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PROFESSOR C. HEYMANS.

OBITUARY

CORNEILLE HEYMANS

WITH the death of Corneille Heymans the twin sciences of physiology and pharmacology have lost a man who exercised a considerable influence as an experimenter and teacher and, finally, as "elder statesman" in physiological affairs, an equally familiar figure internationally as in his own country.

Heymans' claim to a lasting place in the history of these two sciences derives from his well-known discovery of the chemosensitive sino-aortic area and the reflexes arising from this region. For this work he received the 1938 Nobel Prize in Physiology and Medicine. The specific citation was: "pour la découverte de l'importance des mécanismes du sinus carotidien et de l'aorte pour la régulation de la respiration". The background of this discovery can be traced to a technique, developed (in 1912 with De Somer) by his father, teacher, and predecessor in the Ghent chair of pharmacology, J. F. Heymans. His technique made it possible to circulate the living, isolated head of one dog from the body of another while that head was connected to its own body only by the vagus and depressor nerves. The two Heymans, and later Corneille Heymans, alone and with several co-workers, made many important contributions to the understanding of the Hering-Breuer reflex and the H. E. Hering reflexes from the baroreceptors, using cross-circulation as the leading method of approach.

The discovery of chemo-sensitivity Heymans himself ascribed to a chance observation from a "foolish experiment". After completion of the planned piece of research with his preparation, in which ultimately one sinus area had been denervated, the other still being intact, Heymans decided to inject some potassium cyanide before finishing for the day. The expected hyperpnea appeared but, contrary to expectation, it disappeared after denervation of the remaining sinus area. Well-trained physiologist that Heymans was, he saw his chance and grasped it.

Then followed the "hunt" for chemoceptor reflexes with J. J. Bouckaert and L. Dautrebande as co-workers (1930-31), later also with Z. Bacq and U. S. von Euler. It led to a rapid expansion of our knowledge of the chemoceptors in the sino-aortic area and the reflexes they gave rise to. A good presentation of the whole field will be found in the monograph by Heymans and E. Neil, *Reflexogenic Areas of the Cardiovascular System* (Churchill, London, 1958).

Heymans was lucky in making his discovery at a time when it could be checked by impulse recording from the sinus and depressor nerves. Precise stimulus definition became possible in this way and futile disputes as to how the chemoceptors were activated soon came to an end. The dominating effect of anoxia was confirmed. Electrophysiological work was started in many laboratories. At the Johnson Foundation in Philadelphia D. W. Bronk and G. Stella elucidated the properties of the baroreceptors, in Stockholm Y. Zotterman with G. Liljestrang and U. S. von Euler turned to the chemoceptors, in London Eric Neil continued their work.

At an early stage Heymans undertook a study of the pharmacological properties of both chemo- and baroreceptors and this line, too, has been followed up by direct recording from the afferent nerve fibres of these organs.

Cornelle Heymans was born in Ghent, Belgium, in 1892. Throughout his long life he was attached to the university of his home city, beginning there as a student and developing under his father's direction in the disciplines he chose for his own life work. Heymans was want to call his father the "best teacher" he ever had. But there were others who influenced him, Eugene Gley in Paris, H. H. Meyer in Vienna and Carl Wiggers at the Western Reserve University of Cleveland where Heymans spent 1927-28. In 1930 he became Professor of General Pharmacology and undertook the leadership of the J. F. Heymans Institute of Pharmacology and Therapeutics at the University of Ghent. In this capacity he occupied a leading position in European physiology and pharmacology, attracting many students to a branch of physiology that has most important ramifications within clinical medicine.

Heymans' mind was that of an empiricist. Abstraction and theory fell outside his sphere of interests. Being a skilful animal experimenter he could well afford to develop his notions on, for instance, respiratory control by the sino-aortic reflexes from experiment to experiment. He was also a very good observer and a careful and methodical surgeon. This and a gift for lecturing made him an excellent teacher. He presented his material in a clear, sober and fluent style. Few, if any, physiologists can have lectured as widely all over the world as Heymans, who in addition loved travelling and meeting people. He was commissioned by the Belgian Government, the International Union of Physiological Sciences and the World Health Organization with special missions in Iran and India (1953), Egypt (1955), Congo (1957), Latin America (1958), Japan (1960) and Iraq (1962). Those who joined him on such journeys can bear witness to his shrewd judgement of people and places based on a critical sense and a sturdy matter-of-factness. They will also remember him as a boon companion, loaded with jokes and stories, always ready to help his associates on the journey with whom he became friends for life.

A balanced mind, wisdom in general affairs and much common sense gave him a leading position as promoter of biological research at home and abroad. He was Vice President of the Belgian National Council on Scientific Policy and at his death Past-President of a large number of societies, among them the Royal Belgian Medical Academy and the International Union of Physiological Sciences. At the XXth International Congress of Physiological Sciences in Brussels, 1956, he was its President. A great many international honours fell to his lot. He will always be referred to as one of the eminent physiologists of our time.

RAGNAR GRANIT