysis of meteorites also claimed his attention. He was specially interested in diamond, making many experiments relative to its artificial production, phosphorescence, and change in colour when exposed to the emanations of radium. His excellent little book entitled 'Diamonds' (1909) was an extension of his British Association lecture at Kimberley in 1905; and in the same year the scientific examination of the 'Cullinan' diamond was entrusted to him. Some of the diamonds which he had experimented with, he presented in 1916, together with various other mineral specimens, to the British Museum collection of minerals. In the 'Chemical News', a weekly periodical founded by Crookes in 1859 and edited by him for sixty years, a large number of mineralogical articles have been published. His 'Select Methods in Chemical Analysis' (1871; 4th edit., 1905) is of service to mineral chemists.

JAMES DOUGLAS (1837-1918) graduated as B.A. in 1858 at Queen's University, Kingston, Canada, and was LL.D. of McGill University. For several years he was Professor of Chemistry at Morrin College, Quebec. With T. Sterry Hunt he published papers on the hydrometallurgy of copper. In 1873 he became associated with the copper industry of the United States, at first having charge of the works at Phoenixville, Pennsylvania, and later president of the Copper Queen Mining Company of Arizona. From the latter locality he presented several fine large specimens of copper minerals to the British Museum collection. He was twice president of the American Institute of Mining Engineers. He died in New York and was buried in Quebec.

ALEXANDER MONCRIEFF FINLAYSON (-1917) came from New Zealand to London in 1908, and during two years as a research student at the Royal College of Science he published a remarkable series of brilliant papers. These dealt with the ore-deposits of the British Isles and of Huelva in Spain. He had previously given good accounts

of the nephrite, scheelite, and auriferous deposits of New Zealand. In 1900 he went to Burma as an oil technologist, returning to England at the outbreak of war. He died of wounds received in France.

HEINRICH LUDWIG RUDOLF FUESS (1838-1917), of Steglitz, a suburb of Berlin, was well known as a maker of optical instruments, more especially those—goniometers, refractometers, microscopes, &c.—required for mineralogical work. Some of these—for example, heating attachments for the goniometer—he himself described in scientific journals, while others were described by C. Leiss. Detailed descriptions of the instruments were also given in the well-illustrated catalogues of the firm of R. Fuess.

LOUIS POPE GRATACAP (1850-1917), Curator of Mineralogy and Conchology in the American Museum of Natural History at New York, was born at Brooklyn of French descent. Entering the museum in 1876, he served for the long period of forty-one years, earlier as assistant curator of minerals, and since 1900 as curator of both minerals and shells. The neat and orderly arrangement of these collections represent the work he had done. Previous to entering the museum, he had studied at a theological seminary, worked in a bank, been chemist at gas-works, and finally graduated at the School of Mines of Columbia University. He was a prolific writer on a variety of topics—philosophy, politics, religion, botany, geology, scientific romances, and novels. His few mineralogical works were popular in character. (*Ann. Rep. Amer. Mus. Nat. Hist.*, for 1917, 1918, pp. 62-64, with portrait; *Amer. Min.*, 1918, vol. iii, pp. 31-33, with portrait.)

LAURA HEZNER (1862-1916). A Bavarian by birth, Miss Hezner was interested in art, literature, philosophy, and ancient languages. At the age of thirty-six she commenced the study of natural science at the Technical School at Zurich, and in 1903 she took the degree of Ph.D. at the University of Zurich with a dissertation on eclogites and amphibolites with special reference to occurrences in the Oetz-Thal. As Privat-Dozent and assistant in chemistry, mineralogy, and petrography in the Technical School, she made a large number (over 400) of detailed analyses of rocks and minerals, mostly from Swiss localities. These were usually published in the works of other authors, but are collected together in 'Vierteljahrsschrift der Naturforschenden Gesellschaft in Zürich', 1916, vol. lxi, pp. 149-202. One of the mineral analyses is of the Tasmanian stichtite to which she applied the name chrom-brugnatellite. (*U. Gruben-*

mann, *Vierteljahrsschrift Naturforsch. Gesell. Zürich*, 1916, vol. lxi, pp. 742-745; 1917, vol. lxii, p. 728, bibliography.)

WILLIAM EARL HIDDEN (1853-1918) was early engaged as an artist. In 1879 he was sent by T. A. Edison to search for platinum in the southern Appalachians. Although not commercially successful as regards platinum, this led to the discovery, especially in North Carolina, of other valuable minerals; for example, workable deposits of monazite sand, emeralds, and the green gem spodumene (afterwards called hiddenite) at Stony Point, and later the rubies at Cowee Creek (described in vol. xii of this Magazine). Another remarkable mineral deposit worked by Hidden for commercial purposes is that of rare-earth minerals at Barringer Hill in Llano Co., Texas. These occurrences were well described by him in a number of papers in the *American Journal of Science*; and he also published several papers on meteorites. Either alone or in collaboration with other authors he described no less than fourteen new species of minerals, including, for example, the well-known names rhodolite, hamlinite, hanksite, sulphohalite, mackintoshite, thorgummite, yttrialite, and yttrio-crasite.

