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 anesthetists 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 abcissal 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 incompletion, 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.

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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 *p*H. 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

book; however, it may not be of greatest interest to the general reader. It is followed by a section dealing with hypothermia.

Pathologic perturbations of cerebral metabolism include epileptic seizures, hypoglycemia, hypoxia, and ischemia. Although there has been intensive investigation of energy metabolism during seizures, it is now apparent that the tremendous increase of metabolic rate is a *result* of seizure activity and thus does little to illuminate the mechanism involved in seizure genesis. It has long been accepted that extracellular acidosis is one of the major factors involved in coupling. Yet the author provides strong evidence that shows transient *alkalosis* in several seizure models at a time when CBF is increasing. Thus, there is now considerable doubt as to the role of extracellular *p*H in metabolism–blood flow coupling.

Cerebral hypoxia is perhaps the subject closest to the central theme of the book as a whole. The author's literature review of hypoxia and ischemia is very thorough, and the accumulated lists of references for these chapters, as well as for all the book, are extremely valuable. Although research progress in the field of hypoxia–ischemia will probably outdate much of the information in the book within a few years, the basic information and organization within the book will remain a good starting point for those interested in the field. In the concluding chapter, on ischemia, clinicians dealing with problems of neuroresuscitation following stroke or cardiac arrest will find an excellent critical review of laboratory models and results. The discussion of possible protection of the brain by barbiturates certainly represents the "state of the art."

Aside from a few incomplete legends and poorly drawn figures, the production aspects of this book are excellent. One possible criticism of Siesjö's overall approach is that it appears to be a justification for his own very productive experimental approach to normal and pathologic cerebral energy metabolism in rats. This aside, the book remains impressive both in its overall systemic approach and in the scope and depth of discussion, and these strengths make it a valuable reference source. The author's general emphasis is to summarize and to evaluate the available literature; in this he has succeeded without question.

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Principles and Practice of Obstetric Anaesthesia. Fourth edition. By J. Selwyn Crawford. Oxford, Blackwell Scientific Publications, 1978. Pages: 392. Price: $50.00.

This fourth editon of Crawford's text on obstetric pain relief is 25 per cent bigger than its predecessor, published in 1972, but is still somewhat "pricey" at $50.00, presumably the result of the devalued dollar. Continuing a fine tradition in medical textbooks, so uniquely British, it is clearly the product of the thought and practice of a single, highly qualified, very experienced, and somewhat dogmatic clinician and clinical investigator. The writing is exemplary. Crawford's words leap out at the reader as though he were sitting comfortably before you and sharing his experiences. Never dry, never dull, often humorous, the book attempts to synthesize the science and practice of obstetric anesthesia from the perspective of a clinician intimately involved in the day-to-day workings of a busy maternity hospital.

Although one could quarrel with some of the particulars, especially as they deal with the differing obstetric practices in Britain, taken as a whole, Crawford offers a rational and conservative approach to the management of pain in obstetrics. As one would expect, a great deal of emphasis is placed on lumbar epidural block and its advantages in almost every clinical situation. Indeed, the only stipulated absolute contraindication is disorder of coagulation. Interestingly, Crawford also invokes a persuasive argument for the resurrection of spinal anesthesia, rarely practiced in Britain, but which has an important place in American obstetric anesthesia. Overall, the practices described would easily fit into any well-staffed, competently run maternity service in the United States.

Crawford's advice to those about to embark on the provision of an epidural service in obstetrics is worth noting. Go slow, he counsels. Start out with uncomplicated situations almost certain to give good results so that the anesthetist, his colleagues in perinatal care, and his patients can gain confidence in the technique. With such confidence established, one can expand its use into more difficult and complex clinical situations.

Many of the points that are raised will sound familiar to those involved in the more controversial aspects of obstetric pain relief, but rarely have they been dealt with so eloquently. For example, Crawford stresses the importance of patient education in preparation for childbirth and urges an attitude of "sympathetic reassurance" among the patient's attendants. He gently chides the advocates of all of the many systems of prepared childbirth for promising too much, a panacea, with results often disastrous. "The fault here lies in the fact that the discipline of the philosophy of natural childbirth provides little scope for acknowledging that labour can be extremely painful even for the patient who is well prepared, and that for such a patient the acceptance of other therapeutic aids is not implicit of weakness or unworthiness." One can only say "amen."

Another crucial and often overlooked point is made. The appropriate provision of modern obstetric pain relief requires more careful monitoring of the patient, rather than less. "It is not acceptable to consider that just because a patient is experiencing a pain-free labour she requires less supervision and attention than would otherwise be the case. . . . It is imperative to note that a skilled 'epidural service' is not viable within the context of a slipshod and perfunctory obstetric service, just as in like manner good obstetric management can only be diminished by half-hearted or ill-conceived control of analgesia."

This reviewer is faced with an almost overwhelming temptation to go on quoting at length. Permit only two more such quotations. In his discussion of the difficulties and complications of lumbar epidural block, Crawford states, "Only a fool, a charlatan or a liar would claim never to fail to provide total pain relief by means of an epidural block." Finally, one of Crawford's most important contributions to clinical practice, documentation of the advantages of avoiding the supine position, is stressed repeatedly throughout the book. "The alternative practice of tilting the entire table laterally is not recommended: it makes the patient uneasy as she understandably feels as though she is about to slide off the table, and it makes the present writer feel uneasy because the patient might well be correct in her assumption."

If one can call a medical book "charming," this is it, so like the author himself. His review of pertinent basic science is brief and incomplete, his plea for more extensive and better controlled clinical investigation of commonly accepted practices is laudable, but above