

Book Reviews

B. Raymond Fink, M.D., Editor

Dopamine. Advances in Biochemical Psychopharmacology, Volume 19. EDITED BY P. J. ROBERTS, G. N. WOODRUFF, AND L. L. IVERSEN. New York, Raven Press, 1978. Pages: 422. Price: \$27.50.

This volume results from papers presented at a symposium held in the summer of 1977 at University of Southampton, England. It contains current knowledge of the anatomy, biochemistry, and pharmacology of the dopaminergic neurons in the brain (mostly rat brain). Several chapters cover the anatomy of the seven known dopaminergic projection systems—including two outstanding chapters by Lindvall and Bjorklund, and Arbuthnott. Much of the rest of the volume is a debate about dopamine receptors and feedback. Although the issue was not resolved, a preponderance of papers indicated that at least two types of dopamine receptors exist: one is related to adenylate cyclase, and the other is involved in its own presynaptic feedback inhibition. Particularly well written chapters by Kebabian and Woodruff highlight this section. Glaring by absence is a discussion of endocrinologic consequences of excesses and deficiencies of dopamine in specific brain regions.

Scientists involved in neuropharmacologic and neurochemical research should avail themselves of this well-referenced volume; there is little here for anyone else.

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Anesthetic Management of the Patient with Cardiovascular Disease. EDITED BY DANIEL M. PHILBIN. Boston, Little, Brown and Company, 1979. Pages: 197. Price: \$35.00 per annum.

This issue of the *International Anesthesiology Clinics* quarterly is one of many recent books addressing the problems of managing the patient with cardiovascular disease. As with any multi-author book, the style and manner of presentation vary considerably. The first chapter presents the standard information about the cardiac and peripheral vascular effects of anesthetic agents, including, oddly, those largely-abandoned warhorses diethyl ether, cyclopropane, and fluroxene. A few intravenous agents are treated, but the ultrashort-acting barbiturates and fentanyl are omitted. Many patients with cardiovascular disease will have anesthesia induced with thiopental, and a consideration of the effects of at least this agent seems in order. Fentanyl has a number of useful properties which particularly recommend it for use in cardiac patients—especially those with minimal cardiac reserves. The use of this drug is extremely widespread, and a failure to consider its pharmacology in reasonable detail is a serious omission. The pharmacology of neuromuscular blocking agents is considered in the next chapter in a well-organized and informative manner. However, the following section on cardiac arrhythmias is so elementary that it has little to offer the practicing anesthesiologist. The chapter on valvular heart disease is a jewel—an excellent summary of physiologic and anesthetic management, presented as a logical outgrowth of the pathophysiology. It will be of equal value to the beginner and to

the experienced anesthesiologist wanting to review this group of diseases.

The discussion of coronary-artery disease provides salient points of anesthetic management, but the organization is indifferent, for example, information pertinent to intraoperative monitoring of the electrocardiogram is scattered throughout several sections. Owing to a printing error, the intravenous doses of nitroglycerin and nitroprusside quoted are dangerously high: nitroglycerin 30–50 milligrams and nitroprusside 0.1 milligram per kilogram. After the last reference cited on page 115, virtually all the reference numbers in this section are in disarray. In general, what one misses in this chapter is a sense of the variety of coronary-artery diseases and recommendations for anesthetic management based on the pathophysiology of the individual coronary-artery disease patient (e.g., anatomy of the coronary lesions and extent of left ventricular dysfunction). Peripheral vascular disease in the form of abdominal aortic disease and carotid disease is next treated. The section on aortic disease is repetitive of other material in the book and does not focus specifically on those aspects of aortic surgery, (such as renal failure), that make it more difficult to manage than a simple laparotomy. Anesthetic considerations in carotid disease are better highlighted. While there is little new information in this section, it is clear and logically presented. The chapter on deliberate hypotension seems strangely out of place in this book. Patients with coronary or carotid disease are exactly those patients for whom we are often loath to employ intraoperative hypotensive techniques, and this chapter even cites these disease states as contraindications to the use of the technique.

The book fails to cohere into an integrated assessment of the cardiovascular patient, since it remains too much a collection of isolated articles. If, as stated in the preface, it is directed toward the management of the cardiac patient for non-cardiac surgery, a number of omissions are apparent. Where, for example, is a chapter on the anesthetic management of the patients with hypertension, or a consideration of pacemakers, which are reasonably common in this group of patients? Much of the material tends to be repetitive, particularly material relating to preoperative assessment and intraoperative monitoring. Overall, it contains few new observations, nor does it present a new integration of, or perspective on, established facts.

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Stress-Free Anaesthesia. (International Congress and Symposium, Series Number 3). EDITED BY C. WOOD. New York, Grune & Stratton, 1978. Pages: 98. Price: \$10.25.

Although this monograph deals with a timely subject, it falls short of its educational goals. It is loosely constructed around a series of scientific papers, which for the most part describe the use of fentanyl as an effective means of relieving surgical stress.

However, these papers have been foreshortened. The scientific details, including methodology and theory, have been eliminated. Since this background material is absent, it is quite difficult to assess the validity of the scientific results and their significance for general clinical practice.

