distribution of particles between any desired limits of size in a mixture of various sizes. Readers in Great Britain are familiar with some of these curves, especially those in his paper in the *Proceedings of the Royal Society of Edinburgh* in 1911 on the size of the particles in deep sea deposits, and in the *Proceedings of the Royal Society* of 1924 when, along with a group of Rothamsted workers, his colleagues during a period of extended leave spent at Rothamsted in 1923, he developed more fully this automatic balance and worked out typical distribution curves for clay particles of different sizes. The subject is discussed fully in Dr. B. A. Keen's monograph, "Physical Properties of the Soil". Later work at Rothamsted showed certain unforeseen sources of error not yet overcome which detract from the strict quantitative interpretation of the results. Whether they can be avoided or not, the work stands out as the first and best study of distribution of clay particles according to size.

A second group of investigations in which Odén achieved marked success dealt with peat. He began about 1916, and by 1919 was able to publish his monograph "Die Huminsäuren", one of the best that has ever appeared on that particularly difficult and elusive group of mixtures. Applying for the first time the methods of modern physical chemistry to the black sticky mixture of humus substances soluble in alkalis and reprecipitated by acids, he gave for the first time definite proof that the so-called humic acid really is an acid and he was able to assign to it fairly definite properties including tentative molecular and equivalent weights. Considerable discussion has followed, and there has been in consequence of his work much clearing up of a very involved subject. In addition to these physico-chemical investigations he also studied the possibilities of obtaining fertilisers by the use of peat: its use as a source of ammonium chloride and for rendering mineral phosphates soluble.

Another investigation in organic chemistry made by Odén, in conjunction with E. Fischer, was the synthesis and study of sugar derivatives having molecular weights ranging up to 8,000.

Up to this time Odén had been working at Uppsala, first (from 1913) as lecturer in chemistry; and later, in 1920, as professor of inorganic chemistry at the Technical Institute of Engineering. In 1925 he became head of the Chemical Department of the Central Experimental Agricultural Station, Experimentalfältet, which post he held until his death. Here he turned his attention to the exchangeable bases in the soil, which he studied by electrodialysis. His last papers were on the application of electric light to the furtherance of plant growth, and the relations of certain organic compounds and the growing plant.

Odén was not only a brilliant investigator but also a delightfully human personality, a man one loved to meet and talk to; full of ideas, overflowing with energy and vitality. Whatever he touched he illuminated, and the more difficult the subject the more it attracted him and stimulated his inventive powers. Sweden has lost a distinguished son and science a brilliant worker.

E. J. RUSSELL.

DR. LILIAN CLARKE

THE death of Dr. Lilian Jane Clarke, at the age of sixty-eight years, marks the passing of the pioneer of the best modern methods of the teaching of botany and Nature study in schools. The subject early attracted her and having gained the gold medal of the Apothecaries' Society for botany and entered University College, London, in the session 1887–88, she took her B.Sc. degree in 1893–94, after studying botany under Prof. F. W. Oliver. She was appointed science mistress at James Allen's Girls' School, Dulwich, in January 1896, and from that time onwards devoted herself whole-heartedly to developing her own ideas of botanical teaching.

The 'laboratory' Dr. Clarke found in 1896 at James Allen's was a tray of apparatus on the hall platform; the laboratory she left was a well-equipped building for botany and other scientific subjects, with a greenhouse for biological experiments, and a large area of land laid out in the botanical gardens for which the school is justly famous, and with which Dr. Clarke's name will always be associated. These gardens started with a few natural order beds, but as her method of direct teaching of Nature study was developed, more land was gradually acquired for the study of plant physiology and ecology. At first the financial difficulty was great, but eventually the value of the gardens was recognised by a small grant which permitted further extensions. The work throughout was done almost entirely by the voluntary labour of the school pupils in their spare time, and with their aid Dr. Clarke built up a range of gardens unparalleled elsewhere. Order beds, plots for genetical and physiological experiments, shingle bank, bog garden, pond, a lane with its hedgerows and even an oak wood were all finally acquired, and provide a wealth of material for teaching purposes. The value of her pioneer work in this direction was recognised in 1902 by the award of the degree of D.Sc.(Lond.), and in 1905 she was one of the first women admitted as a fellow of the Linnean Society.

Somewhat of a martinet in her laboratories, Dr. Clarke instilled habits of carefulness and accurate working into her pupils, which many of us have since fully appreciated. The secret of her success was unbounded enthusiasm and driving power, coupled with the ability of interesting individual students in particular details of the work, making even the drudgery appear worth while. Compulsory retirement under the age limit went sorely against the grain, but to the end she maintained her interest in the work of James Allen's School and of many of her old students, whose careers she followed closely.

