THE LIFE OF FREDERICK SODDY

Pioneer Research on the Atom

The Life Story of Frederick Soddy. By Muriel Howorth. Pp. 352+16 plates. (London: New World Publications, 1958.) 75*s*.

THIS is an uneven and uneasy book. The scientist who reads it is likely to be exasperated by its not infrequent confusions and repetitions—and the general reader will almost certainly find its detailed chronology difficult if not impossible to disentangle, although the framework of the story is simple enough. It is the life-story of Frederick Soddy, pieced together from his casual remarks, from reluctant replies to leading questions, from more sustained and possibly more spontaneous reminiscence, and from the residue of his papers, by his literary executrix and friend of his later years. It is a work of obvious devotion, forcefully and at times movingly written, but it achieves no real synthesis.

Readers of this journal will remember Paneth's tribute to Soddy (*Nature*, **180**, 1085; 1957): within the compass of a short article, that was generous, just and discerning, written by an expert in his own field who had known him when he was still active in it. Paneth wrote: "The duty to clarify his picture is specially incumbent on us, as it is the tragedy of his life that members of the younger generation may know him only as the person who adopted the term 'isotope', and, perhaps, as the author of provocative statements in economics and other fields far remote from science. The number of those who knew Soddy in his creative period is dwindling. . . . He was gifted in many, perhaps too many, ways. He was such a good writer of English prose that it was all too easy for him to give his polemical essays the sting he wished".

Frederick Soddy died on September 22, 1956, in his eightieth year. His last contribution to the literature of radioactivity was a letter to *Nature* published on September 3, 1932. His present biographer met him first in January 1953. She had then recently read "The Interpretation of Radium" (1909) and had been so impressed by its philosophy that she had sought out its author. At their first meeting she suggested to Soddy that they should "together write the record of his scientific investigations". Within a few days she had his agreement. Within two months the preface, at least, to "Atomic Transmutation: the Greatest Discovery ever Made" had been written. This was to be Volume 1 of the Memoirs. Volume 2 was unfinished at Soddy's death. Then Major and Mrs. Howorth came into possession, through Soddy's will, of "all his original papers, letters, and records". In that way the book now under review had its beginning, its conception replacing that of the half-finished Memoirs. "Having these [original papers] as my guide", Mrs. Howorth confides in her new preface, "I can now write, with less presumption and more confidence, the story of this remarkable man who was destined to play so great a part in the discovery of one of Nature's phenomena, unique in its potentialities and formidable in its power".

It appears to me necessary to give this brief history of Mrs. Howorth's book—essentially in her own words—but having done so I am left with scant space to comment on it further. In any event I should require many pages to deal with it in detail. I can only indicate its shortcomings and its virtues by further quotation: "Later, when the speaker at one of the Royal Society Popular Lectures in Canada fell sick, Professor Cox telephoned Rutherford to take his place and this led to his being accorded a Fellowship of the Royal Society of Canada and eventually to the full London Fellowship in 1903" (p. 78); "Superb chemist that she was Marie Curie had foreseen these events, but it was left to Frederick Soddy to establish each one of them by experiment—natural transmutation, 1901; disintegration theory, 1902; displacement law, 1911" (p. 93); "By 1905 it was still not confirmed that the alpha particle was a helium nucleus" (p. 114); "In 1932, Harkins's 'neutron' had been experimentally established by Chadwick. Later Chadwick went to study in Germany under Nernst and Rubens . . ." (p. 129); ". . . when Cockcroft and Walton in the Cavendish Laboratory succeeded in 'splitting the atom' Cockcroft alone received the award [of a Nobel prize]" (p. 188); 'What exactly is a beautiful equation?' I asked [Professor Dirac]. 'Is Einstein's little mass-energy equation beautiful?' 'No, that is not beautiful,' he replied, 'but some equations are very beautiful indeed' (p. 257); "One can say that on Soddy's perception the whole of nuclear science has been built" (p. 267); "The loneliness which such inattention from the scientific world creates is sometimes not easy to bear without resentment. It may be also, in the case of Soddy, that the loneliness of his early days returned. One could imagine that his mother died three times, once in his infancy, once with the death of his wife, and once on his retirement from academic life" (p. 277).

I do not think that the historian of the science of this century will pass over the work and the worth of Frederick Soddy, as he himself found it for a season passed over—or imagined that he found it passed over—in his later years. He is assured of the esteem of posterity, without special pleading. Mrs. Howorth's book contains much that will be of interest to the historian, but her special pleading is likely to pass him by.

Norman Feather

GUIDE TO MODERN PHYSICS

Handbook of Physics

Edited by Dr. E. U. Condon and Dr. Hugh Odishaw. (McGraw-Hill Handbooks.) Pp. xxvi+1462. (London: McGraw-Hill Publishing Company, Ltd., 1958.) 194*s*.

THIS is a magnificent book. It contains about 1,500 pages and weighs nearly 3 kgm., dimensions which are achieved by solid packing of authoritative information, with little padding or wordy introductions. We have considered it from the points of view both of the senior who has had ample opportunity of forgetting his physics, and of the student who is in the process of acquiring it. For both it seems to be an excellent work of reference.

It is divided into nine parts: mathematics, mechanics of rigid bodies, mechanics of deformable bodies, electricity and magnetism, heat and thermodynamics, optics, atomic physics, solid state, and nuclear physics. Each part is divided into about ten chapters, each written by a specialist; there are nearly ninety contributors, practically all from the United States. The list of chapters would be too long