

OBITUARY

Prof. Frederick Soddy, F.R.S.

FREDERICK SODDY was born at Eastbourne, the seventh child of his parents, on September 2, 1877, and died on September 22 just after his seventy-ninth birthday, and by his passing we lose a personality at once outstanding and complex. He was educated at Eastbourne College, and although destined to be a student at Oxford he was able to spend a year or more of early student activities at Aberystwyth. After graduation from Merton College, Oxford, in 1898, he considered work in Toronto; but that idea did not come to fruition. He went to Montreal and the very fruitful period of collaboration with Rutherford was commenced, which resulted in the establishment of the concept of the disintegration of the radioactive elements. It is impressive how many experiments connected with thorium and thorium emanation have been shown to be contributory to the formulation of the disintegration concept. In conjunction with Rutherford, he made this most valuable contribution to scientific conception when he was in his middle twenties. It has always been recognized that the conception was a joint effort, and, in so far as his half of the credit is concerned, it indicates a consistent feature in his manner and method of thought. In this he himself in no way minimized the place of imagination and intuition. From Montreal he went to work with Ramsay at University College, London, and from that there came the determination of association of helium and radium emanation.

An interlude of a lecture tour in Australia followed, where his talks illustrated with a quantity of radium drew audiences which were ready to yield very adequate remuneration to the lecturer. By this time the recognition by the University of Glasgow of the need of broadening the basis of chemical teaching enabled him to obtain the position of lecturer in physical chemistry and radioactivity and brought him, in the wider circle of the Chemistry Department, the pleasing and attractive friendship with Cecil Desch, who then occupied a parallel lectureship in metallurgical chemistry.

The years in Glasgow from 1904 to his translation to Aberdeen in 1914 are a very productive period for contributions to advancing science. These years were dominated by three types of activities. First, the very thorough and systematic work in which he purified substantial quantities of uranyl nitrate and then proceeded to measure the rate of growth of radium measured by the increasing quantities of radium emanation. As a series of experimental determinations, they were marked by careful systematic methods.

The second type of work to which he devoted much effort was the development of his technique as a lecturer with an appeal to a general, non-technical audience. He seemed to have the example of Sir William Ramsay in mind, and his "Free" lectures in the Botany Class Room of the University had a wide appeal and helped in a valuable way to disseminate the conceptions involved in the new ideas of radioactivity.

The third major activity was all the work and thought that was involved in the development of the conception of isotopes. Here again his intuitions played a very considerable part, and he was much concerned with the idea that had been evolved in his mind of atoms with different atomic properties,

possibly different periods of life and/or different atomic weights, which would nevertheless have the same chemical properties. It was the testing of this concept and its verification that logically led to the $\alpha\beta$ displacement law. From this also came the introduction into our language of the word 'isotope'. It was suggested by Dr. Margaret Todd, arising from a discussion that Soddy had in the house of his father-in-law, Sir George Beilby, in Glasgow.

After the work on isotopes there followed contributions on the atomic weight of lead from minerals containing radioactive elements, in conjunction with Hyman, and work on the actinium series, in collaboration with Cranston.

A Nobel Prize was awarded to Soddy in 1921 after his appointment to the Dr. Lee's chair of chemistry in Oxford, which he held during 1919-36. However, by this time he was making few, if any, contributions to scientific knowledge, and his time was devoted to riding various hobby horses which it is difficult to imagine will ever find a permanent place in the culture of our times. Economic theory, the closest packing of spheres, mechanical means of solving differential equations, all occupied his interest; in general, these activities produced results satisfactory to him but unconvincing to the expert.

It was my privilege to be close to him in numerous types of relationship: first of all as a laboratory boy, secondly as a student for graduation, and then as a research student doing postgraduate work. That was followed by a position of University demonstrator to his lectureship. While these stages were progressing, a personal friendship developed which existed until his death. In all these aspects complex emotions were involved—much generosity, some supersensitiveness, some hard hitting, much breadth of outlook. To his laboratory boy, he was kindness itself and his capacity for encouragement and leadership was unbounded. Responsibility was given freely, and when it was taken successfully it was much appreciated by him. To students working for graduation, the impression was of remoteness, and, so far as my knowledge of his three teaching appointments goes, it would be idle to suggest that he was successful. Where teaching classical chemistry was concerned, the students were in general unable to follow his methods of thought. But circumstances were wholly different when it came to postgraduate radioactive work directed to experimental determinations. There he made sure there was ample opportunity for discussion, for question and for answer and in general for complete understanding of the point at issue. For elucidation of ideas in those circumstances he was most patient, and when it came to recording results he required the maintenance of a very high standard for logical presentation and clarity of diction. With his demonstrator during a period of concentration of teaching duties, he shared routine responsibilities, so that time was always available to ensure a degree of continuity of research work.

He was elected a fellow of the Royal Society in 1910, and in 1934 the University of Glasgow conferred on him the honorary degree of LL.D.

He married Winifred Moller Beilby in 1908, and her death in 1936 was a grievous loss to him. She was a woman with sound judgment of character and much common sense. Social occasions in their home contributed much mental stimulus and have left me with the happy impression of many games started with intellectual purpose ending in a riot of discursive and witty conversation.

ALEXANDER FLECK