OBITUARIES.

Carl Friedrich Rammelsberg.

BY the death of Carl Friedrich Rammelsberg on the 28th of December last, the science of mineralogy has lost an enthusiastic votary and the Mineralogical Society a distinguished honorary member. Born in Berlin on the first of April, 1813, Rammelsberg attained the ripe age of nearly 87 years, and could look back on an active scientific career devoted to building up the edifice of mineral chemistry upon the sure foundation which had just been laid down by the great masters when as a young man of 24 he proceeded to the degree of Ph.D. in the University of Berlin. Rammelsberg's first contribution to science was entitled *Ueber das Verhalten des Cyans zum Cadmium*, but the true bent of his mind was quickly revealed by a paper on the composition of berthierite, published in 1837, and by the issue in 1841 of the first edition of the book, now so well known to mineralogists under the title *Handbuch der Mineralchemie*.

In 1841 Rammelsberg established himself as a "Privat Docent" in the University of Berlin, and was called, five years later, to occupy the position of Professor Extraordinarius. At this period his activity was astonishing, and extended not merely to Mineralogy proper, but to the cognate subjects of Metallurgy, Crystallography and the methods of Analytical Chemistry, a many-sidedness traceable to his connection with the Berlin "Gewerbe-akademie," or Technical College.

In 1855 he was elected a member of the Berlin Academy of Sciences, and issued his "Handbuch der Krystallographischen Chemie," a work expanded some twenty-five years later into the treatise familiar to crystallographers.

The second half of Rammelsberg's life was spent in quietly and laboriously pursuing those inquiries to which he had already in his younger days so entirely devoted himself. He became in due course Professor of Inorganic Chemistry in the University of Berlin, and Director of the Second Chemical Laboratory, from which he continued to issue that long series of analyses of minerals of every kind which forms his principal contribution to knowledge and on which his fame must chiefly rest. At the same time he was occupied in collecting material for the

two great handbooks which have earned him the gratitude of all his contemporaries. Every few years the appearance of a new edition or a new supplement bore witness not merely to the industry with which he gathered together isolated facts and to the skill with which he marshalled them, but also to the critical judgment that he brought to bear on their interpretation. It was this power of lucid criticism, and the enormous labour freely bestowed in recalculating the results of other workers when a change in the value of an atomic weight seemed to render this desirable, that has conferred on his work a value greater than any possessed by a mere agglomeration of undigested facts. The *Handwörterbuch des chemischen Theils der Mineralogie*, published in 1841, to which five supplements were added in the next twelve years, was entirely re-written, and appeared as the *Handbuch der Mineralchemie* in 1860. Fifteen years later a second completely revised edition was issued, accompanied by a valuable introduction, in which the principles which should guide the analyst in choosing his material and in interpreting his results are set forth with a master's authority.

In 1886 a supplement became necessary, and so lately as 1895 we find the venerable chemist still abreast of the subject, and able to pass through the press a final supplement of 475 pages! In this book industry and power of classification are as conspicuous as ever, mixed now however with some trace of that conservatism which is the almost inevitable accompaniment of old age. It is therefore with no feeling of surprise that we find the man of 81 entering his protest—*Diese Hypothese ist in hohem Grade unchemisch*—against those modern views of the relations prevailing between fluorine and hydroxyl, which seemed to him so subversive of all chemical fitness. Great as is the debt which the mineralogist owes to Rammelsberg, the crystallographer and chemist are under obligation not less deep for the two volumes of the *Handbuch der Krystallographisch-physikalischen Chemie*, published in 1881 and 1882. In this work the author attempted to bring together in convenient form the crystallographical and other physical properties of all substances of which accurate descriptions had been published. Unfortunately, in the hope of making his book more acceptable to the chemist, he adopted the notation invented by Weiss, and rejected the systems of Naumann and Miller, and in so doing succeeded in satisfying no one. To the chemist the book remains almost unknown, and the crystallographer, trained in the more elegant methods of Miller, finds the notation cumbrous and distasteful. Still, although the book failed to do all that its author hoped,

the labour expended upon it will always be gratefully recognised by specialists.

As a teacher Rammelsberg enjoyed the distinction of being the founder of the first chemical laboratory in Prussia opened definitely for purposes of instruction. In the performance of the many analyses published by him he doubtless utilised to some extent the assistance of his students; his name, however, appears alone in the titles of the vast majority of the papers, more than 350 in number, attributed to him in the Royal Society Catalogue.

Rammelsberg's papers are mostly to be found in the *Memoirs of the Berlin Academy*, in Poggendorff's *Annalen*, in the *Zeitschrift der deutschen geologischen Gesellschaft*, and in the *Berichte der deutschen chemischen Gesellschaft*, a society of which he was an original founder, and one of the earliest presidents. A. H.

Geheimrath Professor Dr. Geinitz.

Hanns Bruno Geinitz was born on October 16th, 1814, at Altenburg, Saxony. In 1834 he entered the University of Berlin, and in 1836 passed to that of Jena, where he graduated in 1838 with a thesis on the Muschelkalk in Thuringia. In 1850 he became Professor in the Technical High School in Dresden, and in 1857 was also appointed Director of the Royal Mineralogical Museum.

Professor Geinitz's numerous papers deal mainly with palæontological subjects. The colossal task which he set himself at the commencement of his career in Dresden, and to which throughout his life he devoted all his energies, was, as he has himself expressed it, "to investigate the geological history of Saxony in all its epochs, and to perpetuate it in the well-ordered museum."

His principal memoirs are on the Grauwacke and Dyas formations, and on the "Elbthalgebirge," which contains the results of his researches on the palæontology of the cretaceous rocks of Saxony.

As regards mineralogy, the carefully selected specimens of minerals in the Dresden Museum, arranged according to his own system of classification, bear witness to his grasp of the subject, although few of his published works bear directly upon it.

Prof. Geinitz died at Dresden on the 28th of January, in his 86th year. He was elected a foreign member of the Mineralogical Society in 1879.