

## Book Reviews

**Blood-Brain Barrier in Physiology and Medicine.** BY S. I. RAPOPORT. New York, Raven Press, 1976. Pages: 316. Price: \$25.00.

The title of this book may suggest that it would be of only limited usefulness to students and practitioners of anesthesia who, for one reason or another, have an interest in the blood-brain barrier. In actuality, this book provides authoritative information that should be of wide interest to our specialty. Indeed, the blood-brain barrier is the subject, but in dissecting his subject, the author lucidly describes (first two chapters) the microanatomy of membranes and barriers, the principles of membrane permeability, the theories relating to transport mechanisms, and a variety of useful laboratory methodologies. The descriptions of and distinctions between passive diffusion, active transport, facilitated diffusion, and vesicular transport are clear and well illustrated by appropriate figures and mathematical expressions. At our present stage of understanding, this information is potentially applicable to all cell membranes.

In subsequent chapters, the author applies the above information specifically to the blood-brain barrier in health and disease. Of particular and obvious interest is the chapter on drug entry into the nervous system. The author, of course, deals with many non-anesthetic drugs, but the principles are immediately applicable, not only to the blood-brain barrier, but generally to the placental barrier as well. The final two chapters are of a more specialized nature, dealing in one with transport of amino acids and monosaccharides into the brain, and somewhat unexpectedly in the other with the physiology of the barriers and the humors of the eye.

Readability of each chapter is improved by an opening summary of the contents of that chapter and by the relegation of technical material to appendices. The bibliography is extensive and reasonably current and is followed by a detailed subject index. The book has all of the strengths of a single-authored volume, including cohesiveness, continuity, and a uniform style. It perhaps suffers at times from the author's bias and emphasis of those areas of particular interest to him.

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**Illustrated Manual of Fluid and Electrolyte Disorders.** BY R. DOUGLAS COLLINS. Philadelphia, J. B. Lippincott, 1976. Pages: 180. Price: \$22.50.

Dr. Collins has undertaken the task of presenting material that will allow the physician to diagnose and treat electrolyte disorders using the serum electrolytes as the point of departure. Dr. Collins has apparently found that the bar graph depiction of electrolyte composition in the intravascular extracellular, tissue extracellular, and intracellular compartments developed by Gamble is a useful way to remember and teach electrolyte disorders. A full-color rendition of this bar graph, with the various organs that contribute to the metabolism and regulation of water and electrolytes shown around the outside, is reproduced more than 60 times. Each time a different "overlay" of labels is used to represent the particular abnormality, and a very brief discussion is presented on the opposite page. In addition, some useful calculations and tables are presented. The book seems rather expensive for what it presents. The illustration(s) soon become a blur to this reviewer. In fact, while the serum

electrolytes are nice numbers to have available, they are but one element in an array of clinical and laboratory information that is essential to correct diagnosis and treatment of disorders of electrolyte and water management. It does not seem possible to do justice to this area with so heavy an emphasis on the electrolyte values themselves, even if a greater variety of illustrations were used.

The one-page discussion of surgery and trauma is certainly inadequate for the needs of anesthesiologists and is dated in its approach to fluid management. Some of the phraseology used in an attempt to simplify for teaching purposes was irritating. In other places the statements are wrong; thus, the author lists hyperventilation as part of the clinical picture in compensated and uncompensated respiratory acidosis. The book does not appear to offer much to anesthesiologists; however, an individual who likes a pictorial approach might do well to peruse a copy and see whether the diagrams speak to him as well as they obviously do to Dr. Collins.

"Renal and Electrolyte Disorders," edited by Robert W. Schrier, M.D., published by Little, Brown and Company, Boston, 1976, pp 500, \$16.50, is a multi-authored book with many excellent chapters. For the anesthesiologist interested in a concise review of water and electrolyte physiology and renal function in normal and disease conditions, this book would be an excellent choice. The book by Emanuel Goldberger, "A Primer of Water, Electrolyte and Acid Base Syndromes," Lea and Febiger, Philadelphia, 1975, pp 604, \$12.00, offers sound advice in a traditional format.

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**Clinical Pharmacology in Dentistry.** BY R. A. COWSON AND R. G. SPECTOR. Edinburgh, London, Churchill Livingstone, 1975. Pages: 254. Price: \$13.50.

The authors of this text have based their writing on several assumptions. The first is that "some basic knowledge of pharmacology is necessary to use the drugs relevant to dentistry to best advantage and to protect the patient." The second assumption is that a somewhat wider knowledge of drugs is needed to understand how these drugs act and how some of the reactions or interactions can develop. The third is that a more detailed knowledge is needed to deal with various emergencies that can happen in the dental surgery. The fourth is that it is useful ". . . to have some understanding of the nature of the threats which hover over the dental patient under medical treatment." In order to achieve these goals in a short book the authors have had to make several compromises. It is unfortunate that many of these compromises have adversely affected the usefulness of the final product both as a text for dental students and as a reference source for the dental practitioner.

