

*Handbook of the Hypothalamus*. Peter J. Morgane and Jack Panksepp, Eds. Vol. 1. *Anatomy of the Hypothalamus*. Marcel Dekker, Inc., New York, 1979. 726 pp., illus., index \$145.00.

This is the first volume of a series devoted to the structural, chemical and functional organization of the hypothalamus. The nine chapters, written from various points of view by active investigators, are intended primarily to emphasize organizational principles and ideas. In the Editors' words the central conceptual theme is that "the hypothalamus is a nodal link embedded in major loops of circuitry forming components of the limbic forebrain-limbic midbrain and the limbic-hypothalamic-reticular axis." It "does not simply sit astride these multitudinous circuitries" but participates in their many activities. That theme is expanded by Morgane in Chapter 1, *Historical and Modern Concepts of Hypothalamic Organization and Function*, in which he pleads at length for de-emphasis of the hypothalamus as an aggregation of "centers" in primary control of this and that specific function. There are not, for example, true centers in the lateral hypothalamus for feeding and drinking, as these activities involve many levels of neuraxis. Lesions in the lateral hypothalamus destroy these functions by interrupting many essential circuits. "In terms of systems of neurons forming a functional complex, the loss of any one link of this system immediately affects the end result of activity in that circuit and leads to reorganization of the whole system with the object of restoring the disturbed act."

*Development of the Hypothalamus in Mammals*, written by A. Keyser, is a treatise based on his 1972 study of the ontogenesis of the hamster diencephalon. Whereas in official usage the term "hypothalamus" applies to the entire diencephalic wall below the ventral diencephalic longitudinal sulcus, from the developmental viewpoint the hypothalamus appears as a number of comparatively independent regions arising from the basal components of a series of neuromeres: optic, postoptic and anterior parencephalic. These segmental regions are later obscured by the longitudinal subthalamic and hypothalamic cell cords. Nevertheless, four divisions tend to show sufficient independence in early phases to warrant separate discussion: the preoptic, supraoptic, postoptic and mamillary regions. With formation of the medial forebrain bundle, the first three become more uniform in appearance; the mamillary region however, retains distinctive features.

*A Cytoarchitectonic Atlas of the Hypothalamus and Hypothalamic Third Ventricle of the Rat*, by R. Bleier and associates, will be a welcome practical feature for the many neuroendocrinologists who use this species. Representative thioimin-stained sections in frontal, sagittal and horizontal planes are each presented in full-page plates. Reflecting the authors' special interests there are several scanning electron micrographs of supraependymal cells as well as a montage of the third ventricle wall.

O.E. Millhouse contributes *A Golgi Anatomy of the Rodent Hypothalamus* based on hundreds of rat and mouse brains prepared by the rapid Golgi method. Most of the illustrations are camera lucida tracings usually accompanied by low magnification sketches for orientation.

The chapter devoted to *The Blood Supply of the Hypothalamus in the Rat*, by G. Ambach and M. Palkovitz, displays much of the beautiful material assembled by these authors in a series of nine papers since 1974. Not only are there 25 photographs and explanatory three-dimensional drawings in color, but many of these are reproduced in black and white at appropriate points in the text. The vessels of each region and its subdivisions are presented in text-book organization, including

many tabular diagrams of particular regional vascular networks.

*Neural Connections of the Hypothalamus*, by Palkovitz and Záborszky, is based chiefly on their extensive investigations of the rat brain. The subject matter is systematically presented, including information from other species when appropriate. Several tables list for prominent nuclei the afferent and efferent fibers according to origin and destination, the methods used for demonstrating them, and the appropriate bibliographic references. There is extensive discussion of the several methods, their virtues, failings, and necessary precautions in interpretation.

Specialized consideration of the *Anatomical Organization of Monoamine and Acetylcholinesterase-Containing Systems in the Vertebrate Hypothalamus* is given by A. Parent. The comparative approach is instructive. The recent studies of AChE-containing hypothalamic neurons by the author and his associates receive special attention.

In their chapter on *Limbic and Brainstem Connections of the Hypothalamus*, J. Sutin and R.L. McBride depart from the strictly morphological approaches of the preceding chapters, with emphasis on functional organization of afferent, intrinsic, and efferent systems. The chapter concludes with a section presenting a hypothetical model of hypothalamic networks, based on evidence for considerable interaction among otherwise independent systems.

The Chapter by R.P. Renaud, *Neurophysiology and Neuropharmacology of Medical Hypothalamic Neurons and Their Extrahypothalamic Connections*, reviews recent electrophysiological investigations of the "parvicellular" hypothalamus, with special attention to medial hypothalamic neurons and relationships with amygdala, preoptic region, and midbrain. The neuropharmacology of the region is discussed at length, including that of identified neurons. Finally, a brief review is given of the neurobiology of the several small peptides found in hypothalamic tissue.

The volume contains both author and subject indexes, as well as tables of contents for Volume 2, *Physiology of the Hypothalamus*, and the two parts of Volume 3, *Behavioral Studies of the Hypothalamus*. Bibliographic references are placed at the end of each chapter.

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#### ALLBUTT

Sir Thomas Clifford Allbutt (1836-1926) English physician.

Generally known as the editor of an extensive "System of Medicine" which first appeared in 1896 and was reprinted 1905-1911.

In addition, he made numerous contributions to medicine including the reduction in size of clinical thermometers (they were formerly about 2 feet long) in 1868; histology of syphilis of cerebral arteries, 1868; visceral neuroses, 1884; a work in two volumes on diseases of the arteries, 1915. He was also known as an authority on medical history and contributed a number of articles on Greek, Roman, Byzantine and medieval medicine.