

Recensioni/Essay Reviews

THE HEYMANS INSTITUTE OF PHARMACOLOGY, 1890-1990:  
100 yers of teaching. Research and service.  
Edited by A.F. De Schaepdryver, Ghent, Belgium, 1990.

An academic session of the University of Ghent and a celebrative book have been dedicated to the century of the Heymans Institute.

Attention has been pointed on the eaching of Jan - Frans Heymans (1859-1932) in that University and a century of studies has been reviewed as history of pharmacology and advancement of science. In fact, for centuries medicine used natural drugs without possibility of investigation of the mechanism of action. The longevity of *De materia medica* of Dioscorides (1st century A.D.), the popularity of the *theriaka* first formulated by Andromakus, then modified by Galen and the polypharmaceutical system of Galen led Voltaire to write that "physicians are people who prescribe drugs of wich they know very little", says A. De Schaepdryver in his introductory paper, a condition unchanged when Heymans was invited in 1890 to reach the chair of Pharmacodynamics and therapeutics at the Faculty of Medicine of the University of Ghent. He was 31 years old and expert in experimental physiology, well trained in the Universities of Leuven, Paris and Berlin, when he was charged with the professorship at Ghent. For many years he had only three rooms for Laboratory in the Institute of Philosophy: but his work was so appreciated that a new Istitute was officially inaugurated in 1902 by King Leopold II.

Thus, he extended his studies of experimental pharmacology by perfusion techniques on thermoregulation, blood pressure, cardiovascular and respiratory regulation. His pupils, mainly the son Corneel Heymans (1892-1968) and J.J. Bouckaert (1901-1983), developed the perfusion technique in experiments of cross circulation, a method wich allows to study the vago-sympatetic system, so that J.F. and C. Heymans demonstrated

that chemical changes in the peripheral blood may modify the centrally paced respiratory rhythm. The way for discovery of the chemoreceptors of the carotid body was so open: in fact, the carotid chemoreflex by histotoxic anoxia (induced by the administration of cyanide) was demonstrated in a series of papers of C. Heymans and his coworkers, published between 1930-1932. The classical work on the observation of the reflex chemoreceptor stimulatory effect of KCN on common carotid artery of anesthetized dogs (denervated or normal) has been published by C. Heymans, J.J. Bouckaert and L. Dautrebande in 1931 in the *Archives Internationales de Pharmacodynamie et de Thérapie*, the multilingual Journal founded by J. F. Heymans in 1894. The next year the Nobel Foundation awarded Charles Scott Sherrington (1857-1952, University of Oxford) and Edgar Douglas Adrian (1889-1977, University of Cambridge) for their studies on the function of synapses: the scientific world pointed attention on neurosciences and neuropharmacology was ready to be rewarded.

The honour was for Corneel Heymans, who gained the Nobel Prize 1938, first acknowledgment to the new experimental Pharmacology, son of the pioneering ideas of Claude Bernard and the pioneering works of Jan Frans Heysmans.

The pharmacological revolution, from healing herbs to bioengineered molecules, is present in the Heymans Memorial Lectures, collected in the book, with papers by many Noble laureates, e.g. U.S. von Euler (actions of prostaglandins), E. Chain (biochemical pharmacology), Bovet (pharmacodynamics of psychotropic drugs), J. Black (adrenaline receptors). The story of J.F. and C. Heymans and of the Heymans Institute is the story of milestones of experimental pharmacology, its first derivation from experimental physiology and medicine and its evolution to molecular pharmacology, a way which was predicted by J. F. Heysmans in the introductory remarks to the *Archives Internationales de Pharmacodynamie et de Thérapie*:

*In the presence of the ever increasing flow of new drugs poured into the materia medica, it seems evident that the experimental*

*study of therapeutic substances has to be extended... In the course of the century (19th), medical sciences have particularly developed from the point of view of anatomy, physiology, pathology, bacteriology..., nearly neglecting therapeutics, both the origin and aim of medicine. Therapy will become more scientific through experimentation.....*

Valentina Gazzaniga