Definition: Hess, Walter Rudolf from The Columbia Encyclopedia

1881–1973, Swiss physiologist. For his work on the control of organs by certain areas of the brain he shared with Egas Moniz the 1949 Nobel Prize in Physiology or Medicine. He was (1917–51) professor and director of the physiology institute at the Univ. of Zürich.


Swiss physiologist who shared the Nobel Prize for Physiology or Medicine in 1949 with Portuguese neurologist Antonio Caetano de Abreu Freire Egas Moniz for discovering what function certain parts of the brain had in determining and coordinating the activities of internal organs.

Automatic body functions such as digestion, respiration, and blood circulation are controlled by the autonomic nervous system, a network of nerves that originate in the brain and extend through the spinal cord. The primary centres of these vital functions are located in an area of the brain known as the medulla oblongata and it was this area that Hess studied to determine which parts of the brain were responsible for individual functions. He inserted fine wires into the brains of cats and applied electric currents to stimulate or destroy specific areas of both the medulla oblongata and later, parts of the interbrain, in particular the hypothalamus. He successfully mapped the location in the brain of the control centres for vital functions, such as blood circulation and respiration. Hess went on to discover that certain characteristic physical reactions such as the defence mechanism of a cat in the presence of a dog, or the reflex that causes a cat to curl up before going to sleep were controlled by specific areas of the interbrain. His work increased the knowledge of how a brain functions.

Hess was born in Frauenfeld, Switzerland. He received his degree of doctor of medicine from the University of Zürich in 1906. Hess began his career in 1906 as an ophthalmologist but changed his profession to study physiology at the University of Bonn, Germany, in 1912. He became professor of physiology at the University of Zürich and was nominated for the post of the director of the Physiological Institute there in 1917. Hess held this position until 1951.

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