

Book Reviews

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Physiology for the Anesthesiologist. EDITED BY E. A. WEINSTEIN and R. P. FRIEDLAND. New York, Raven Press, 1977. Pages: 405. Price: \$22.50.

Physiology for the Anesthesiologist purports to provide the practicing anesthesiologist with an outline of the subject that will help in understanding the changes that occur during anesthesia. As such, it achieves its purpose.

The text reads easily, and the authors have managed to extract a great deal of relevant data from the voluminous amount of literature pertaining to the subjects discussed. The problem in writing such a book (as the authors suggest) is not so much what to include but what to leave out. All the chapters commence with a brief anatomic description. While one can understand the reasons for this, one wonders whether it is appropriate in a physiology textbook.

There are some contradictory and confusing statements. For example, in discussing the conductive mechanisms of the heart, one could fault the sentence, "The first portion of the heart to be activated is the right side of the septum, and the depolarization of the septum spreads from left to right." In the paragraph dealing with the pulmonary circulation there is emphasis on the role of alveolar hypoxia in producing pulmonary vasoconstriction, yet further down the page it is stated that the pulmonary hypertension found in hypoxemia is secondary to a chemoreceptor reflex. There are other statements that could be challenged, such as "the only way to increase oxygen delivery to the myocardium is by coronary vasodilatation." Even more provocative is the suggested difficulty in differentiating between hypotension and shock. I suspect the protagonists of controlled hypotension in anesthesia would take exception to the implication that they are producing shock in their practice! There are other minor discrepancies, such as considering serotonin and 5-hydroxytryptamine as being different hormones.

These and other errors could have been prevented by a more critical review of the volume prior to its publication. The chapters dealing with respiration and acid-base balance are probably the best in the book. One would have liked to see some mention of metabolism of anesthetic agents and enzyme induction. Overall, the practicing anesthesiologist will benefit from reading this publication.

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Year Book of Anesthesia, 1977. EDITED BY J. E. ECKENHOFF, D. L. BRUCE, F. A. BRUNNER, H. S. HOLLEY AND H. W. LUNDE. Chicago, Year Book Medical Publishers, Inc., 1977. Pages: 361. Price: \$20.95.

These compiled abstracts of articles published in medical journals in 1975-1976 have been well chosen for their interest to anesthesiologists, and reflect an intense search of the literature. They have been culled from the major English-language journals and in a few instances from foreign journals, including one Russian publication.

The abstracts are grouped under headings such as pharmacology, physiology, pathology, anesthetic techniques, anesthetic equipment, anesthetic complications, monitoring blood and plasma expanders, tracheal intubation, tracheostomy and complications, shock and trauma and pain, to mention only a few. Short editorial comments as well as further references to the subject accompany many of the extracts.

I found this a very useful and readable book. It presents a comprehensive overview of the literature, and is a stimulus to further reading and research.

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Pain in the Trigeminal Region. EDITED BY D. V. ANDERSON AND B. MATTHEWS. Amsterdam/New York, Elsevier Scientific Publishing Co., 1977. Pages: 453. Price: \$49.50.

This book contains the papers submitted in advance and presented at a symposium held in the Department of Physiology, University of Bristol, England, July 25-27, 1977. This Bristol meeting was a satellite of the XXVII International Congress of Physiological Sciences held in Paris. Forty-two papers, all of which deal with basic aspects of trigeminal pain, are included; clinical aspects were deliberately excluded.

The symposium was organized by means of a circular announcing the meeting and inviting papers to be submitted. The editors make it clear that all of the papers included in this volume are refereed. One paper is included that was developed after the meeting to clarify problems associated with the lack of uniformity in the terminology used to describe various structures in the medulla and their relationships to corresponding structures in the spinal cord.

Although focusing on the trigeminal area, the material is quite relevant to fundamental pain research in general. It will be particularly valuable, however, to investigators working in areas related to the specific topics under discussion. This book is definitely not intended for the general reader interested in pain, and no discussion or index is provided. The cost (\$49.50) seems unusually high for a book of this type. A paperback volume, using less expensive paper, would better meet the need for dissemination of the information.

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Atlas of Neonatal Electroencephalography. BY S. S. WERNER, J. E. STOCKARD, AND R. B. BICKFORD. New York, Raven Press, 1977. Pages: 205. Price: \$65.00.

Following the germinal studies of C. Dreyfus-Brisac and her associates in Paris, a small group of investigators in Europe and the

United States has dedicated considerable effort during the past two decades to the unraveling of the remarkable complexities of the neonatal electroencephalogram (EEG). In spite of these efforts, the level of understanding of the EEG of neonates among anesthesiologists, neonatologists, pediatricians, pediatric neurologists and even highly specialized clinical electroencephalographers has remained disappointingly low. Clearly, there was a need for a teaching compendium providing a practical, understandable, up-to-date, clinically oriented overview of this topic. The *Atlas of Neonatal Electroencephalography*, by Werner, Stockard and Bickford, of the Department of Neurosciences, University of California at San Diego, fills this need well.

