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CLAUDÉ BERNARD (1813–1878)

CLAUDE BERNARD'S birthplace, an old farmhouse in St. Julien (Rhône, France), is now a carefully preserved monument. It stands on a hill, surrounded now, as then, by vineyards; to this quiet spot Claude Bernard returned each summer of his retirement to perform a few additional experiments in an improvised laboratory, but especially to think over the results of the work he had done in Paris, its significance for the science of experimental medicine, and particularly its philosophical implications.

When he had finished his early education in the local schools he went to work for a pharmacist in nearby Lyon. The composition of a romantic drama in his leisure moments led him to try his hand at authorship in Paris; but when he showed his efforts to a prominent literary critic in the capital, he was advised to return to a career more nearly related to his experience as a pharmacist's assistant. It was not until he was thirty that he obtained the M.D.

The great influence in his life was François Magendie (1783–1855), who may be termed the father of experimental physiology in France. Magendie was Claude Bernard's sponsor and patron from the younger man's student days to the older scientist's death, when he bequeathed his chair of medicine at the Collège de France to his assistant who, by that time, was giving the courses for him. Although Claude Bernard held a professorship of general physiology first at the Sorbonne, and later at the Muséum d'Histoire Naturelle, his heart really belonged to the Collège de France where Magendie and he had worked so long together. In the course of his life he touched with an illuminating hand almost every phase of physiology, so that Pasteur characterized him not as a physiologist but as physiology itself.
His first paper (1843) concerned the origin and functions of the tiny chorda tympani nerve, but after this came the discovery of the fat-splitting enzyme of the pancreas and the glycogenic function of the liver before he returned to the nervous system for the most spectacular of all his discoveries (1849); viz., that a slight wound in the floor of the fourth ventricle of the brain would render an animal tenacious of heat, without constriction of temperature in blood flow exerted by the cutaneous nerves, constriction of 1836), Swiss ophthamology, and constrictor of miosis, ptosis and pupillary is still referred to today. Actually the line was first used by Petit (1727) over others.

The old question, otherwise than by inference, was disposed of by Claude Bernard. He discovered it and proved it again, since 1849, Physiology dominated by Claude Bernard (1816-1878) in France and America. The latter, d'Arsonval, Paul Brill, and many others. Even today 'the brain' (Paris, Breslau) was the inspiration to laymen.

Claude Bernard has been his greatest happiness: a problem and a solution. Tissot, intransigent Paul, intransigent Banister, barometric pupil and his success, simplicity of expression, kindness, sweetness, and all that went with it.

Portrait, courtesy of the National Library of Medicine, Bethesda, Maryland.
under an animal temporarily diabetic. From his observation in 1852 that cutting the cervical sympathetic nerve of the rabbit causes not only constriction of the pupil of the eye but also flushing and rise of temperature in the ear, came the discovery of the control over blood flow exerted by the nervous system through vasomotor nerves, constrictor and dilator. Johann Friedrich Horner (1831–1886), Swiss ophthalmologist, described in man his famous triad of miosis, ptosis and enophthalmos in 1869; in France the disorder is still referred to as the Claude Bernard-Horner syndrome. Actually the line of this syndrome stretches from Pourfour du Petit (1727) over Stilling (1840), Weir Mitchell (1864) and others.4

The old question whether voluntary muscle can be influenced otherwise than by way of its motor nerve was settled in the affirmative by Claude Bernard with the use of curare (1849), and the principles he discovered were immediately applied for treating tetanus, and again, since the 1940’s, in anesthesia and convulsive therapy.

Physiology during the middle of the nineteenth century was dominated by Claude Bernard, perhaps his only peer being Carl Ludwig (1816–1895). Pupils came to him from Russia, Germany and America. The succeeding generation of French physiologists, d’Arsonval, Paul Bert, Dastre, and a host of others all owe much to him. Even today his *Introduction à l’étude de la médecine expérimentale* (Paris, Baillièrè, 1865), available in English,5 is an inspiration to laymen as well as to the profession.

Claude Bernard was always rather solitary. His moments of greatest happiness came when he had found a neat solution to some problem arising from his physiological investigations. The intransigent Paul Bert (1830–86), author of the incomparable *La pression barométrique* (Paris, Masson, 1878), was his favorite pupil and his successor at the Sorbonne in 1868. Bert, acknowledging his debt to the master, described him as a man of “great kindliness, simplicity of soul, and possessed of a naive generosity.”

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References