

BOOK REVIEWS

Cerebral Ischemia: Clinical and Experimental Approach. *H. Handa, H. J. M. Barnett, M. Goldstein, and Y. Yonekawa, Eds.* Igaku-Shoin, Tokyo, 1982. 138 pp. Price: \$38.00.

The First Japanese Workshop on the topic of extracranial-intracranial arterial anastomoses was held in Kyoto in 1980, or approximately 24 months before this publication of the proceedings of that meeting. The five sections of the book are entitled: 1. Experimental Ischemia, 2. Basic Aspects of Extracranial-Intracranial Bypass and its Clinical Application, 3. Clinical Ischemia, 4. Clinical Research in Cerebral Ischemia, and 5. International Cooperative Study of Extracranial-Intracranial Bypass. The participants were members of various neurologic centers in Canada, Japan, and the United States. The average length of each manuscript published in this book is about five pages and, by and large, the papers seem to represent communications that the authors have reported elsewhere at greater length. There seems to be relatively little sequential relationship between papers printed in succession. Instead, most of the manuscripts appear to be arranged in the order in which they were read at the symposium. Although the reproduction of illustrations and tables and the general production of the book are of good quality, it is unlikely that neurologists, neurosurgeons, and other specialists who frequently deal with the subject of cerebral ischemia will find much new information in this volume. The book may be of some value to physicians who do not have constant and ready access to the current literature on the topic of cerebral ischemia. This volume provides a glimpse of selected and, at times, unrelated topics in the vast field of cerebral ischemia. As a first experiment in a multi-national collaboration to study the merits of extracranial-intracranial therapeutic arterial anastomoses, the symposium constitutes a worthwhile beginning. Nevertheless, the scope of the book is too limited, the sequence of the chapters is too arbitrary, and the necessary elementary background that a novice on the subject of ischemia would require is almost completely missing. Thus, the volume can be recommended for purchase only with these reservations in mind.

Julio H. Garcia, M.D.

Progress in Cholinergic Biology: Model Cholinergic Synapses. *Israel Hanin and Alan M. Goldberg, Eds.* Raven Press, New York, 1982. 381 pp. Price: \$69.00.

This volume contains multidisciplinary reviews of our current understanding of the basic mechanisms of cholinergic transmission. Following an excellent introductory overview by F. C. McIntosh, the remaining papers focus on cholinergic innervation of simple neuronal systems as models of more complex neural circuits. The papers are of high quality and have a common format: introduction, historical overview, description of the preparation, review of the literature, and specific properties of the model useful for exploring facets of cholinergic activity. The uniformity of presentation allows the reader to easily compare the models and to appreciate the advantages and disadvantages of each system. Among the topics discussed are: cholinergic synapses in the mollusc *Aplysia californica* and in the elasmobranch fish

Torpedo; the interactions of parasympathetic neurons and heart cells; the *in vitro* perfused diaphragm; myenteric plexus-longitudinal muscle; the superior cervical ganglia; the avian ciliary ganglia; the retina; brain slices; synaptosomes; and, finally, nicotinic-cholinergic-receptor ionic channel complexes. There is a balance between physiological and neurochemical studies, and the reviews are well illustrated with tables and line drawings.

The main goal of this book is to describe a state-of-the-art understanding of the basic physiology and neurochemistry of simple cholinergic systems. Neuropathologists will not find topographical maps of primate cholinergic systems useful for the studies of human brain. Little attempt is made to relate these basic investigations to cholinergic systems in the primate. There is no discussion of the role of cholinergic systems in neurological disease. The reader who wants more information about cholinergic innervation in Huntington's chorea, Alzheimer's disease, and myasthenia gravis, among other disorders, will not find these referred to in the Appendix. However, neurologists and neuropathologists who wish to learn more about the basic biology of cholinergic innervation would be well advised to read several chapters dealing with these simple systems, since lessons derived from these studies have important applications for understanding cholinergic systems in the primate brain. For those who want to learn more about the mechanisms that regulate and control cholinergic neurotransmission, it is a pleasure to recommend this volume.

Donald L. Price, M.D.

The Chemistry of Behavior, A Molecular Approach to Neuronal Plasticity. *Stanislav Reinis and Jerome M. Goldman.* Plenum Press, New York, 1982. 602 pp. Price: \$55.00.

This book is most certainly different from others that have been published on the chemistry of behavior. The authors have obviously put much thought and effort into the organization and structure of the book. They have provided it with a different format, and fashioned a novel way of looking at the intriguing question regarding the function and essence of neuronal plasticity.

Unlike many other books on this subject, which are multiauthored edited volumes, this one is entirely the product of the two co-authors. They have subdivided the book into six consecutive sections. Each section builds on the previous one. By the sixth section, all of the information provided earlier is incorporated in a final analysis of neuronal plasticity and its relationship to learning and memory.

Section 1 deals with the molecular basis of neuronal activity. In it, the authors describe the neuronal membrane, discuss membrane lipids, introduce and elaborate on the nerve impulse and synaptic transmission, the blood-brain barrier and extracellular fluid, and synaptic plasticity in general. Morphological changes associated with brain plasticity are also discussed. This section, as in the case with each of the different sections in the book, concludes with a short summary, and provides a list of references used within the section plus an additional list of recommended readings.

The second section deals with energy supply to neurons. This includes glucose and energy metabolism in the brain, and concepts related to blood flow and temperature of the brain.

The third section analyzes proteins in the brain, their metabolism and function.