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CENTRAL REGULATION OF THE PITUITARY - ADRENAL COMPLEX

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TSENTRAL'NAYA REGULYATSIYA GIPOFIZARNO-NADPOCHECHNIKOVOGO KOMPLEKSA

E. V. Naumenko

ЦЕНТРАЛЬНАЯ РЕГУЛЯЦИЯ ГИПОФИЗАРНО-НАДПОЧЕЧНИКОВОГО КОМПЛЕКСА

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Preface

This monograph gives an up-to-date account of the original results of the author's research in the complex field of the central control over relationships which have become established in the course of evolution between the hypothalamus and the pituitary gland. The author has limited the scope of this research on logical grounds to the study of central chemically reactive structures in the regulation of the adrenal glands through the intermediary of the hypothalamo-hypophyseal system. Through the author's skill and expertise in the analysis of the extensive and sometimes complicated literature he has successfully undertaken a differential approach to the analysis of the concrete role of catecholamines, acetylcholine, and serotonin in relation to the endocrine system.

The vast range of experimental investigations and results of clinical observations published in the last few decades have revealed the humoral neurosecretory factors of the hypothalamus as important regulators of the principal functions of the pituitary gland and, through it, of the cyclic activity of the peripheral group of endocrine glands. Until recently the region of the cascade of regulatory influences preceding the hypothalamus was terra incognita. It is for this reason that Evgenii Vladimirovich Naumenko's monograph acquires its special importance for the neurophysiologist, for its author has striven, by the use of experimental methods, to ascertain in detail the nature of influences which for a long time were interpreted as the general dogmas of an abstract "nervism."*

*A theory of the unity of the organism and external environment in which the nervous system is the principal connecting link. The nervous system plays the principal role in determining the course of normal (adaptive) and pathological (protective) processes. (Translator's note.)

One original result of these investigations has been to obtain direct evidence that the higher levels of the brain have a direct influence on the localization of the system of serotonergic structures located in them. The differentiation of the intimate relations between chemically reactive structures and the different zones of the hypothalamic region is a valuable achievement. No cholinergic or adrenergic structures capable of influencing the hypophyseal zone of the hypothalamus, secreting the corticotrophin-releasing factor, have been found actually in the brain itself. The corresponding stimulation must be secondary in this respect, for it is mediated through peripheral reactive structures. Cholinergic factors act in the same way. The author puts forward a soundly based hypothesis according to which certain neurons whose endings activate the secretion of corticotrophin-releasing substances in the hypothalamus are serotonergic in nature. Participation of the serotonergic structures of the brain in the direct central control over the hypothalamo-hypophyseo-adrenal system is thus stipulated for the first time.

The experimental results are illustrated by a number of lucid and informative schemes. The style of the description is perhaps a little laconic, and this may make it more difficult to digest by readers whose interests lie outside the field of neuroendocrinology. By way of compensation, however, this concentrated presentation of the facts, conclusions, and hypotheses enhances the value and interest of the book to the specialist.

A. A. Voitkevich

Obninsk, March 1968

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