The first four chapters of the atlas deal with: the polygraphic techniques for monitoring the cerebral activity and other pertinent electrophysiologic modalities in the newborn; the features of neonatal sleep-wake states and the development of such states in the premature and newborn at term; the ontogenesis of the EEG of the premature; the nature and significance of alterations of the EEG and other electrophysiologic indices in various pathologic conditions. These chapters provide a succinct, competent and lucid summary of the most significant, pertinent, multilingual literature. Each topic is abundantly and elegantly illustrated by figures depicting technically impeccable and competently interpreted recordings. To overcome the problem of the loss of detail inherent in the illustration of 16-channel records, some figures include insets portraying enlargements of details of special interest. The illustrations are accompanied by clear headings, additional narrative comments, and terse legends that effectively convey concepts at times difficult to explain. Simple charts summarize the most important developmental changes. Guidelines for interpreting the normal neonatal EEG are given, including descriptions of criteria for determining the infant's conceptional age and state and evaluating the EEG in relation to both these characteristics. Special effort is made to delineate criteria for differentiating normal from abnormal patterns without indulging in oversimplification. The authors clearly acknowledge the diagnostic limitations of the neonatal EEG, but emphasize its prognostic usefulness. The significances of individual EEG alterations are discussed in this context and a few clinical conditions are explored in special depth by providing brief case histories illustrated by radiologic and/or pathologic findings. A classification of the main features of the neonatal EEG is briefly described.

This part of the atlas has only minor flaws. Figures 1-25 are not presented sequentially. Some electroencephalographers may question the use by the authors of frontal electrodes in non-standard locations, a choice for which no explanation is given. Others may doubt the adequacy of an electrode system that is routinely limited to nine scalp electrodes, although the placement of additional leads whenever appropriate is clearly advocated by the authors. However, the technical standards set by this volume are exemplary and well worth imitating.

Surprisingly, the last chapter, on computer techniques in neonatal EEG, is of more limited scope and caliber than those preceding it. No attempt is made to summarize the literature in this area. Thus, major contributions such as the analyses by H. Precht and his associates in Groningen of the statistical properties and interrelationships of the modalities monitored in neonatal polygraphic recordings and the elegant computations by the same authors of auto- and cross-spectra and coherence functions in the EEGs of infants are not acknowledged. Several illustrations depict sequential power spectra ("compressed spectral arrays") of neonatal EEGs. This technique, which has proved helpful in assessing the relatively stationary background rhythms of adult EEGs, appears especially ill-suited to the analysis of neonatal EEGs. Exceptions include infrequent pathologic circumstances in which

neonatal EEG abnormalities mimic those occurring in the adult (figure 116). This chapter does not adequately discuss the contribution of cerebral evoked potentials to the electrophysiologic assessment of the newborn. Far-field, brainstem auditory evoked potentials are briefly referred to but are illustrated only by a response obtained from an adult (figure 121). A glossary of terms most commonly used in neonatal electroencephalography is provided at the end of the atlas. The use of a few terms such as "delta-brush" pattern and "lability" may or may not be favored by all electroencephalographers. However, by and large this glossary is carefully phrased and should prove helpful in encouraging the use of appropriate terminology in this field.

In this reviewer's opinion this atlas is an excellent and timely addition to the literature on the neonatal EEG. Its publication should do a great deal to clarify basic concepts on the EEG of the neonate. We strongly suggest this volume as a teaching and reference manual to all clinical electroencephalographers, neurologists and neonatologists who participate in evaluating central nervous system function in neonates, whether premature or full-term, and whether healthy or diseased. Those anesthesiologists who have special interest in human brain development and share in the responsibility of handling neonates also should have it available for consultation.

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Patient Care in Neurosurgery. By J. R. HOWE. Boston, Little, Brown and Company, 1977. Pages: 228. Price: \$9.95

Patient Care in Neurosurgery is a valiant attempt to provide up-to-date information for physicians who may be suddenly faced with diagnostic and therapeutic problems associated with management problems of the neurosurgical patient.

Its value is impaired by poor editing. Typographical errors abound, paragraphing and indexing numbers appear without relevance, and brand names of drugs are used without the appropriate generic names. The bibliography is up-to-date and well rounded. The first three chapters present valuable, recent data relating to basic cerebrovascular physiology, metabolism, cerebral edema, and intracranial pressure. Inexplicably, normal physiologic values and ranges are not included as a guide for the reader. In discussing hyperventilation with CO₂ reduction, the changes in cellular oxygen availability due to shifts in the oxygen-hemoglobin dissociation curve are not mentioned. Other omissions concern cerebral perfusion pressure and its use as an endpoint for therapeutic consideration; the role of the tight endothelial junction in cerebral edema; and the roles of cerebrospinal fluid pH, CO₂, and bicarbonates in coma.

Following the chapter on neurologic diagnostic studies, an important chapter on intraoperative management during craniocervical procedures is marred by simplistic statements relating to anesthetic agents' ability to reduce oxygen consumption, protective effects of anesthetic agents against cerebral hypoxia, and by the concept of a vascular steal without adequate explanation. The importance of the Doppler ultrasonic unit as an early warning aid is not appreciated, since it is stated that "a Doppler device is useful to monitor heart sounds continuously, although an esophageal stethoscope is equally suitable." Apparently, the authors do not