General Anesthesia is well organized. It is functionally divided into two separate volumes: the first deals with the basic sciences, and the second deals with various aspects of clinical practice in anesthesia. In the first section, fundamentals of anesthetic action and biological sciences, as they relate to general anesthesia, are treated in detail. A brief section on conduction analgesia (known in the United States as regional anesthesia) is included almost as an afterthought; nevertheless, it is a 58-page afterthought, and as an overview of regional anesthesia, it is sufficient. The respiratory system is treated thoroughly, in an implicit subsection devoted to physiology; the interaction between the respiratory system and anesthesia is explored in detail through these eleven chapters. Succeeding sections dealing with the circulatory system, and with the renal, hepatic, endocrine, and other systems, complete the first volume. An extensive fund of general knowledge in medicine is revealed, relating to physiology and anatomy and anesthetic practice.

Volume II is devoted to more practical aspects of anesthesia; the information supplied therefore is more vulnerable to tradition and the personal preference of the authors. Although certain idiosyncracies of practice in the United Kingdom are evident, a balanced approach is used. Current topics, such as medical–legal aspects of general anesthesia, treatment of chronic pain, outpatient anesthesia, and geriatric anesthesia, are discussed, along with the more standard topics. The "practical section" of the book, comprising an entire volume, should be expecially useful with respect to modern practice of general anesthesia. Almost every conceivable topic is discussed in the 48 chapters.

One important aspect of the care of seriously ill patients is carrying them beyond the period of surgery, through recovery. The 14-chapter section entitled "The Intensive Therapy Unit" is a systematic approach to many of the problems encountered in intensive care of the postoperative patient. Such topics as hepatic failure and poisoning, as well as the care of brain disease and head injuries, are covered, along with many standard topics usually treated in more specialized monographs. The book has an extensive appendix of drug name equivalents, which should alleviate the common problem in communication between anesthetists in the United Kingdom and the United States. All the drugs mentioned in the book are very conveniently indexed for translation into their equivalents in the United States.

One of the points on which books often fail is the index. This book by Gray, Nunn and Utting has one of the most comprehensive indexes of any anesthesia text on the market. Most topics could be located quickly and easily.

I predict that this volume will be used most often by practicing anesthesiologists who do not have a ready source of consultation for difficult problems and who do not wish to invest in the multivolume library that this book's equivalent would require. The academician also would do well to consider this book as an overview of current activity in anesthesia. For those needing more information, the many bibliographic references at the end of each chapter are timely and well selected. Due to the explosive expansion of knowledge in anesthesia, texts such as this are often considered out of date even before their publication date, but many references in this work are very recent.

In summary, this book has the advantage of being more complete than any other text on anesthesiology on the market. The list of distinguished contributors does not parallel the bibliographies: although references are international in scope, the contributors are almost entirely from the Commonwealth countries and the United Kingdom. The price is as hefty as this well-bound set, but is still a bargain for the amount of information delivered.

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The Circulation in Anaesthesia. Applied Physiology and Pharmacology. Edited by C. Prys-Roberts. Oxford, Blackwell Scientific Publications, 1980. Pages: 642. Price: $87.75.

This is a mixed review of a mixed book. Nineteen authors have contributed 26 chapters to a volume which attempts to bring together knowledge relevant to anesthesia from the disciplines of biochemistry, physiology, pharmacology, and physics. The coverage is indeed broad, but is not complete. As mentioned in the preface, neither circulatory effects of regional anesthesia nor shock are covered. Authors who had agreed to write chapters did not submit them. There are other gaps. The reader is referred to review articles for the basics of cardiac dysrhythmias. The adrenergic pharmacology chapter essentially catalogs drugs and effects and again refers the reader to review articles. This is inadequate depth for an applied pharmacology text.

The quality of the contributions to the book varies from fair to excellent. There are no poorly done chapters. Some would have benefitted from more extensive editing or rewriting. This is made all the more obvious by the truly outstanding chapters. "The Myocardial Cell and its Metabolism" covers the applicable anatomy, physiology and biochemistry, summarizes current knowledge, and speculates on future findings. It is a clear, concise presentation of some very complex material.

