OBITUARY NOTICES.

Robert Kidston. By the President, Professor F. O. Bower, F.R.S.

(Read October 27, 1924.)

Robert Kidston, LL.D., D.Sc., F.R.S., F.R.S.E., F.G.S., F.R.P.S.E., Foreign Member Kaiser. Mineral. Gesell., Petrograd; Hon. Member Soc. Russe de Minéralogie, Petrograd; Foreign Member Soc. Géol. de Belgique.

THE death of Dr Robert Kidston on Sunday, 13th July 1924, removed one of the most familiar figures from this Society. Elected in 1886, he served it long and faithfully as a member of Council, Secretary, and Vice-President. He left his mark not merely by this official record, but also by the long and valuable series of Memoirs offered to the Society, either from his own pen, or jointly with distinguished collaborators. The Society has thus a right to claim, as peculiarly identified with herself during the last forty years, a man who at the time of his death was the leading authority on Carboniferous Fossil Plants. Ten years ago there were three outstanding students of the fossil flora of the coal: Zeiller in Paris, Nathorst in Stockholm, and Kidston in Scotland. The first died in 1915, and the second in 1921, leaving Kidston as the sole survivor of this great group of friends.

He was born at Bishopton House, Renfrewshire, and came of a family well known in the West of Scotland. He was educated at Stirling High School and at the University of Edinburgh. As a young man he entered business; but his scientific interests soon asserted themselves, and he gave up banking in order to follow his natural bent. In early life he was an ardent field botanist and he co-operated with Colonel Stirling in a work on the Flora of Stirlingshire. But about the year 1880 his interest in fossil plants took the premier place. The door for extended study of them was opened to him by the promise of Dr Peach, then acting palæontologist on the Geological Survey in Scotland, to submit to him for determination the fossil plants collected by the Survey from the Old Red Sandstone and Carboniferous Rocks of Scotland. His knowledge of these rapidly grew, and in 1886 we find him cataloguing the palæozoic plants in the British Museum. He did the like later for the Royal Museum in

Brussels and for other Continental collections, thus establishing a European position as an expert in the Flora of the Carboniferous Period. During some forty years over a hundred Memoirs were produced by him, covering the whole field of the fossil plants of the coal. They were published by the Royal Societies of London and Edinburgh, the Linnæan Society, the Geological Society of London, and other scientific societies. Such work was destined to culminate in his great enterprise entitled *The Fossil Plants of the Carboniferous Rocks of Great Britain.* This was designed as a reasoned catalogue, in ten parts, to be published by the Geological Survey of Great Britain. Four parts of this monumental work were published up to 1923, with ninety-one quarto plates; and two other parts are already complete in manuscript. The series would have been the chief work of his life; but it remains now a *torso,* barely half having been completed at the time of the author's death.

Kidston's knowledge of coal plants was unique; but he did not keep it to himself. He was generous in assistance to others, and always equally generous in his criticisms. He was one of the most modest of men, and prepared to consider carefully opinions often less securely founded than his own. In his technique he was unrivalled: an expert photographer, he used all his art in producing illustrations that present the details even more perfectly than the unaided eye itself could see. These are recorded on hundreds of plates that prove his skill. His systematic work was by no means merely floristic. Almost every Memoir contains observations of interest on the Morphology of Carboniferous Plants. Some were devoted specially to such questions. One of the most important of these was the paper, "On the Microsporangia of the Pteridospermæ, with Remarks on their Relationships to Existing Groups," published in 1906 in the *Philosophical Transactions.* Here the treatment was definitely not floristic, but comparative. New facts were elicited; in particular, Kidston there demonstrated the connection of *Crossotheca* with the foliage of *Lyginopteris,* and in so doing revealed for the first time the microsporangia of a Pteridosperm. Such facts led him to the statement of views of the widest character upon the probable relationships by Descent of early Fern-like Plants.

Other papers dealt with the anatomy of petrified plants. Thus in 1905 he produced a Memoir "On the Internal Structure of *Sigillaria elegans*" (*Trans. R.S.E.*, vol. xli, p. 533), in which he worked out for microphyllous types a stratigraphical sequence, with progression of anatomical characters traced from the lower Coal Measures upwards to the Permian. It was probably this Memoir, in which he acknowledges

his indebtedness to Professor Gwynne-Vaughan, that laid the foundation for their joint work on Ferns. This opened only two years after its publication: and thus was inaugurated the first of two most fruitful episodes in the career of Dr Kidston which came to him late in life. They arose from his collaboration successively with two younger men, bred in a later generation of botanical science than his own. He had, it is true, studied botany in Edinburgh University about 1878, but this was before the botanical renaissance of the seventies had fully reached Edinburgh. It might appear hard for a senior mind, trained in an older school, to adjust itself to the views of a later generation. Partly it was a genuine spirit of camaraderie, but much more an unflinching search after truth by both parties to these joint works, that made those collaborations so brilliant in their scientific success. The results are seen in those two series of Memoirs published in our *Transactions*, the one on "The Fossil Osmundaceæ," with Professor D. T. Gwynne-Vaughan; the other on "The Old Red Sandstone Plants showing Structure from the Rhynie Chert Bed, Aberdeenshire," in co-operation with Professor W. H. Lang. Both of these are classics of which the Society may well be proud.

