OBITUARIES

Prof. M. A. Catalán

MIGUEL ANTONIO CATALÁN was born at Saragossa in Spain on October 9, 1894, and died at Madrid on November 11, after a brief and unexpected illness, at the age of sixty-three.

Following graduation at the University of Saragossa, Catalán received his Ph.D. degree with honours at Madrid in 1917 and started research work on spectroscopy in the laboratory for advanced studies of the Department of Physics. With a Spanish fellowship, he studied in England under Prof. Alfred Fowler's direction in 1920-21. During this stay at the Imperial College of Science and Technology, Catalán made his most important contribution to spectroscopy with the discovery of multiplets in the arc spectrum of manganese. For the first time, the spectrum of a complex atom could be interpreted, giving experimental support to the quantum theory of those atoms. Catalán's discovery was the beginning of a novel approach to the study of atomic spectra, and all laboratory spectroscopists began to study many other complex spectra, looking for multiplets as Catalán did in Mn I.

In 1923 he was awarded a Rockefeller Fellowship, at the suggestion of Prof. A. Sommerfeld, and worked with him during 1923-24. Back in Spain, Catalán continued his work on atomic spectra, and in 1930 was promoted head of the Atomic Spectroscopy Section at the Rockefeller Institute of Madrid. Many students from Spain and abroad worked under his direction, and in 1934 he became full professor in the University of Madrid. During the following years, a large number of important papers on analyses of atomic spectra were published by Catalán and his students; thus, very soon his school was well known and appreciated all over the world. Invited by the American Philosophical Society, he worked in the United States during 1947-48 and again in 1950 and 1951. In 1950 he was appointed chief of the Department of Spectroscopy in the newly created Institute of Optics, Madrid; and in 1952 he was elected to the Joint Commission for Spectroscopy of the International Council of Scientific Unions. His important contributions to the field of atomic spectroscopy were also rewarded in Spain when he was elected member of the Real Academia de Ciencias in 1955. At the invitation of South American universities, Catalán lectured in Argentina and Venezuela in 1956 and 1957. Up to the date of his illness, he was still very active and productive; thus his death surprised and shocked all his friends.

Prof. Catalán was not only an eminent spectroscopist; he was also a great teacher and he enjoyed lecturing to students or to any type of audience. Teaching was really his hobby. He had the rare ability of making simple and understandable the most difficult subjects, and he liked these outside activities so much that, apart from his lectures at the University, he always instructed groups of high-school students.

Catalán was friendly and helpful to everyone. He was liked and admired by all who knew him, and he will be remembered with affection by his many friends and colleagues.

R. VELASCO

Prof. Louis Pillemer

LOUIS PILLEMER, well known to many immunologists in Great Britain, died unexpectedly on August 31, 1957, at the age of forty-nine years.

Born in South Africa, Pillemer spent all but the first year of his life in the United States. He took a B.S. degree at Duke University in 1932, went to Western Reserve University in 1935 and took his Ph.D. there in 1938. In 1944 Pillemer worked at the Army Medical School in Washington. When he returned to Western Reserve University he became, in quick succession, associate professor of immunochemistry (1946) and professor of biochemistry (1950) without teaching duties at the Institute of Pathology.

His association with W. A. Perlzweig at Duke University, with E. E. Ecker, who was his chief at Western Reserve University for many years, and with E. J. Cohn at Harvard, undoubtedly influenced his experimental approach and orientation, but the direction and drive of his endeavours flowed from his own stormy and original personality and from the intuitive faculties of his mind. When one came to know him intimately, one realized the uncompromisingly high standards of values which guided his scientific decisions and the tremendous emotional strain caused by the demands he so pitilessly made on himself.

Pillemer's experimental work ranged from studies of protein specificity¹ and complement² to clinical biochemistry³ and to the purification of toxins and toxoids⁴.

Pillemer made contributions of fundamental significance in several directions, but his choice of research projects was usually strongly weighted by their potential practical value. Purification studies were aimed at an improved combined vaccine of diphtheria-tetanus-pertussis; the later development of a pertussis vaccine by ultrasonic disintegration of the microbes followed by absorption of the protective antigen on human red cell stroma continued this endeavour⁵.

During recent years he abandoned other lines of research to turn his attention again to complement; soon 'Properdin' was discovered by him and his small band of enthusiastic and able colleagues and assistants. 'Properdin', acting with components of complement and magnesium ions, was shown to be part of the constitutive defence mechanisms of the mammalian organism and to mediate the destruction of certain micro-organisms and abnormal red cells⁶. By the time of Pillemer's death, it was clear that the discovery of 'Properdin' represented an important milestone in the study of the non-induced defence mechanisms against infection.

Pillemer felt that the highest award a scientist could gain was respect of his colleagues for his work—he certainly gained this award.

Our sympathy goes to his family. He leaves a wife, who as Jean Burrell⁷ was among his collaborators, and four sons.

BERNHARD CINADER

¹ Pillemer, L., Ecker, E. E., Myers, V. C., and Muntwyler, E., *J. Biol. Chem.*, **123**, 365 (1938). Pillemer, L., Ecker, E. E., and Wells, J. R., *J. Exp. Med.*, **69**, 191 (1939). Pillemer, L., Ecker, E. E., and Martensen, E. W., *ibid.*, **70**, 387 (1939).

² Pillemer, L., *Chem. Rev.*, **33**, 1 (1943).

³ Pillemer, L., and Hutchinson, M. C., *J. Biol. Chem.*, **158**, 299 (1945).

⁴ Pillemer, L. and Robbins, K. C., "Ann. Rev. Microbiol.", **3**, 265 (1949).

⁵ Pillemer, L., *Proc. Soc. Exp. Biol. Med.*, **75**, 704 (1950). Pillemer, L., Blum, L., and Lepow, I. H., *Lancet*, **266**, 1257 (1954).

⁶ Pillemer, L., Blum, L., Lepow, I. H., Ross, O. A., Todd, E. W., and Wardlaw, A. C., *Science*, **120**, 279 (1954). Pillemer, L., and Ross, O. A., *Science*, **121**, 732 (1955). Pillemer, L., Schoenberg, M. D., Blum, L., and Wurz, L., *Science*, **122**, 545 (1955).

⁷ Pillemer, L., Burrell, J. I., and Ross, O. A., *Science*, **106**, 36 (1947). Burrell, J. I., Robbins, K. C., and Pillemer, L., *Science*, **108**, 811 (1948).