

## OBITUARIES

### Sir Thomas Lewis, F.R.S.

SIR THOMAS LEWIS died on March 17, at the age of sixty-three, when still in full mental vigour. He leaves behind him a long train of brilliant achievements; and the path through which he moved for the illumination of medical science by clinical research will not remain void, for in the last twenty years of his life he had devoted his chief thoughts to the firm establishment of a group of men who understood his aims and would maintain their impulse.

Lewis himself was as distinguished for his researches in pure physiology as for his clinical authority in the diagnosis and care of heart disease. Yet neither field taken alone could satisfy him. He desired intensely the progress of medical skill, for he had seen the abundance of clinical problems waiting for study by precise scientific thought. Knowledge would not come quickly enough and many clinical questions would remain untouched if they were left to pathologists or physiologists for an answer. So he strove for the recognition of clinical science as a separate member of the group of biological sciences, a member that would make use of any of its sister sciences and yet be sovereign within its own clinical jurisdiction.

As the Physiological Society has been founded to bring physiologists together in helpful debate and fellowship, so Lewis in 1930 founded the Medical Research Society and transferred to it his journal *Clinical Science* with the aim of giving to that band of scientific workers their own tourney ground. The success of such a movement to bring scientific ways of thought into the heart of clinical experience was the dearest of Lewis's hopes, and despite his untimely death it will not now fail.

Lewis came of pure Welsh lineage, perhaps the most distinguished man of science as yet given to the world by the Principality. His father had an important place there in mining, having been president of the Coal Owners' Association; but Lewis when quite a young boy had preferred medicine for the quaint reason that the family doctor had delighted him by being a skilful conjurer. It was the side delights, apparently inhering in medicine, rather than the straightforward work of a doctor that entranced him. His abilities were soon proved by scholarships and gold medals in progress through medical training at Cardiff and later in London. But all this time his mind was finding chief satisfaction in the laboratories of physiology, where he had begun research and published papers even before qualification. In London, through acquaintance with Starling, Cushny and Leonard Hill, all busy with problems of the circulation, he met James Mackenzie and discussed with him the nodal rhythm that the latter had proposed in explanation of the particular type of irregularity of the heart-beat which he had studied clinically by venous tracings. Einthoven in Holland had recently devised a delicate galvanometer which could be used for analysis of the heart's action in man. Lewis seized the vital chance, obtained the instrument, and with it quickly proved, in 1909, that the particular irregularity in man was due to auricular fibrillation. This mechanism had been earlier identified in animal experiments by Cushny; but the physiological discovery was waiting its application to analysis of disorders of the human heart. The application was

relatively easy and it was made at the same time by workers in Vienna. But Lewis's genius, now that fortune had granted him this opening to fruitful research, moved far and fast with it. He concentrated all his clinical experience upon analysis of the forms of irregular heart-beat, identifying each by its galvanometric curve and then studying separately the prognosis and treatment of each form. But more profound analysis of the character of each electrical curve of irregularity was needed, and to this end Lewis commenced a series of experiments on the dog's heart, delicate and difficult instrumental studies involving exact analysis of the time relations of the electric change at successive points, inner and outer, along the walls of the double-chambered ventricle. These measurements traced the path of the wave of contraction, and so gave the first analysis, in 1916, of the *PQRS* curve in the normal electrocardiogram. From this followed in 1920 a satisfactory account of the sites of origin in the human heart of the various forms of irregularity seen in disease.

Meantime Lewis had come to a clear decision as to what his life in medicine was to be. He desired research based continually on clinical experience. In 1910 the newly created Beit Fellowship had given him freedom for three years to follow this aim. Soon after that came the War and Lewis was attached to a special military hospital for study of the soldier's heart. In 1916 the Medical Research Council offered him a permanent position on its external staff, and Lewis gladly accepted this escape from the road that would have rapidly led to a great consulting practice in heart disease but away from intense and progressive research. At the end of the War he returned to the staff of University College Hospital and the enjoyment of a laboratory adequately staffed by the Medical Research Council. But he had shown during the war period that important discoveries could be made by use of the simplest apparatus, such as a sphygmomanometer, provided it were guided by subtle thinking; and his demonstration in 1916 of the contractility of the capillaries by adrenalin led him to the exploration later of entirely new fields of his own. The results were summarized in 1927 in his book on the "Bloodvessels of the Human Skin", in which he analysed their nervous control and particularly their inflammatory reaction to a chemical substance, akin to histamine, found by him to be normally released upon injury to skin cells. This idea of an autochthonous chemical irritant of nerves, now running parallel with the discoveries of physiology in respect of cholinergic nerves, was later extended by Lewis to include some forms of pain, for example that of angina pectoris; and from that he was moving to a hopeful investigation of deep visceral pain, a matter of intense importance to clinicians, when in 1939 war again came and ended the work.

