

like the Committee to endeavour to secure that the hospitals thus to be provided on loan with radium, should be preferably those in which the cure of disease, or the alleviation of suffering, is associated with a keen interest in the furtherance of knowledge 'for the relief of man's estate'".

This shows very clearly the wide view and the profound interest he took in the advance of knowledge, and his great faith in the paramount necessity of research. Few laymen had such an intelligent appreciation of the problems of medical research, and of the need of much patient work before the realisation of success; and he was not one who was always expecting immediate and striking results to follow on a programme of work.

Sir Otto Beit was elected a fellow of the Royal Society in 1924, and certainly it may be said of him, in the words of the statutes of the Society, that he had "rendered conspicuous service to the cause of science"

JOHN ROSE BRADFORD.

On the death of Sir Julius Wernher in 1912, Sir Otto Beit took his place as a representative of the Crown on the Governing Body of the Imperial College of Science and Technology, thus preserving unbroken the close connexion of the College with the famous firm of Wernher, Beit and Co. Sir Julius Wernher himself was an original member of the Governing Body, and took an influential part in the negotiations which led to the foundation of the College in 1907. Practically the whole of the endowment of the College since its incorporation has been provided by Sir Julius Wernher, Mr. Alfred Beit, and Sir Otto Beit.

Sir Otto Beit was an active and inspiring member of the Governing Body. A firm believer in the intellectual and practical value of the highest scientific education, he did everything in his power to promote it. In 1913 he created a Trust Fund, which he increased later to £26,500, to provide for Research Fellowships tenable at the College and open to men and women of European descent by both parents, but otherwise of any nationality, being graduates of universities within the British Empire. From time to time he gave sums of money, amounting to £32,500 in all, towards the cost of the Imperial College students' hostel and of the extension to the hostel and the students' union which forms part of a new building now nearing completion. His other gifts, which were many in number, included a sum of £10,000 towards the general development of the College in a time of financial stringency.

These benefactions are illustrative not only of Sir Otto Beit's generosity, but also of his good judgment. He never gave money away indiscriminately; he had a clear insight as to the right thing to do at the right moment. He was always ready to be guided, but never allowed himself to be swamped by the enthusiasm of others. It was this quality which brought him the full confidence of his colleagues, and when in 1919 Sir Francis Mowatt resigned the chairmanship of the finance committee of the Governing Body shortly before his death, there was no hesitation about the appointment of

his successor. Sir Otto Beit continued to hold this important post until his death, and though he was greatly handicapped in recent years by ill-health, he worked untiringly to further the interests of the College. He interested himself not only in the government of the College, but also in the life of the students, many of whom are indebted to him for unobtrusive acts of kindness. We have lost a great friend and a great benefactor.

H. T. TIZARD.

PROF. C. E. MOSS.

THE death on Nov. 11 last of Prof. C. E. Moss, at his home in Johannesburg, at the age of sixty, is a serious loss to South African botany and to systematic botany at large. Charles Edward Moss was a native of Cheshire, the youngest child of a Nonconformist minister who settled at Halifax in 1874. He gained his early education at elementary schools in that town, eventually becoming a pupil-teacher. At the age of twenty-three he had a serious illness and his convalescence involved spending much time in the open air. This led to a keen interest in field botany and close acquaintance with the local naturalists, who were at that time a very active body. Moss thus became a competent field botanist before he was able, at twenty-five years of age, to go to the Yorkshire College, Leeds, and work for his degree as well as his teacher's certificate. At Leeds he found Miall's teaching and outlook very acceptable, and in 1896, when the late Dr. W. G. Smith went to Leeds as lecturer in botany, Moss was greatly attracted by the new method of studying and mapping plant communities in the field which had been inaugurated in Scotland by Smith's elder brother Robert.

Moss took his degree in 1898 and collaborated with Smith in the first 'primary survey' of vegetation to be made in England (Leeds and Halifax district), published in the *Geographical Journal* in 1903. He also published several minor botanical studies in local journals. After leaving Leeds he taught at a school in Bradford, and later at Bruton in Somerset, where he applied the new method to the local vegetation with conspicuously successful results. In the Somerset paper, too, which was also published by the Royal Geographical Society (1907), he worked out a logical system of units of vegetation which he elaborated later in another publication (1910), and which was made the basis of the treatment adopted in "Types of British Vegetation" (1911). Moss was anxious to leave schoolmastering, and in 1902, at some financial sacrifice, he migrated to Manchester and lectured in biology at the Municipal Training College, at the same time improving his knowledge of general botany by attending honours lectures at the University.