GEORGE THOMAS HOLLOWAY (1863-1917) entered the Royal College of Science in 1881 and was assistant demonstrator in chemistry during 1884-6, after which he practised in London as a consulting metallurgist and assayer. He recently acted as chairman of the Royal Ontario Nickel Commission, the lengthy report of which was issued only shortly before his death. Unusual minerals often came into his hands in the course of business, and he had an eye for a good specimen.

THOMAS MCKENNY HUGHES (1832-1917) joined the Geological Survey of England in 1861, and in 1873 he succeeded Adam Sedgwick as Professor of Geology at Cambridge. Sedgwick was elected in 1818, so that the chair was held by these two professors for very nearly a century. Hughes became a member of this Society in 1878, and he contributed a paper on beekite to volume viii of the Magazine. A sketch of his life and work was given in the *Geological Magazine*, 1906, dec. 5, vol. iii, pp. 1-18, with bibliography and portrait.

JOHN DUER IRVING (1874-1918), son of the geologist Roland Duer Irving (1847-88), graduated at Columbia University, and in 1900 joined the United States Geological Survey. Since 1907 he was Professor of Economic Geology in the Sheffield Scientific School of Yale University,

and was editor of the journal 'Economic Geology' since its commencement in 1905. He was one of the first to join the American Army in France, and died from an attack of pneumonia following on influenza. (Economic Geology, 1918, vol. xiii, pp. 413-418, with portrait.)

JAMES PAUL JOHNSON (1880-1918) was born in London and educated at the Royal School of Mines. On account of his health he went to South Africa in 1902. He wrote on the Pleistocene geology of the South of England, and on South African geology and archaeology, also two books, 'The Mineral Industry of Rhodesia' (1911) and 'The Ore Deposits of South Africa' (1908-9).

ROBERT MARC (1876-1918) was Extraordinary Professor of Physical Chemistry in the University of Jena. He wrote on colloids in relation to minerals and on the growth and solution of crystals. (Centralblatt Min., 1918, pp. 229-231, with bibliography.)

JULIAN NIEDŹWIEDZKI (1845-1918) was born at Przemysl in Galicia, and since 1873 was Professor of Mineralogy and Geology in the Technical High School at Lemberg. Previously (1870-2) he was attached to the Austrian Geological Survey. He wrote on the salt deposits of Wieliczka and Kalusz, and published in 1909 a Polish textbook on petrography. Delatynite was described by him as a new variety of amber from the Carpathians.

ANTON PELIKAN (1861-1918) was born in Vienna, and since 1899 was Professor of Mineralogy and Petrography in the German University at Prague. He described various zeolitic minerals from Bohemia, amongst them the new species zeophyllite.

ALBERT RITZEL (1881-1916) was Extraordinary Professor of Mineralogy in the University of Jena, and was killed near Verdun. He had written several papers on crystal physics: namely, on plasticity and translation; rate of growth and solution on different faces; and the influence of substances in solution on the habit of crystals. (Centralblatt Min., 1916, p. 432.)

ALEXANDER JOHN ROBERTSON (1887-1915) left his post as Assistant Mineralogist and Chemist on the Geological Survey of Western Australia, becoming a Lieutenant in the 11th Battalion of the Australian Imperial Force. He was unfortunately killed in the Dardanelles on August 6, 1915, within a quarter of an hour of taking up his position in the trenches. He had spent five years at the University of Melbourne,

taking the degrees of M.Sc. and B.Eng., and gaining the Kernot Research Scholarship in Geology. He had done original work in petrology and described felspars from Kalgoorlie.

VINCENTE DE SOUZA BRANDÃO (1863–1916) was born at Lisbon and educated at the University of Coimbra; he also studied at Paris and Freiberg in 1892. In 1889 he entered the Corps of Engineers of Mines, and in 1898 succeeded A. Bensaude as chief of the section of mineralogy and petrography on the Geological Survey of Portugal. He wrote on mathematical and optical crystallography and on Portuguese rocks and minerals, and also devised improvements in certain instruments for optical work. (Communic. Commiss. Serv. Geol. Portugal, 1918, vol. xii (for 1917), p. viii; 1911, vol. viii, p. 178, bibliography.)

