infra-red spectrometer used. We are also grateful to all those who have provided materials for study.

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OBITUARIES

Dr. Marjory Stephenson, M.B.E., F.R.S.

MARJORY STEPHENSON was born at Burwell in Cambridgeshire on January 24, 1885; she died in Cambridge on December 12, 1948. She was educated at Berkhamsted School for Girls, and at Newnham College, where she was later to be associate and fellow. As circumstances prevented her following her wish for a medical degree, she equipped herself at the Gloucestershire Training College of Domestic Science, and taught for a time there and at King's College of Household Science, London. Soon she had an opportunity to begin biochemical research work at University College, London, under Dr. R. H. A. Plimmer; her first paper, on animal lactase, was published in 1912. The next year she was aided by a grant from Newnham College, and a little later was awarded a Beit Memorial Research Fellowship; but her newly begun career was interrupted by the First World War. She served with the British Red Cross during 1914–18, first in France and then in Salonika, where she was V.A.D. commandant. Her work was recognized by the award of the M.B.E. and the Royal Red Cross.

In 1919 she returned to research, this time at the Biochemical Laboratory, Cambridge, with Sir Frederick Gowland Hopkins. At first she took part in the vitamin work already in full swing in the Laboratory, becoming interested in the fat-soluble vitamins. This interest led on to her work, with M. D. Whetham (later Mrs. A. B. Anderson), on the fat metabolism of the timothy grass bacillus, and thence to more general studies of these and of fermenting organisms. She had now found her life-work and remained in Cambridge, in the favourable milieu of Hopkins' department, developing the science of chemical microbiology, and teaching and inspiring a long succession of pupils and collaborators. Her influence became world-wide; she opened up several new fields of study, some of which have since been brilliantly developed by her pupils.

As time went on, Dr. Stephenson became more and more impressed by the importance of chemical microbiology as a special discipline, not only valuable to the community on account of its industrial and medical aspects, but also capable of making a unique contribution to the progress of scientific thought. This theme she developed in her lecture before the congress which celebrated the centenary of Pasteur in Paris in November 1946. For many years she was on the staff of the Medical Research Council, and in 1944 her tireless efforts led to the formation of the Council's Unit for Chemical Microbiology. In 1948 she was appointed to a University readership at Cambridge. She also played a great part in the founding of the Society for General Microbiology and was its president at the time of her death; many will long remember the charm and lively enthusiasm with which she presided over its conference last September. Three years earlier, she and Dr. Kathleen Lonsdale had been the first women to be elected into the ordinary fellowship of the Royal Society.

Her book "Bacterial Metabolism", which so greatly enhanced her international reputation, appeared first in 1930. The third edition, entirely re-written, is now on the point of publication. It is animated throughout by the imaginative insight which enabled her to consider the microbe, not as a useful device or as a pest to be eliminated, but as a living organism going about its own legitimate business.

In her early work, for example, with J. H. Quastel and L. H. Stickland, she dealt with several subjects of which time has only emphasized the importance for example, the role of —SH groups in metabolism, or the possibility of energy provision under anaerobic conditions by the interaction of specific hydrogen donators and acceptors. She was the first to demonstrate, in cell-free extract, the presence of a specific (lactic) dehydrogenase from bacteria, and her work on hydrogenase and hydrogenlyase (with L. H. Stickland, D. D. Woods and J. Yudkin) has become classical. The observations on these enzymes aroused her interest in the subject of adaptive enzymes, to which she and her school (now including E. F. Gale) made outstanding contributions.

In 1937 she became interested in the importance of nucleic acid derivatives in cell metabolism, and with characteristic thoroughness embarked on a study (with A. R. Trim) of the changes which the adenine compounds themselves undergo in the presence of bacterial enzymes, as a preliminary to studying their mode of action in the cell. Several years later she came back to the theme of nucleic acid metabolism, and her last paper (with J. Moyle), just ready for press, is on this subject. Her latest published experimental paper (with E. Rowatt) was on the bacterial synthesis of acetylcholine.

During the Second World War, Dr. Stephenson carried out (with R. E. Davies) some important

research on the acetone–butanol fermentation, and took a very active part on the Medical Research Council Committee for Chemical Microbiology.

Throughout her years in the Cambridge Biochemical Laboratory, Dr. Stephenson was greatly sought as friend and adviser. She was always ready to pay sympathetic attention, and her advice, usually given quickly and with decision, was based on a deeply considered philosophy of life. One of her great characteristics was her intense interest in people, and a favourite theme in her conversation was the influence of character upon scientific achievement or, conversely, the effect of certain types of results upon the psychology of research workers. She had many interests outside biochemistry, and this fascination by human nature was very plain in her love of the drama and the great nineteenth-century novelists; she was enthralled, too, by the history of the development of civilization and by certain aspects of the theory and history of science. She used to say that, when her laboratory life was ended, she would like to use the leisure of retirement to write biographies of a few of the men of science (Pasteur and Hopkins among them) whom she so greatly admired, and whom she felt that she in some degree understood. In one of the last conversations I had with her, the subject of present-day growing-points in science came up. It was characteristic of her to say: "Let us consider: if Hoppy had started research in Cambridge to-day instead of fifty years ago, where would he have chosen to begin?"