In 1904 the British Vegetation Committee was founded to facilitate the co-operation of the small band of active workers on the survey of British vegetation. Moss was one of the original and certainly one of the most valuable members of the Committee. His acute logical mind and his

increasingly critical knowledge of species were of the greatest use in accelerating the rapid advance in our knowledge of British vegetation which marked the first decade of the century. While at Manchester he undertook a survey of the Peak district which gained him his D.Sc. degree and was published much later (in 1913) by the Cambridge University Press. In 1907 Moss was invited to go to Cambridge as Curator of the University Herbarium, and gladly accepted the invitation, though again at some financial sacrifice. He joined Emmanuel College as an advanced student and took his B.A. degree by research. During the ten years he was at Cambridge he lectured in systematic botany, demonstrated to the elementary students, and was very active in field work.

From about 1910 Moss turned more and more to critical systematic botany. After publishing several excellent and illuminating critical papers on different small genera, he conceived the idea of a new British flora on a monumental scale. This the University Press agreed to publish as the "Cambridge British Flora", and vol. 2, dealing with the Amentiferæ and allied families, to which Moss had paid special attention, appeared in 1913. The outbreak of War, however, seriously compromised the financial prospects of this ambitious undertaking, and, together with other difficulties, led to the suspension of the work, only one other volume (vol. 3) appearing, under the editorship of an old pupil, Mr. A. J. Wilmott of the British Museum, after Moss had left England.

In 1917 Moss was appointed to the professorship of botany at Johannesburg, and here he gradually developed a very living and flourishing department, which was becoming a centre of research on South African floristics. At the same time Moss applied himself with characteristic energy and thoroughness to the task of becoming acquainted with the South African flora. He found that the published and herbarium material was to a large extent untrustworthy, and he set himself to revise various groups, travelling widely for the purpose: for he was never content until he had seen the species he studied in their native habitats. He had published very little since he went to South Africa, but he had a large amount of material in hand. Another five years would almost certainly have seen the appearance of so great a body of accurate systematic work as would have securely established his repute as a critical taxonomist of high rank.

Moss was a man of singularly acute, logical, and independent mind. With no adventitious advantages, he fought his way by sheer ability, hard work, and devotion to his subject, to a high place in the science. After attaining one reputation as a pioneer ecologist, he was making another, no less distinguished, as a taxonomist, and only his untimely death has prevented its full fruition. A. G. T.

#### PROF. FELIX LÖHNIS.

By the death at Leipzig on Dec. 8 of Prof. Felix Löhnis, the science of bacteriology has sustained a serious loss. Löhnis was born in Dresden on

Aug. 3, 1874. After he left school and before he finally turned his attention to academic work, he was engaged in practical agriculture for several years. In 1901 he received the degree of Ph.D. from the University of Leipzig, and in 1905 he became responsible for the instruction and research in agricultural bacteriology in that University. During the period 1905-1914 Löhnis's investigations did much to clarify the position of his subject. The chief contributions of his department were concerned with methods, the seasonal variation in bacterial activities, the decomposition of calcium cyanamide, and nitrogen fixation. This period in Löhnis's career was also notable for the publication of a manual of methods which has been translated into several languages, a text-book which is still the best work of its kind on the subject, and the well-known "Handbuch der landwirtschaftlichen Bakteriologie", which is the only comprehensive and critical review of the literature in existence. In 1912 Löhnis had attained a position of such eminence among agricultural bacteriologists that the British Association extended to him an invitation to address Section M (Agriculture) at the Dundee meeting.

In the spring of 1914 Löhnis was offered and accepted an appointment in the United States Department of Agriculture, and in 1923 he took over the direction of the Department's work on the bacteriology of soils. Between 1914 and 1923 he devoted much of his time to researches on the life-cycles of the bacteria. The results of this work, contained in a monograph published in 1921 and in other papers, are of a far-reaching nature, challenging as they do the fundamental principle of monomorphism, upon which the science of bacteriology has been built. Whether all Löhnis's views will be accorded general acceptance is still uncertain, but there is no doubt that his investigations on the life-histories of bacteria will exert a profound influence upon the ultimate development of the science.

In 1925 Löhnis returned to the University of Leipzig as professor of agricultural bacteriology and soil science, and in a very short time he had under his direction a volume of work which was probably greater than that undertaken by any other department of the kind in Europe. The chief contributions of the later years are those which deal with the fermentative and other changes which take place in the making of the various types of farm-yard manure and in the preservation of forage crops. In 1929 Löhnis became editor of the *Zentralblatt für Bakteriologie*, Abt. II, and a short time before his death he was at work upon a new edition of his "Handbuch".

Those who have had the privilege of working under Löhnis will always treasure the remembrance of his enthusiasm and inspired direction. In the planning, conduct, and supervision of research he was unsurpassed, and his intuition frequently proved to be of quite an exceptional nature. In such matters his extensive and accurate knowledge of the literature of his subject was of the utmost value. It also enabled him to detect at once the rather frequent modern practice of