

middle of November for the purpose of formulating a report to Congress accompanied by the draft of a law which will place domestic industries on as favorable a basis as similar industries in foreign countries. During their sessions in Washington hearings will probably be given in order to supplement the information obtained through the interrogatories above set forth. Due notice of the time of such hearings will be given to the public.

OBITUARY NOTICE.

PROFESSOR AUGUST KEKULÉ'S part in the advancement of chemistry has been so important that his death on the 13th of last July has brought a feeling of sorrow to the hearts of chemists throughout the world.

Kekulé was born at Darmstadt, the birthplace of Liebig, on the 7th of September, 1829. It was the intention of his parents that he should become an architect, and he entered the University at Giessen as a student of architecture. He devoted himself with application to the studies bearing on his future calling, but like many another student who came within the range of Liebig's influence, he was filled with an enthusiasm for chemistry, which changed all his plans for the future, and led him to devote himself to this science. It is quite possible that his preliminary architectural studies had much to do with turning his mind toward the ideas of molecular structure or molecular architecture, which he subsequently developed. Kekulé also studied in Paris under Dumas, and in London under Williamson. In 1856 he became privatdocent at the University of Heidelberg. He was appointed professor of chemistry at the University of Ghent (Belgium) in 1858; and in 1865 was called to the University of Bonn, where he remained until his death.

Kekulé's first published work appeared in Liebig's *Annalen* for 1850. Four years later he published his second paper, in which he described thiactic acid and discussed the action of phosphorus pentasulphide on oxygen acids.

The period from 1854 to 1874 was one of the greatest activity with Kekulé. Since 1874 he has made comparatively few con-

tributions to chemistry, although occasional papers have appeared. In spite of the great number of investigations he has made, chemistry is most indebted to Kekulé for his great generalizations and theoretical suggestions.

He extended Gerhardt's type theory by adding the marsh gas type and introducing the idea of mixed types. These types made clear to him the difference in the power of the elements to hold other atoms in combination, and he developed the idea of valence, first put forward by Frankland, so that this new property of the elements was at once recognized by chemists, the conception of atom-linking followed at once, and this made possible the transition from the type theory to our present conceptions in regard to the structure of compounds.

In this paper published in 1858 Kekulé says: "It is the substitution and relation of the atoms and not radicals, that we must look to in order to get a clearer idea of the nature of these compounds."

He closes this remarkable paper with the following words: "In conclusion I believe that I should emphasize that I do not set much value upon this kind of speculation. But since chemistry, in its entire lack of exact scientific principles, must content itself for the time with the most probable and useful theories; it appears proper to present these views, for they, as it seems to me, give a simple and entirely general expression for the latest discoveries, and because moreover their application may be the means of discovering new facts."

It is not too much to say that the ideas thus modestly put forward, supported by his subsequent work, were the prime cause which led to the abandoning of Gerhardt's types for our present structural formulas.

These ideas had made considerable progress, when in 1865 Kekulé published his now well known hypothesis in regard to the constitution of benzene. Seldom has a theory in chemistry been so suggestive or given rise to so much investigation as this benzene theory. The rich and manifest results accruing from these investigations testify sufficiently to the utility of the theory.

Many students of chemistry were attracted to Bonn; these Kekulé inspired with a love of investigation that has been

exceedingly fruitful for the science. Besides his work as a lecturer and investigator, he began in 1860 and finished in 1861 the first volume of his *Lehrbuch der organischen Chemie*, a book that was epoch-making with its new ideas and new methods of presenting this complex subject. The book was received with enthusiasm among chemists, and has served as a model for subsequent works in the same field. Three volumes of this work were finally published, but the work was never completed. He was also for many years one of the editors of Liebig's *Annalen*. During his last years he suffered much from ill health, having followed too literally Liebig's advice: "If you would become a chemist, you must ruin your health. He who does not ruin his health by hard study in these days comes to naught in chemistry."

In 1890 the German Chemical Society celebrated the twenty-fifth anniversary of Kekulé's benzene theory. The meeting was largely attended by chemists from all parts of the world. Addresses were given by A. W. Hofmann, the President of the Society, Adolph von Baeyer, Kekulé's oldest pupil, and by Kekulé himself. A full account of the meeting has been published.¹

G. M. RICHARDSON.

Oct. 17, 1896.

NEW BOOKS.

MANUAL OF DETERMINATIVE MINERALOGY WITH AN INTRODUCTION ON BLOWPIPE ANALYSIS. By George J. Brush. Revised and Enlarged by Samuel L. Penfield. 14th Edition. pp. ix + 108. John Wiley & Sons. Price, \$3.50.

This revision, with the exception of the tables, is practically a new book. The author states that "A complete revision of the tables for the determination of minerals will be made as soon as possible, and a short chapter on crystallography and the physical properties of minerals will be prepared, but until this work can be accomplished, use will be made of the tables and of the short introduction to them from the last edition of Professor Brush."

This proposed revision of von Kobell's table is greatly needed. When it is finished the book bids fair to be as nearly perfect as text-books can well be. The introductory chapter has been rewritten with evident care and by a practiced hand, and as it

¹ *Ber. d. chem. Ges.*, 23, 1265.