In her later years her interests seemed to grow wider. She had always loved gardening, and she became very keen on horticultural research. She was greatly concerned about the development of biochemical training in general in Great Britain; she was a great advocate of decentralization, and liked to see good workers from more remote places return to act as foci of progress in their own country.

One of her great qualities was her hatred of any form of cant, hypocrisy, pretention or slovenliness; she was ruthlessly outspoken in her condemnation of any such suspected defect. But this personality, so lively and so gifted with the capacity for leadership, had another characteristic: a fundamental humility, which enabled her to listen, learn, and, if need be, change her mind. She had, lastly, a great opinion of the possibilities of youth, and when the risk was debated of entrusting responsibilities to the young, her advocacy was always on their side. She would have applauded Confucius when he said: "The rising generation is to be respected. Who knows what they may accomplish?"

DOROTHY M. NEEDHAM

Mr. T. Petch

MR. TOM PETCH, the well-known mycologist, died at North Wootton, King's Lynn, on December 24 at the age of seventy-eight, after a short illness. Born at Hornsea and brought up at Hedon, he attended the choir school of Holy Trinity, Hull. From Hull and from Yorkshire naturalists he early acquired great interest in plant and animal life, and contributed many original observations to *The Naturalist* and to the Hull Scientific and Field Naturalists' Club.

As a young man Petch taught science and mathematics at King's Lynn Grammar School, and by dint of private study graduated in both arts and sciences at the University of London. At King's Lynn he came under the stimulating influence of the late Dr. C. B. Plowright, then in the very front rank of students of the fungi, and it was this happy contact that led Petch to devote chief attention to the study of these organisms. Later, he taught at the Leyton Technical Institute. One of his friends at this time was the late Mr. George Massee, of Kew, through whom in 1905 Petch was offered the post of Government mycologist in Ceylon at the Royal Botanic Gardens, Peradeniya. He accepted enthusiastically because the post promised greater scope for his interests.

Petch's arrival in Ceylon coincided with a great extension of rubber plantations. He studied in detail the fungus diseases of the rubber tree, then beginning to cause concern, and his researches in this field were most illuminating. In 1911 he published "The Physiology and Diseases of *Hevea brasiliensis*", and in 1921 "The Diseases and Pests of the Rubber Tree", for many years the best books on the subject, acclaimed by men of science and planters alike. He also gave much attention to the diseases of other crops, notably coco-nuts and tea. His book on the "Diseases of the Tea Bush", published in 1923, is a comprehensive account of the pathology of this plant and is still the standard work.

In 1925 Petch left Government service to become the first director of the new Tea Research Institute of Ceylon, which he launched with great success. Being a man of wide vision, he realized that there were many problems in tea production besides the incidence of disease, so he gathered around him a team of experts competent to explore the whole field of inquiry. Petch had the great gift of inspiring enthusiasm and harmony among his colleagues and confidence among the planters. Both the tea and rubber plantation industries are under a deep debt of gratitude to him for most valuable services.

Petch also devoted much attention to the general study of the fungi, mycetozoa, and flowering plants of Ceylon, for he was no mean botanist as well as a brilliant mycologist. For several years he edited the *Annals of the Royal Botanic Gardens, Peradeniya*, which contains numerous contributions from him, among them being "The Mycetozoa of Ceylon", "The Fungi of Certain Termite Nests", "The Phalloideæ of Ceylon", "Revisions of Ceylon Fungi", "Additions to Ceylon Fungi", and "Studies in Entomogenous Fungi". He left Ceylon in 1928 with the reputation of being the world's foremost tropical mycologist.

On retirement to England, Petch devoted the remaining twenty years to the study of fungi, chiefly British groups. His only other major interest was his large garden at North Wootton, which had been designed by the late Dr. C. B. Plowright. Petch was still a most ardent collector and investigator of micro-fungi, and a constant stream of papers emanated from him, published chiefly in the *Transactions of the British Mycological Society*. Among them may be mentioned "British Hypocreales", "British Nectrioideæ", "British Entomogenous Fungi", and a long series on other entomogenous fungi. One of his last efforts was to compile, with Dr. G. R. Bisby, a revised list of Ceylon fungi. Petch had numerous mycological correspondents throughout the world, whom he was always ready to help. He was a most versatile, careful and critical worker, and he corrected many errors of description and nomenclature made by others.

Unfortunately, few honours came Petch's way; but one which he much appreciated was the confer-