

Clinical Physiology of the Lung. By KENNETH B. SAUNDERS. Oxford, Blackwell Scientific Publications, 1977. Pages: 255. Price: \$26.00.

In this reviewer's bookcase, spaces allotted to respiratory physiology and pulmonary disease texts are measured in feet, not inches. The majority, typified by works of Comroe, of Nunn, and of West, are by avowed design intended for medical students. This slim volume is not such a one. Rather, as proclaimed overtly in the first chapter, this book intends "to bridge the gap" between an undergraduate course in respiratory physiology and the current topics addressed in basic and clinical research. The author's success in this self-improved Herculean task will please many, benefit most, and insult a few. It will bring pleasure to those readers who enjoy logical development of ideas incorporating examples and analogies from a wide spectrum (as in the use of systems theory and political theory in discussion of respiratory control), especially when written in clear simple English. It will benefit those who care for patients with or without pulmonary disease, and those who teach such care, because there are original insights, novel examples and clarifying correlations in every chapter. It will insult those who believe that anesthesiologists have been cloned as experts in respiratory physiology, and by virtue of their ability to intubate and ventilate, need no continuing education while posing as expert consultants in pulmonary problems.

The author chose conventional organization, with chapters on mechanics, gas exchange, acid-base balance and ventilatory control, followed by three clinical topics, asthma, obstructive disease, and respiratory failure. Those teaching the basic topics to students or reviewing them for residents will find that Saunders gives useful insights, examples and references. Those preparing for boards, grand rounds, or continuing education will find Saunders a comfortable, erudite companion and pedagogue. Those stressing current views will find 223 of the 307 references date from 1970 and later (and incredible modesty—only six citations of the author's work). The conventional organization is accompanied by most of the conventional equations and diagrams. But I suspect the author has tried out these equations and diagrams and their development on his own students and registrars. The more complicated ones are carefully developed, piece by piece, with parallel text and figures. Particularly in the Rahn-Fenn diagram for gas exchange, and in the carbon dioxide-ventilation diagram for ventilatory control, a confusing plethora of lines could be drawn. Saunders' choices give clear models worth copying.

It is customary in such a review to point out imperfections, weaknesses and errors, if only to suggest the reviewer's expertise. Thus, Figure 3.11 has the upper abscissal scale displaced 4 kiloPascals and R' , a point, is missing. The "equal-pressure point" is discussed but not indexed. The table of contents has two page number errors. The other imperfections, weaknesses and errors are of the same order of magnitude. If one were to criticize the work it would be on the grounds of omissions. The nonrespiratory functions of the lung are topics of the last decade in respiratory research, clearly clinical and physiologic, but not acknowledged here. Asthma, chronic obstruction and failure are compressed into 16, 24, and 17 pages, respectively. One is left with a feeling of incompleteness, especially in the more clinical aspects of diagnosis and therapy.

The merits of this monograph rest in large part on the author's ability to start with basic ideas, incorporate experimental data, present and reconcile original interpretations, and synthesize an overall view that will illuminate diagnosis and guide therapy. If this seems like too much praise, I offer one last fact. This book set a

new record. It was borrowed within the first two weeks and not returned to my bookcase. I am now on my third copy.

THEODORE C. SMITH, M.D.
Department of Anesthesia
University of Pennsylvania
3400 Spruce St.
Philadelphia, Pennsylvania 19104

Brain Energy Metabolism. By B. K. SIESJÖ. New York, John Wiley and Sons, 1978. Pages: 607. Price: \$31.50.

This book is intended 1) for neurochemists interested in the physiology of the brain; 2) for scientists of other disciplines as an introduction to neurochemistry; 3) for those clinicians who work with brain disease. Coverage of the subject matter is extensive and is divided into two major divisions. The first concerns metabolism of the brain in the normal state, while the second examines states of cerebral metabolism after pharmacologic, physiologic, or pathologic perturbations. Within these two broad divisions, the subject matter is well organized, indexed, and referenced. This book describes many aspects of brain energy metabolism, with an emphasis on physiologic correlates. For this reason the author only briefly reviews data obtained from studies of brain slices *in vitro*.

Following an overview of the thermodynamics of cellular metabolism, in which there is a concise introduction to chemical equilibria, free energy, and work, the author describes cellular work in the brain. There is a clear and simplified discussion of membrane potential and transmembrane ionic movement, both active and passive, which is followed by a section on the coupling between ionic movements and energy metabolism. The latter section illustrates one of the primary values of the book as a whole. A serious attempt is made to correlate phenomena from two adjacent fields. Thus, the reader is often able to relate ideas that are familiar to him to closely related concepts that may be entirely new.

The sections dealing with overall cerebral blood flow and metabolism provide a good introduction to quantitation of brain energy requirements. Several methods for determining CBF are discussed, along with their limitations. A detailed discussion provides insights into glucose transport, into the brain as well as its utilization. A good synopsis of intermediary carbohydrate metabolism and the general principles of metabolic regulation gives the reader the requisite background for topics developed in subsequent chapters. Although some of these sections will be heavy going for the non-chemist, they are lucidly written and worthy of study.

Recent experiments detailing local glucose uptake with ^{14}C -2-deoxyglucose quantitative autoradiography are well integrated into the book. Inclusion of this topic, as well as a few others, indicates that Professor Siesjö's book is as up to date as this kind of publication can be.

Following a critical review of techniques for fixation of labile metabolites, the second half of the book, dealing with perturbations of cerebral metabolism, begins with a complete discussion of anesthetic influences. The effects of behavior states and psychoactive drugs are also enumerated.

An extensive chapter is devoted to the effects of hyper- and hypocapnia on cerebral metabolism and on regulation of intra-cellular pH . It includes a large background section on acid-base chemistry, buffers, and measurement of acid-base variables *in vivo*. This chapter is the most thorough treatment of a subject found in the