The chapter on the general principles of pharmacology contains little or no mention of basic concepts such as graded and quantal dose-response curves, indexes of relative safety of drugs such as therapeutic index or standard safety margin, time-action relationships, potency, and effectiveness. Although the effect of ionization on the ability of drug molecules to cross cell membranes is mentioned, the nonquantitative approach used in this book resulted in not mentioning the relationship between ionization,  $pH$ , and  $pK_a$ . Without this understanding students can be misled by statements such as "Thus, basic

drugs are best absorbed in an alkaline environment and acidic drugs in an acid environment" (p 3). Specialized drug-transport mechanisms such as facilitated diffusion and active transport are not mentioned. Thus, in sharp contrast to most texts directed towards medical pharmacology, this volume fails to cover many of the basic principles on which rational therapy is based.

Within each drug group certain important aspects of pharmacology and therapeutics are inadequately treated. In particular, chemistry, structure-activity relationships, and mechanisms of action are poorly covered and few available products are mentioned. This is particularly disturbing in those chapters concerned with drugs that dentists routinely use, such as local anesthetics, or prescribe, such as antibiotics.

On the other hand, the book contains important information not contained in most texts of pharmacology. The material on the use of antiseptics in dentistry, prevention of dental caries, actions of fluoride on hard tissues, dentifrices, and some of the substances used in routine dentistry is not presented in many traditional texts. Although the basic pharmacology of drugs used in the management of infections in dentistry is incomplete, the discussion of the clinical applications of some of these agents is among the strongest sections of this work.

The book has little to offer the dental anesthesiologist. Its coverage of general anesthetics and drugs used in intravenous sedation provides the reader with only a superficial knowledge of the agents used, the mechanisms by which they act, and the clinical use of these drugs.

The extensive use of British drug names will undoubtedly be a source of confusion to American students and practitioners. Although most Americans will probably recognize adrenaline and noradrenaline as epinephrine and norepinephrine, and others would probably figure out that amylobarbitone and pentobarbitone are amobarbital and pentobarbital, I suspect

that only a minority would recognize pethidine (meperidine), amethocaine (tetracaine), and suxamethonium (succinylcholine). A glossary would have helped to avoid the necessity of being pharmacologically bilingual. The student might also be needlessly confused by slight differences in drug usage between Britain and the United States. For instance, the authors discuss the use of 1:80,000 epinephrine as a vasoconstrictor, yet the commercially available preparations in the United States generally contain 1:50,000 or 1:100,000 epinephrine. Other examples include a discussion of the use of chlorhexidine, a substance not yet approved by the FDA for use in this country, as an antiseptic useful in dental plaque control, and the use of metronidazole as the drug of choice for the treatment of acute ulcerative gingivitis.

Although the stated important goals of the authors included providing information on drug interactions, emergency drugs, and problems that might occur during dental procedures because of medical conditions, this material is not covered in a concise, easily identifiable, coherent manner. Rather, it is scattered throughout the volume in the considerations of the various drug groups. It would facilitate locating this important information if it were presented in separate chapters.

The authors have presented suggested additional readings at the end of each chapter. However, there are no text references to guide the serious student to study the data on which the text is based. A final comment concerns the quality of the binding. The cover came off my copy of the book and more than a dozen pages fell out during the first evening of reading.

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### Books Received

Title & Edition	Author/Editor	Publisher		
		Address, Name, Year	Pages	Price
<b>The Role of Immunological Factors in Infections, Allergic and Autoimmune Processes</b>	R. F. Beers, Jr. E. G. Bassett (Editors)	New York Raven Press 1976	555	\$32.00
<i>Eighth Miles International Symposium.</i>				
<b>Blood-Brain Barrier in Physiology and Medicine</b>	S. I. Rapoport	New York Raven Press 1976	328	\$25.00
<i>Integrated analysis of anatomy, ultrastructure, biochemistry, physiology and pathophysiology.</i>				
<b>Shock—Clinical and Experimental Aspects</b>	I. McA. Ledingham (Editor)	New York Elsevier Excerpta Medica 1976	342	\$44.25
<i>Compiled with an anesthetic readership in mind.</i>				
<b>Parenteral Nutrition</b>	F. W. Ahnefeld C. Burri W. Dick M. Halmagyi (Editors)	New York Springer-Verlag New York Inc. 1976	201	\$12.80
<i>Workshop and discussions with recommendations for day-to-day clinical practice.</i>				