The concluding round-table discussion illustrates the inherent problems in stress research. This exchange of ideas is frank and stimulating. However, the discussion clearly illustrates that a precise measure of surgical stress is still wanting.

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The Respiratory Functions of Blood. BY L. GARBY, AND J. MELDON.
New York, Plenum Publishing Corporation, 1977. Pages: 282.
Price: \$21.50.

Greats of physiology, Joseph Barcroft, Lawrence Henderson, J. B. Haldane, D. D. Van Slyke, celebrities of the Fatigue Laboratory at Harvard, and more recently, F. J. W. Roughton, all have had a hand at writing on the subject of this book. This is not easy company to keep. Yet, Dr. Lars Garby, a physiologist at the University of Odense, Denmark, and Jerry Meldon, a chemical engineer in Boston, have combined their talents to assemble a review in which variety and conciseness are eminently evident. Most clinically oriented physicians will not find the book inviting; that is regrettable, since the information is deserving of attention. Personal preference has drawn my attention to the late chapters, where physiologist and engineer have joined efforts to clarify in graphic format the principles of O_2 and CO_2 transport. Modelling of physiologic systems is a favorite pastime for the mathematically-minded with a flair for computer conversation. Unfortunately, models of O_2 transport have gained rapidly in complexity and are nearly beyond test by experiment, an example where machine defeats its own purpose. Drs. Garby and Meldon have chosen a simplified approach and describe the adaptation in terms of blood flow and arterial blood O_2 content required to satisfy the needs of O_2 demand when affinity (P_{50}), arterial blood P_{O_2} , or Hill's 'n' (the slope of the log saturation/low P_{O_2} relationship) varies. The model may bring little new to those "in the know." For the uninitiated, the potential for new insights is substantial. More than one reading is not merely desired, it is mandatory, and with each, the puzzle will appear less formidable. One can only regret that the steps between mathematical formulations and graphs were not presented in detail for the novice. An appropriate appendix would have been of help.

Acid-base balance and O_2 and CO_2 transport, as well as hemoglobin function, have evolved to a niveau of sophistication understandable only by a thermodynamicist or physical chemist. The evolution has been so rapid that any presentation of the subject is apt to appear confusing or too highly specialized. Perhaps the best way to approach the book is to choose sections appropriate to one's level of mathematical sophistication. Chapter 4, "Hemoglobin and its Interaction with Ligands," provides an excellent review of the subject. Although personal prejudices run contrary to the authors' interpretations of some published data, their presence caused only minor irritation. Chapters 7, "Some Physiological Control Systems," and 8, "Disturbances of Respiratory Functions of Blood," are highly recommended. Hidden near the end is an all-too-brief discussion of capillary density and capillary recruitment, a subject we will all hear more about in the future when a standard of measure other than the microscope will become available.

Definition of the structure of hemoglobin represents an achievement whose importance is appreciated by only a handful of scientists. This monograph helps to bridge the gap and introduces a modicum of sense into a mechanism that most of us discuss but few of us understand: O_2 transport.

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Central Nervous System Pharmacology: A Self-Instruction Text.
Second edition. BY DONALD E. McMILLAN. Boston, Little, Brown, and Company, 1979. Pages: 167. Price: \$12.50.

This soft-covered self-instruction manual was written five years after the publication of the first edition. The text is divided into 18 chapters, and the information presented in a narrative style. Although the book is primarily designed for use as a supplemental text in general pharmacology courses for dental, pharmacy, and medical students, and as a review text for psychiatry residents, the author includes chapter on general principles of pharmacology and synaptic transmission in this edition to . . . "enable students not exposed to those areas in a formal course to obtain at least an introduction to some important concepts necessary to the study of CNS pharmacology. . . ."

In general, the author succeeds in his objective to present a simple, easy-to-read, brief review of CNS pharmacology. The book's organization is straightforward and efficient, and the indexing is adequate for a text of this type. While the manual will be of little value to experienced students of CNS pharmacology, it probably will be useful as a review book for anesthesiology and psychiatry residents and pharmacology students not wanting to take the time to consult a more comprehensive pharmacology book.

The text suffers, as do most manuals of this type, from a lack of depth. In addition, some chapters are strikingly out of date. This is most apparent in the chapters on general anesthetics (chapters 13 and 14), where most of the space is devoted to anesthetics that have long since disappeared from clinical practice. Little mention is made of enflurane, ketamine, and the neurolept compounds, and none of nitrous oxide-narcotic anesthesia, enflurane, or any of the newer intravenous anesthetics, e.g. propofol, althesin, or etomidate. The chapter on sedatives and hypnotics barely mentions the barbiturates, and an important concept such as barbiturate protection of ischemic brain is not addressed at all. In contrast, the chapter on neurotransmitters (chapter 3) is quite complete and up-to-date.

The book probably belongs in a general medicine library for medical, dental, pharmacy, and clinical psychology students, and perhaps in anesthesiology and psychiatry departmental libraries.

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Management of the Injured Patient. EDITED BY J. NORMAN AND M. MOLES. London, Macmillan Press, 1978. Pages: 128. Price: £4.95.

Manual of Emergency and Outpatient Techniques. Washington University Department of Surgery. EDITED BY ALLEN T. KLIPPEL