

Book Reviews:

MITOCHONDRIA AND MUSCULAR DISEASES, 1981. Edited by H.F.M. Busch, F.G.I. Jennekens and H.R. Scholte. Published by Mefar BV, Beetsterzwaag, The Netherlands. 223 pages. \$37.50 US.

This publication reports the proceedings of a symposium held at Erasmus University in Rotterdam in December 1980 to celebrate the twenty-fifth anniversary of the Belgian-Dutch Study Group on Neuromuscular Diseases.

The first section of the book is concerned with the structure and function of normal human muscle mitochondria. Section Two deals with experimental studies on mitochondria and considers topics such as abnormal coupling, the role of calcium, biogenesis and transport. In Section Three, ultrastructural and functional changes of mitochondria in human muscle disease are reviewed. The final section describes clinical studies of myopathies with abnormal muscle mitochondria.

This text is an excellent up-to-date comprehensive review on the subject of mitochondria and muscle disease. In general, it is easy to read and the photomicrograph reproductions are of superior quality.

This book is highly recommended to all those workers in the field of muscle disease as a book they should have on their book shelf. For others it can be recommended as a reference book only.

A. Keith W. Brownell, M.D., Calgary

PRINCIPLES OF NEURAL SCIENCE, 1981. By Eric R. Kandel and James H. Schwartz. Published by Elsevier/North-Holland, New York. 733 pages. \$40.65

The emergence of neuroscience as a clearly identified discipline has resulted in a number of new books designed to present an integrated approach to the study of the nervous system. Numerous medical schools have now adopted a systems-oriented approach to undergraduate teaching, and in many cases these books have evolved from syllabi prepared for the neuroscience curriculum.

"Principles of Neural Science" is the most recent addition to this series, and in my view, comes closer than most of its predecessors to accomplishing the difficult task of summarizing the many recent advances which have occurred in neurobiology and presenting them in a manner which is comprehensible for undergraduate students.

This book is authored by the teaching faculty in the various branches of neuroscience at Columbia University, many of whom are well known for their research contributions in both basic and clinical neuroscience. The book is divided into eight major sections. Part I presents a brief overview of the brain and behavior, and introduces the basic theme that understanding the behavior of single nerve cells can lead to a broader understanding of function of the entire brain and the resulting behavior. Part II, "The Cell Biology of Neurons" deals with the classical neurophysiology of the electrical properties of neurons, generation and transmission of action potentials, and synaptic transmission. Parts III and IV cover sensory systems and motor systems respectively, and for the most part provide a well organized outline of these very large topics. Part V, "The Brain Stem and Reticular Core" is less unified and seems to attempt to tie together several topics which don't readily fit into other sections. It includes chapters on cranial nerve nuclei, trigeminal system, oculomotor system and vestibular system. Part VI, "Hypothalamus, Limbic System, and Cerebral Cortex: Homeostasis and Arousal" begins to attempt to bridge the gap between cell biology and behavior, and this theme is continued in the final two sections dealing with development and behavior.

The book is strongly physiological in its approach. Although pertinent neuroanatomy is introduced as required in the text, most students will find it necessary to consult a standard textbook of neuroanatomy and use it as a companion to this volume. Indeed, the authors indicate that neuroanatomy at Columbia is taught as a separate laboratory course with its own syllabus.

Most of the sections conclude with short chapters describing relevant clinical problems. For the most part, these are brief and in some cases incomplete. Their purpose appears to be to provide graduate students in the basic neurosciences with an introduction to some of the clinical problems. A notable exception is the chapter by L.P. Rowland on myasthenia gravis which provides as good a review of the rapid developments in this field as I have had an opportunity to read.

There is a strong orientation toward behavioral neurology and psychology, and sections dealing with recent developments in neuropsychology and the biochemical basis of psychotic and affective disorders are well written. This perhaps reflects the unique background of one of the senior editors, Eric Kandel, who after working as a resident in psychiatry went on to become a leader in the field of invertebrate neurobiology, studying the cellular basis of behavior, memory, and learning.

Although some medical schools may have difficulty adopting this book to their neuroscience curriculum for undergraduate medical students, it deserves a close look by those responsible for planning teaching programs. Indeed, it may provide new ideas as to how the courses may be made more comprehensive. In the preface, it is stated that "Principles of Neural Science" is designed as an introductory text for students of biology, behavior, and medicine. This book can also be recommended to residents in neurology, neurosurgery, and psychiatry training programs. I also believe that practising neurologists, neurosurgeons, and psychiatrists will find this book interesting and worthwhile reading. Those who have been too busy to keep up with anything beyond the clinical literature immediately relevant to their field will find that a great deal has happened since their medical school and residency days, and hopefully will be stimulated to consult the references for more detailed information.

Robert G. Lee, M.D. Calgary, Alberta