

## OBITUARY NOTICE.

JAMES FREDERICK SPENCER.

1881—1950.

JAMES FREDERICK SPENCER was born on February 8th, 1881, in Liverpool and died on December 31st, 1950. He received his education in Liverpool, proceeding from a private High School to the Victoria University, where he obtained his early chemical training. In 1901 he gained a First Class Honours Degree in Chemistry and was awarded a University Scholarship and the Leblanc Medal for technical chemistry. After a period of research in Liverpool with A. W. Titherley on the interaction of furfuraldehyde with sodium succinate, he obtained a Fellowship of the Victoria University in 1902, and a year later the award of an 1851 Exhibition Scholarship enabled him to study at the University of Breslau under R. Abegg for the Ph.D. degree. He obtained his Doctorate from that University in 1905 for a dissertation entitled "Die Beziehung zwischen Thalli- und Thalloverbindungen," which reported the results of his investigations into the oxidation-reduction potential of the thallos-thallic ion system in aqueous solutions of various thallium salts. The subsequent publication by Spencer and Abegg in the *Zeitschrift für anorganische Chemie* in 1905 is one of the classics of electrochemistry and includes some of the earliest studies of complex-ion formation and its effect on oxidation-reduction potentials.

Returning to England for the final year of his 1851 Exhibition, Spencer continued his researches at University College, London, working there with Sir William Ramsay. This was the period in which the Curies in France, and Ramsay, Rutherford, Soddy, and J. J. Thomson and their co-workers in England were carrying out their classic researches into radioactive changes and the nature of the electron. Ramsay and Spencer made a series of investigations into the effect of irradiating charged metal plates with ultraviolet light, the results of which were published in *The Philosophical Magazine* for 1906. In the light of present-day knowledge, and the enormous advances of the last fifty years, the paper makes interesting reading, as in it concepts accepted as commonplace today are seen slowly emerging at a period rich in discoveries.

In 1906 Spencer left University College on his appointment as Demonstrator, under Holland Crompton, in the Chemistry Department at Bedford College, London, then only eight years from its inauguration. Here he remained as Demonstrator, then Lecturer, and later Reader in Physical Chemistry, becoming head of the Department of Inorganic and Physical Chemistry in 1919 when the growing department was split into two parts, Holland Crompton remaining as head of the Department of Organic Chemistry and Director of the Chemical Laboratories. In 1927 Spencer was given the University title of Professor of Chemistry while retaining the headship of the Department of Inorganic and Physical Chemistry.

The period of his active life coincided with the expansion of women's higher education and he devoted himself wholeheartedly to promoting the interests of Bedford College. When he arrived as a junior member of staff, the chemistry department was small and he saw it grow from a mere handful of students into a flourishing school of chemistry. He gave unsparingly of his time to lecturing and developing practical courses and demonstrations for undergraduate classes, and over the years promoted and stimulated a variety of lines of postgraduate research among the small, but steadily maintained, number of postgraduate students who passed through his hands. Although he never married, he showed a truly paternal interest in the welfare of Bedford College, ever seeking methods by which he could enhance its academic reputation. He helped it not a little to its present-day status in the University. He undertook much work on committees within the University and the College and was at his best in this type of work, which he enjoyed. Thus, for a period he served as Chairman of the Board of Studies in Chemistry of the University; for several years as a member of the Council of Bedford College, on building committees at various epochs of its expansion and as a Governor of Marylebone Grammar School. On his retirement in 1946 he was appointed Emeritus Professor of Chemistry in the University and a Governor of Bedford College.

Spencer's research interests in chemistry covered a varied field. His early interest in organic chemistry was continued in the years from 1908—1910 when, with research students, he carried out a number of investigations into the reactions, in the absence of solvents, between magnesium and alkyl and aryl halides, in which products somewhat resembling Grignard

compounds were studied. An extension of this work to other metals included calcium and lithium and those of the aluminium group and the possible use of the methods for the preparation of hydrocarbons was pointed out.

In the years just before the first world war, Spencer returned to electrochemistry and the further investigation of the potentials of thallium ions, and developed the use of third-order electrodes for the measurement of electrode potentials, applying these to the determination of the solubility of sparingly soluble salts. In part of this work he was assisted by Miss Le Pla, who was a student of his, with whom he also developed a quantitative method for the separation of thallium from silver.

During the first world war he was unable to undertake active service owing to ill health, but, with Crompton, he undertook the preparation of some intermediates of drugs under the Royal Society War Committee.

Spencer then took up the study of the rare earths, applying the principles of the phase rule to separate ceric salts from the other rare-earth elements. This phase of his interests culminated in the publication of a monograph on "The Metals of the Rare Earths," which was the standard work on these elements for many years. His "Text Book of Practical Physical Chemistry" for students was written earlier and represented one of the first books of its kind for elementary students. It was a very good book in its time, a shorter version being used in the upper forms of schools for many years. In the course of developing practical physico-chemical methods for undergraduate students, his interest in practical techniques was shown in a number of improvements in physicochemical apparatus, and he developed a potentiometric method for the electrometric determination of copper in the presence of a number of other metals.

For very many years Spencer was the sole abstractor for the Chemical Society of the *Zeitschrift für physikalische Chemie*.

In the later years his attention turned to magnetochemistry and, assisted by his students, he carried out investigations into various aspects of the subject, including the study of alloy systems, of mixtures of liquids and of inorganic ions in solutions by the magnetochemical method. The school which he founded in this field still continues.

Outside of his work and academic career he maintained an interest in his family's small iron-foundry business, the existence of which did much to start him on his chemical career. His other main interest lay in philately, and he took much pleasure in his collection of British Commonwealth stamps.

All who worked with him will remember him for his kindness and for the genuine goodwill with which he endeavoured to promote the interests of his department, the College, and the University, to which he devoted the greater part of his life.

V. C. G. TREW.  
E. E. TURNER.

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