

OBITUARY

Dr. E. M. Crowther

AGRICULTURAL science and particularly soil science have suffered a grievous loss in the sudden death of Edward Mortimer Crowther on March 17 at the comparatively early age of fifty-six.

Born near York on April 15, 1897, he was educated at Archbishop Holgate's School, York, and the University of Leeds, where he read chemistry, specializing in agricultural chemistry in his last year. In 1917 he joined the staff of Rothamsted Experimental Station, and ten years later, when he was only thirty, Sir John Russell, who was then director, recognizing his outstanding ability, made him head of the Chemistry Department, a position he occupied until his death. In 1950 he became one of the two deputy directors of the Station.

Crowther's early work was chiefly on the physics and physical chemistry of soils, and he published a series of important papers on methods of mechanical analysis and on soil reaction. His main interest, however, throughout a very active career, was soil fertility and crop nutrition. While maintaining the great tradition of Lawes and Gilbert, he added to their thoroughness the exactitude of modern methods of field experimentation. Recognizing at once the value of the statistical work of R. A. Fisher and F. Yates on experimental design, he became the pioneer of its application to field experiments in agriculture and forestry, and his influence was felt and his advice sought in many parts of the world.

He became one of the greatest authorities on the use of fertilizers, and as a result of his work, major improvements were made in the manuring of various crops, notably sugar beet, potatoes and flax. He demonstrated conclusively, for example, the manurial value of salt for sugar beet, a matter of importance particularly during the war-time scarcity of potash. His work also threw fresh light on methods of soil analysis, and he used field experiments for improving and calibrating these methods. For many years he had been giving attention to the problems of phosphatic fertilizers, including the immobilization of water-soluble phosphate in soil, and latterly he had been employing radiotracer techniques. This work was a good illustration of his method of using the results of field experiments for developing new lines of work in the laboratory, which in their turn reacted on his field approach. During the Second World War, in collaboration with the Building Research Station, he was actively engaged in the development of a silicophosphate fertilizer, and more recently he had been engaged in assessing the value of this and other new phosphatic fertilizers which are being developed to economize in the use of sulphuric acid. His interest in fertilizers, however, did not cause him to neglect organic manures, and he did much work on farmyard manure, sewage sludge, composts and green manuring, endeavouring to assess their manurial value and long-term effects.

During the War he was deeply involved in questions of fertilizer policy. There were difficult decisions to be taken regarding the use of shipping for the importation of fertilizers or food, and the problems of using the limited quantities of fertilizers in those parts of Great Britain which needed them most. With F. Yates he made a survey and critical analysis of all fertilizer experiments in Great Britain and other northern European countries, and the success-

ful rationing policy was largely the application of his work and of his unrivalled knowledge of crop nutrition. He rightly advocated the use of much greater amounts of nitrogen, and the rapid increase in food production was in no small measure due to this. The Ministry of Agriculture frequently sought his advice and made use of his services on many of its committees.

In recent years Crowther became keenly interested in the manuring of forest nurseries and in the rehabilitation by means of 'partial sterilization' of some of the old nurseries which had ceased to raise useful conifer seedlings. He showed that, in general, properly balanced fertilizers are as effective as composts for this purpose, and revolutionized the manuring practice in the Forestry Commission's nurseries.

Crowther's interests were by no means confined to British agriculture. He travelled widely, visiting many parts of Europe, America, Africa, India and Malaya, and those of us who accompanied him on some of these journeys will always recall his tireless energy, his penetrating observation, and his breadth of outlook. It was natural that his early interest in soil classification and particularly in the relation between soil and climate should be intensified by these travels.

Most of his work in the tropics, however, was connected with soil fertility problems, and he planned and supervised many manurial experiments on cotton, oil palm and rubber. He had a special interest in the Sudan, where he collaborated with his brother, the late Dr. Frank Crowther, and he served for many years on the Sudan Government London Advisory Committee and on the Research Advisory Committee of the Empire Cotton Growing Corporation. The Colonial Office made much use of his wide knowledge, and he was a valued member of the Committee for Colonial Agricultural and Animal Health and Forestry Research.

His capacity for blending academic research with the investigation of practical problems is well illustrated in his publications, the wide range of subjects of which indicate the variety of his interests. He was one of the editors of the *Journal of Agricultural Science* and the *Empire Journal of Experimental Agriculture*, and was active in many scientific societies, including the International Society of Soil Science. In 1951 he was president of Section M (Agriculture) of the British Association, and in 1952 and 1953 of the British Society of Soil Science and the Fertilizer Society. Both as a writer and speaker he was lucid and effective, and he completed the Jubilee Memorial Lectures of the Society of Chemical Industry only a few days before he died.

Among the qualities associated with Crowther in the memory of those who were privileged to know him, his sincerity, integrity and kindness stand out. The most loyal of colleagues, he would take great trouble to advise and assist the serious worker, however junior; but he had a keen critical faculty and was not slow to expose what was superficial and slipshod. In him, world agronomy has lost one of its foremost workers, and the deep personal affection and professional esteem in which he was widely held have been strikingly shown by the messages received since his death.

He married Miss Elizabeth Dorothy Kay in 1924, and she and their son survive him.

W. G. Ogg