As secretary in 1921–26 of the Education Section of the British Association Dr. Clarke did further work for the improvement of teaching methods; she was also chairman of the committee on the teaching of general science in schools, with special reference to the teaching of biology.

Apart from her botanical work, Dr. Clarke had a wide knowledge, and love for, Old London, and only two years ago she founded the London Wanderers Club among old J.A.G.S. girls, herself acting as leader on periodical rambles, sparing no time and trouble in their successful organisation. The esteem in which she was held by her old students was marked last year by the foundation of a "Lilian Clarke" botany prize fund at James Allen's School, and no more fitting tribute to her memory could be raised than an extension of this fund for the further encouragement of the subject for which her life was spent. Her affection was fixed on Dulwich, and by her special request the first part of the funeral service was held in the old College Chapel, in the presence of the upper school and her friends and colleagues.

WINIFRED E. BRENCHLEY.

MR. R. J. MOSS

THROUGH the death on January 27 of Mr. R. J. Moss at the age of eighty-seven years, the Irish scientific world has lost one of its last links with the brilliant period of which FitzGerald was the leading spirit. Moss was appointed keeper of the minerals and analyst to the Royal Dublin Society in 1875, and registrar in 1878, a position which he held until his retirement in 1921. He was the oldest member of the Royal Irish Academy, having been elected in 1874.

Despite his onerous routine duties, Moss published many original papers, chiefly on chemical subjects. Among these may be mentioned those on cobalt chloride as a moisture test, on an improved method of determining the gases dissolved in water, and on the state in which helium exists in pitchblende. In the last he employed an ingenious method of extracting the helium by grinding the mineral *in vacuo*. He also investigated some archæological problems. His last paper, read before the Royal Irish Academy in 1926, deals with a chemical examination of some ancient metallurgical crucibles. From his analyses he arrived at important conclusions as to the metallurgical knowledge of the ancient Irish.

Moss, however, like so many scientific men of his period, did not restrict his work entirely to one branch of science. His earliest work, carried out in collaboration with H. N. Draper, dealt with the photoconductivity of the allotropic forms of selenium. He published papers on the spheroidal state and in 1896 investigated the effect of X-rays on the combination of hydrogen and chlorine and on the fluorescence of various salts.

It is perhaps for his work in the foundation of the Irish Radium Institute that he will be longest remembered. When Joly first proposed his method of using radon in fine glass capillaries for therapeutic purposes, Moss designed and constructed the requisite apparatus. In this his skill as a glass-blower and his knowledge of handling small quantities of the rare gases were a great asset. The original apparatus was used for many years at the Institute. During the War he, and his two assistants Messrs. Stone and Deane, carried out all the work of the Institute, and large quantities of radon were supplied to various military hospitals, mainly for the treatment of wound scars.

To those who knew Moss only in his later years, one of his most striking characteristics was the extreme ease with which he carried their burden. To the last he was a valued member of the Irish Radium Institute Committee and a regular attendant at scientific meetings. Of him, I think, we can use, in its best sense, the saying: He, whom the gods love, dies young.

J. H. J. POOLE.

PROF. T. ERIC PEET

WE regret to record the death on February 22 at the age of fifty-two years of Thomas Eric Peet, reader in Egyptology in the University of Oxford.

Eric Peet was educated at Merchant Taylors' School, of which in later life he became a governor, and at Queen's College, Oxford, where he was Jodrell scholar and graduated with second class honours in Classical Moderations and *Literæ Humaniores*. In 1906 he was awarded a Craven fellowship and entered the British School of Archæology in Rome, later holding the Pelham studentship. The results of his researches were published in 1909 in "The Stone and Bronze Ages in Italy and Sicily", a book which is still recognised as a standard authority.

Peet then turned his attention to Egyptology; and this remained his principal occupation for the rest of his life. He excavated in Egypt at Abydos, at first under Prof. Garstang and then as assistant to Prof. Naville, on behalf of the Egypt Exploration Fund, collaborating in vols. 1–2 of the valuable memoirs on the cemeteries of that site. He also collaborated in a publication on the inscriptions of Sinai. A work entitled "Rough Stone Monuments and their Builders" appeared in 1912. In the following year Peet was appointed lecturer in Egyptology in the University of Manchester.

After the War, in which Peet served with the King's (Liverpool) Regiment in Salonika and France, he resumed excavation in Egypt on behalf of the Fund at El-Amarna, publishing "The City of Akhenaton", vol. 1 in 1923. His "Egypt and the Old Testament", a book of more general appeal than his other works, had appeared in 1922, and in the meantime he had also devoted attention to the study of papyri, more particularly those of a mathematical character, the result appearing in publications issued from 1920 onwards, dealing with the Rhind, Mayer and other papyri. On Prof. P. E. Newberry's retirement from the