Lewis had been elected fellow of the Royal Society in 1918, at the early age of thirty-six, and in 1941 he received its Copley Medal, the highest recognition that British science can give for fundamental discovery. Not since Lord Lister, in 1902, had this award been made to an active clinician. His worldwide reputation naturally brought him the honorary membership of many learned societies and the degrees of many universities at home and abroad. In practical medicine the teaching of two books upon heart diseases, which he wrote deliberately for medical practitioners—and they were translated into several foreign languages—had a transforming influence so



complete that it is now almost forgotten that the change was largely due to his researches. Otherwise he refused to spare time for routine discussions at medical societies, for he had no wish to stay fixed on a summit as an acknowledged heart specialist. Independence had been given to him by that intensely important move of the Medical Research Council when it led the way in creating whole-time posts for clinical research, and so he could go wherever his genius beckoned. With his amazingly clear and penetrating intellect he was the mainstay of scientific progress in all departments of his medical school at University College Hospital. Young or old, but especially the former, found him eager and ready to help them. He had the devotion of a zealot to his cause, but a devotion that had no self-seeking or personal conceit to mar it. And work was not all. There was time for pleasures of the countryside, a garden, trout fishing, and especially watching the wild birds that he knew so intimately and photographed with such artistry. Friendships, not readily accepted but staunchly held, also played their part; but chief of all was his happiness in married life.

T. R. ELLIOTT.

#### Mr. W. E. Nicholson

WILLIAM EDWARD NICHOLSON, who died at Mullion, Cornwall, on February 13, was, after his life-long friend, H. N. Dixon, the best known authority in Great Britain on the taxonomy of the bryophytes. He was interested particularly in the European mosses and in European and exotic hepatics.

By profession a solicitor, Nicholson was born in 1866 at Lewes, Sussex, where almost the whole of his life was spent. He was educated at Marlborough until ill-health compelled him to leave at an early age. From boyhood he was deeply interested in natural history, and until middle life as much in entomology as in botany. Towards the end of the last century, Nicholson began the study of the mosses and liverworts, receiving help and encourage-

ment from William Mitten, the veteran Sussex bryologist and the greatest authority on the exotic mosses of his day. Later he came into contact with H. N. Dixon, and the two soon gained an international reputation for a number of remarkable additions to the European flora made on journeys ranging from southern Portugal to Tornean Lapland.

Though without a scientific training, Nicholson had a keenly critical mind and abnormally acute powers of observation, which were strikingly shown by the extraordinarily large number of species he was able to discover in his native Sussex, including many of the minute and elusive species of *Cephalozella*.

Nicholson wrote a number of short papers on British and foreign bryophytes, among which his papers on the mosses and liverworts of Sussex were particularly noteworthy. In his later years most of his time was devoted to exotic hepatics, and his most important work in this field was his account of the Chinese collections of the Freiherr von Handel-Mazzetti published in *Symbolae Sinicae* in 1930.

Besides botany, Nicholson's chief interest was in archaeology, and he was for fourteen years secretary of the Sussex Archaeological Society.

P. W. RICHARDS.

WE regret to announce the following deaths:

Dr. Denis Coffey, formerly president of University College, Dublin, and vice-chancellor of the National University of Ireland, on April 3, aged seventy-nine.

Sir Ambrose Fleming, F.R.S., on April 18, aged eighty-five.

Mr. A. R. Hinks, F.R.S., C.B.E., secretary of the Royal Geographical Society since 1915, on April 14, aged seventy-one.

Dr. Bohuslav Vrbenský, a Czechoslovak medical man, who held office as Minister of Health and Minister of Public Works in several Governments, and in particular was instrumental in securing improved working conditions for Czechoslovak miners, on November 25, 1944, aged sixty-two.

## NEWS and VIEWS

### Pure Mathematics at Cambridge:

Prof. L. J. Mordell, F.R.S.

THE election of Prof. L. J. Mordell as successor to Prof. G. H. Hardy in the Sadleirian chair of pure mathematics at Cambridge will not have come as a surprise to those who are aware of his international reputation as a leading British mathematician. His main interest has always been in the theory of numbers, and to this subject he has made perhaps as great an original contribution as any mathematician in Britain, past or present. Among outstanding achievements one may mention (1) the proof that all rational solutions of a cubic equation  $f(x,y) = 0$  can be derived by a well-known rational process from a finite number of them (Mordell's finite basis theorem), (2) his work on the representation of a number as a sum of squares, which has its root in Mordell's mastery of the theory of modular functions, (3) his work, mostly in recent years, on the geometry of numbers, where he has opened up new avenues of investigation. Characteristic of Mordell's work is

the *significance* of the problems he has formulated and attacked. The advances he has made, apart from their intrinsic importance, have often been the starting point for work by other distinguished mathematicians.

Mordell went from Philadelphia to St. John's College, Cambridge, in 1907 with a senior scholarship in mathematics awarded on the scholarship examination of December 1906. He was third wrangler in the 1909 Tripos. After being lecturer at Birkbeck College, London, he went to Manchester, where he has been Fielden professor of pure mathematics since 1923. In 1941 he was awarded the De Morgan Medal of the London Mathematical Society (of which he is now president). From about 1933 onwards, Mordell gathered round himself at Manchester a group of mathematicians from all over the world, whose interests were mainly in number-theory. The success of the 'Manchester school' in original work owed everything to the fertility of Mordell's suggestions, to the keen interest and zest with which he followed their discoveries (even the least significant),