

he emphatically rejected the view that standards could be relaxed when the molecules became large and complex. The linear sequence of Liverpool lysozyme's 129 amino acids, fully protected, has been constructed and the final, though demanding, phase of the work is concerned with removal of the protecting groups. Although he will not see the conclusion of this pioneering work, he had already brought new scientific standards to the art of peptide synthesis and provided a firm foundation on which others can, and undoubtedly will, build in the future.

This work had brought him most honours and distinctions available to a British chemist. He was awarded the Meldola and Corday-Morgan Medals, gave the Tilden, Simonsen, and Pedler Lectures of the Chemical Society, and the Bakerian Lecture of the Royal Society. This last, *Towards Synthesis of Proteins* (*Proc. R. Soc. A* 1977, **353**, 441), provides a fascinating account of the strategy and achievements of the lysozyme project.

In spite of the constant demands upon him he always found time to help with the countless problems brought to him. He had an impressive memory for all who passed through the department and he followed their subsequent careers with genuine interest. Recent tragic events have shown just how many people respected and revered him, and are now left, with his wife and daughters, to mourn this splendid man.

C. W. Rees

## M. V. Keldysh

MSTISLAV VSEVOLODOVICH KELDYSH, former President of the Academy of Sciences of the USSR, died on 24 June 1978.

Keldysh was born in Riga in 1911. He graduated from the Faculty of Physics and Mathematics in Moscow State University in 1931, and then went to the Zhukovskii Central Aerodynamics Institute, where he worked on mathematical aerodynamics, including the theory of unstable wing movements and flutter.

Although Keldysh was later to be acknowledged as having played a founding role in the establishment of post-war Soviet technology—computer mathematics, nuclear engineering and space research—he remained, to the outside world, relatively unknown, save as a mathematician, until 1961, when he became President of the Soviet Academy of Sciences. Although the Academy still elects its President by

secret ballot, Keldysh's appointment was largely seen abroad as being associated with expansion of the Soviet space programme.

As President of the Academy he played a major role in the expansion of Soviet science, and the development of a Union-wide network of scientific research establishments and centres. His speeches on the progress of Soviet science became a prominent feature of virtually all Party and academic occasions.

Keldysh retired from the Presidency of the Academy in 1974, shortly before the belated celebrations of its 250th anniversary. He still continued, however, to take an active part in the organisation of Soviet science, serving, for example on the Committee for Lenin and State Prizes.

For his services to Soviet science, Keldysh was honoured during his lifetime by the title of Hero of Socialist Labour (three times), Lenin and State prizes and numerous medals and orders of the Soviet Union and the countries of the socialist bloc. As a further and final tribute he was accorded a state funeral, his ashes being enshrined in the Kremlin wall.

Vera Rich

## C. O. Hebb

DR CATHERINE OLDING HEBB, formerly Deputy Chief Scientific Officer, A.R.C. Institute of Animal Physiology, Babraham, Cambridge, died at Cambridge on 26 August 1978, aged 67.

Catherine Hebb was born in Nova Scotia and educated at Dalhousie University, Halifax, Nova Scotia, and at McGill University, Montreal. Here in 1937 she gained her Ph.D. and carried out her first research, on the secretory activity of the digestive glands, under Professor B. P. Babkin.

In 1938, Dr Hebb came to Edinburgh University as a Junior Beit Memorial Fellow, in the Department of Physiology, under the late Professor I. de Burgh Daly. For the next fourteen years, in collaboration with Daly and other members of his very active department, Catherine Hebb produced a series of papers on the control of the blood supply to the lungs by neural and chemical processes. During the Second World War, she and Daly undertook research in the department at Edinburgh on behalf of the Air Ministry and the Ministry of Supply. Throughout this period, until 1952, Dr Hebb was giving lectures to undergraduates

in the physiology department, including some to the students of the refugee Polish Medical Faculty in Edinburgh.

When Dr Daly was appointed first Director of the Agricultural Research Council Institute of Animal Physiology at Babraham, Cambridge, he invited Catherine Hebb to join his staff. Dr Hebb's work on the lung vasculature, together with a year's work with Professor W. Feldberg in Cambridge, during the tenure of a Senior Beit Fellowship, led her to an interest in the autonomic system and neurotransmitters, and it was in this field that her most important scientific contribution was made. She established at Babraham a first-rate neurochemical laboratory, and in 1965 became the head of the Institute's physiology department.

Chemical transmission from nerve-ending to effector organ had been familiar to physiologists for decades, but neuron-to-neuron transmission, in ganglia and in the central nervous system itself, was a newer, promising and technically difficult field when Dr Hebb began work in it. Her studies on the mechanism of the synthesis of acetylcholine, and of the distribution of the enzymes concerned in its metabolism, combined the techniques of biochemistry, histochemistry and classical pharmacology. However, among all this fine detail she never lost sight of the physiological functioning of the whole animal, and for this reason among others, she was able to write excellent review articles, putting her own discoveries and those of others in their proper context. The Physiological Society monograph on the vasculature of the lung which she wrote in collaboration with I. de Burgh Daly in 1966 is still a standard work.

Dr Hebb was notable for the sympathetic encouragement which she gave to younger workers in the field of neurochemistry, including a number from Poland, Yugoslavia, Czechoslovakia, Hungary and South American countries. She helped to bring such workers to Babraham for periods of research and study, thereby disseminating enthusiasm for the subject and also a wish to emulate her own high standards of work.

Dr Hebb had already been battling against ill-health for some ten years when she retired from Babraham in 1976. Her concern for others was typified by her request that the collection made to mark her retirement should be used to establish a loan fund to help staff, visiting scientists or students at Babraham in financial need. Contributions to this Catherine Hebb Loan Fund have flowed in from every continent—an indication of the width of the affection for Catherine Hebb and admiration for her work.

M. W. Stanier