The "Fossil Osmundaceæ" appeared in the *Transactions* in five parts, from 1904 to 1914. The work was first stimulated by Kidston receiving from New Zealand a remarkable button-shaped pebble (*Trans.*, vol. xlv, pl. iii, fig. 17), which bore clear evidence of being the apex of a massive stock of some upright fernlike plant. Its examination led to a search for like fossils, and their discovery already described, but in external characters, by Eichwald in *Lethæa Rossica*, vol. i, 1860. Through the aid of Professor Zalessky, opportunity was obtained for studying these identical fossils in section. Gradually the sequence of forms was filled in from other sources, and the authors were led to the recognition of the fact that the Osmundaceous type, to which the fossils were referred, could be traced back to the Permian period. The great antiquity of the Royal Ferns of to-day was thus established with the highest degree of probability, though essentially upon anatomical evidence. Nevertheless, the existence of early fructifications, not unlike those of the living Osmundaceæ though not definitely referable to that family, gives reasonable support to the anatomical argument. One consequence of these comparisons was that new views were entertained as to the evolution of the stele, and in particular as to the origin of the pith. But, further, the result of this series of Memoirs has been to strengthen the relation of the Osmundaceæ on the one hand with the fossil Botryopterideæ, and on the other with the living Ophioglossaceæ; thus linking living forms structurally with

some of the earliest and simplest of the megaphyllous fossils whose structure is accurately known.

The lamentable death of Gwynne-Vaughan took place in 1915. Some of Kidston's friends may have thought that such collaboration was then at an end. But the surprising discovery of the well-preserved fossils in the Rhynie Chert led to a second coalition, as happy in its results as the first, this time with Professor W. H. Lang. Again five quarto Memoirs record observations of fundamental importance, with the result that an entirely new class of plants, belonging to the earliest known flora of the land, was revealed. Though produced under the shadow and after-effects of the Great War, the results were, through the wise generosity of the Carnegie Trust, presented with a wealth of illustration that carries vivid conviction to the reader. The impressions and sections were photographed with Kidston's well-known skill, and present the actual structure of these Devonian plants without the intervening hand of any artist. It is needless to stress the supreme importance of this work; and a word may suffice to mark the almost ascetic restraint imposed upon the descriptive text.

The clash of opinions frankly expressed and discussed by the joint authors respectively of the "Fossil Osmundaceæ," and of "the Fossils of the Rhynie Chert" no doubt helped in fashioning the two series of Memoirs. They take rank as the most remarkable positive and direct contributions of recent years to plant morphology.

That passion for truth which inspired the scientific work of Kidston was closely related to his general outlook on life. He was a strong upholder of the Established Church of Scotland. He acted as a magistrate for Stirlingshire, and he took a prominent and trusted part in politics in the Stirling Burghs. During the war, though over sixty years of age, he served in various capacities: in particular, he organised and took a very vigorous part in the work of a corps of collectors of *Sphagnum* for surgical dressings; in this his local and botanical knowledge made him specially useful. In lighter mood, he interested himself in gardening, having special success with rock plants. He was also skilful as a fisherman and a curler. His life was a strenuous and genuine one of high ideals, and there is left behind a monument of published work as great in its accuracy and scientific content as it is in its volume. To the end of a long life Dr Kidston was ever ready to recognise, and to adopt in his own work, new methods and new views. This gave a vitality to all that he wrote that is liable to be absent from descriptive palæontology.

Dr Kidston married a daughter of the late Major Oliphant of Over Kinnedar, Fife, and leaves two daughters. Under his will Dr Kidston has disposed of his books and his specimens with characteristic judgment, so that they may continue to be of use. The hand-specimens and incrustations are to be consigned to the Geological Survey for Great Britain. The microscopic sections, a series full of type-specimens, and numbering about three thousand, together with the valuable collection of rare palæophytological books and bound pamphlets go, under certain conditions, to the Botanical Department of the University of Glasgow. They will be received and treasured there as a sign and seal of the intimate relations that had been enjoyed on both sides for the last twenty-five years of a most fruitful life.

Naturally distinctions fell to the lot of an investigator so productive, but yet so judicial. In 1902 he was elected to the Royal Society; in 1908 he received the LL.D. of Glasgow University, and in 1921 the Hon. D.Sc. of Manchester. In 1887 he was awarded the Murchison Fund by the Geological Society of London; in 1890 our own Society gave him the Neill Medal, and in 1916 he received the Murchison Medal from the Geological Society of London. But above and beyond such distinctions there is the general recognition of the value of Kidston's work by those whose interests lie along similar lines to his. Its high quality will surely become more and more evident as its results work their way ever deeper into the texture of Palæontological Science.

Scotland is pre-eminently a country that throws up at intervals men whose devotion and ability float them almost automatically into the foremost rank of their time. In science, and particularly in geology, this has happened repeatedly. Sometimes they come from the working classes, as did Hugh Miller: others sprang from the landed community, as did Lyell and Murchison. Kidston shared with these last the advantage of a competence that left him free to follow his scientific bent. Each pursued his science for the sheer love of it. They all belong to that glorious band of British amateurs who have so often led the science of their time, and have left their impress for ever on its history.