CHARLES OTTO TRECHMANN (1851–1917). Born at Hartlepool on March 19, 1851, Charles Otto Trechmann died at his residence, Hudworth Tower, Castle Eden, on June 29, 1917, in the sixty-seventh year of his age. He joined the Society in 1877, and was therefore a member for just forty years. At one time he was often to be seen at its meetings, but as time passed on and business called him less frequently to London, he found fewer opportunities of being present, and it is more than ten years since he last attended a meeting; nevertheless, to the end he never lost his interest in the Society or the science that it fosters.

His father, Peter Otto Edward Trechmann, a Dane by birth, settled in the North of England in the year 1843, and five years later, in 1848, founded the cement manufactory, now known as Otto Trechmann, Limited, which is one of the oldest of the kind in the United Kingdom. About that time he married, and Charles Otto was the eldest of a large family, which comprised eight sons and two daughters.

After a preliminary education at the Grammar School, Richmond, Yorkshire, Charles Otto Trechmann was sent to the Polytechnic School at Hanover; subsequently he entered the University at Heidelberg, and after studying chemistry for two years under the famous Bunsen proceeded to the doctorate of philosophy. Upon his return to England he entered his father's business, and it was largely to his untiring energy and business acumen that its development and prosperity were due, and as a matter of course, when the time came for the business to be converted into a limited liability company, he became the first managing director, an office he held to the day of his death. He was also managing director of two allied concerns, viz. Trechmann, Weekes & Company, Limited, of Halling, Rochester, Kent, and the Purfleet Chalk

Quarries, Purfleet, Essex. He also found time to discharge the duties of a citizen of his standing, and for many years was a Justice of the Peace for the borough of Hartlepool. In 1879 he married Gertrude Elizabeth, the eldest daughter of the Rev. Robert Taylor, Vicar of Hesleden, a small village a little to the north of Hartlepool. The early years of his married life were spent in Hartlepool, but, in 1892, he removed to Hudworth Tower, a residence pleasantly situated in Castle Eden, a village also near Hartlepool, and adjoining his wife's old home, and it was here that he died after a distressing illness. His widow and two children, a son and a daughter, survive him.

While still at Heidelberg, he began to take an interest in minerals, and commenced the formation of a collection. This interest he never lost; whenever he had the opportunity, he looked out for the chance of acquiring interesting specimens, and he had ever a keen eye for a well-crystallized specimen. At his death his collection numbered about 5,000 choice specimens, which were housed in two well-made cabinets standing in his study at Hudworth Tower. He bequeathed some of his finest specimens to the British Museum, which institution was fortunate enough to be able to obtain further specimens by the generosity of his son, Dr. Charles Taylor Trechmann, to whom all the collections were left. In later years he also turned his attention to entomology, and formed a local collection of Diptera of considerable scientific value as well as a fine collection of exotic Rhopalocera. Although a busy commercial and public life did not leave him much leisure for the pursuit of scientific investigation, he was the sole or part author of twenty papers, mostly on crystallographical subjects, all his work being characterized by careful observation and skilful drawing. Some of the more important of his papers deal with minerals found in the famous Binnenthal, Switzerland, and after him a new sulpharsenite of silver discovered there was named trechmannite by its finder, Mr. R. H. Solly. Besides being a member of the Mineralogical Society, he was also a Fellow of the Geological Society, having been elected in 1882.

Those who, like the writer, were privileged to share with him at times a few pleasant moments in gossip about crystals will cherish the memory of his perfect courtesy and charm of manner.

G. F. H. S.

CHARLES RICHARD VAN HISE (1857-1918) was born at Fulton in Wisconsin, and educated at the University of Wisconsin, where he was later Professor of Geology and, since 1903, President. He was long

connected with the United States Geological Survey, writing a monumental 'Treatise on Metamorphism' (1904) and several monographs on the iron-ores of the Lake Superior region.

JOHN WATSON (1842-1918), after retiring from business as managing director of Portland-cement works at Newcastle-upon-Tyne, settled in Cambridge and devoted himself to the formation of a collection of building stones and materials, which he presented to the Sedgwick Museum of Geology at Cambridge. Two excellent catalogues of this extensive collection had been published by him, namely 'British and Foreign Building Stones' (1911) and 'British and Foreign Marbles and other Ornamental Stones' (1916); and others, dealing with slates, limes, and cements, were in preparation. The honorary degree of M.A. was conferred on him in 1911 by the University of Cambridge.

ARTHUR EDWARD VICTOR ZEALLEY (1886-1918) was elected a member of this Society in 1914. After taking the associateship of the Royal College of Science in London he was a demonstrator in geology in the college. In 1909 he went to South Africa as Curator of the Rhodesian Museum at Bulawayo, and in 1911 joined the Geological Survey of Southern Rhodesia. He wrote several short papers on Rhodesian minerals. Before going to South Africa he had collected material in the crystalline limestone district of Donegal, which he intended to describe in detail, but only a preliminary account was published. He died of influenza. (Geol. Mag., 1919, p. 192.)