The conversational tone of the chapter, "Myocardial Function and Anaesthesia," is quite effective at leading the reader through a potentially intimidating amount of knowledge. "The Coronary Circulation" and "The Cerebral Circulation" are eminently readable chapters. "The Circulatory Effects of Inhaled Anaesthetics" distills a great deal of cardiovascular research into 15 pages of superb text and figures.

The book is arranged in three sections. The first 17 chapters form the physiology section. The heart is discussed in five chapters, ranging from the metabolism of the myocardial cell to myocardial function and anesthesia. The systemic circulation, the microcirculation, and various organ blood flows are covered in the next five chapters. Pulmonary hemodynamics and pulmonary blood flow distribution are described in separate chapters. The effects of airway pressure, carbon dioxide, and hypoxia on the cardiovascular system are examined. Two chapters on hemodilution and anemia in anesthesia conclude the physiology section.

The pharmacology section is disappointingly brief (at 136 pages). The material that is included is useful and well presented, but one wishes that pharmacology were accorded at least as much space as physiology (370 pages). Adrenergic and cholinergic pharmacology are covered, as are inhalational and intravenous anesthetic agents and drugs for induced hypotension.

The third section, "Cardiovascular Measurement in Anaesthesia," apparently is the remnants of what was to be a companion volume to *The Circulation in Anaesthesia*. It is an uneven section, with excellent discussions of measurement of cardiac output and of electrical hazards and safety, but little mention of regional blood flow techniques, and somewhat abstruse coverage of measurement of intravascular pressure. Noninvasive assessment of the cardiovascular system is also discussed in the section on cardiovascular measurement.

The Circulation in Anaesthesia both benefits and suffers from the breadth of its attempted coverage. It is an ambitious undertaking, with obvious gaps. But most of what is included, whether or not appropriate to a textbook of applied cardiovascular physiology and pharmacology, meets the editor's goal of "a declaration of the present state of the art." It brings together in one volume much of the basic science an anesthesiologist must apply in his daily manipulation of the cardiovascular system. Authors discuss clinical application of the basic principles and findings covered in their chapters. Most of these discussions are by anesthesiologists for anesthesiologists, and provide an excellent framework for learning basic

science. Every chapter has an extensive list of references ranging from classic to within less than two years of the publication date. Such thorough documentation is particularly useful to the graduate physician, for whom the basic physiology or pharmacology textbook is too superficial.

This book will be part of most institutional libraries, and will be discovered by basic scientists and practitioners of other clinical specialties, as well as by anesthesiologists. It is written for readers with some knowledge of basic cardiovascular physiology and pharmacology. The beginning medical student would enjoy and learn from some chapters, but be thoroughly frustrated and confused by others. It is an excellent source of review and reference for those studying for certifying examinations. I suspect it will be available in the libraries of most teaching programs. At $87.75, the volume is expensive for individual purchase, but the quality of both the content and the production is quite high.

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Renal Function in Anaesthesia and Surgery. BY DAVID R. BEVAN. New York, Grune and Stratton (London Edition for Americas, Academic Press), 1979. Pages: 239. Price: $35.00.

Dr. Bevan has recently joined us on this side of the pond and has brought with him his book, which was written with typical British brevity in an easily readable style. The book was written to review for clinical anesthesiologists and surgeons the applied renal physiology of surgical patients. There are three sections: basic principles, renal function during anesthesia and surgery, and renal failure. The middle section is a thorough, up-to-date, well-referenced review of what is known about renal function in the perioperative period, including direct renal effects and those mediated through renal nerves and various hormones.

The other two sections suffer slightly from being too brief in some areas—for example, alteration in glomerular permeability as an etiologic factor in acute renal failure is not mentioned, and the role of sepsis in chronic renal failure is covered in one sentence. Also, there are perhaps differences of opinion concerning certain physiologic theories and clinical problems. The role of physical forces in tubular reabsorption of sodium is downplayed; there is insufficient discussion of angiography and urinary tract obstruction as causes of acute renal failure; and chlorpromazine is recommended as a renal vasodilator while the vasodilators more commonly used in America are not mentioned. I was slightly distracted by the use of international units for laboratory studies (normal serum creatinine is 60–120 μmol l^{-1}), although standard units were frequently given also, and by the use of serum urea rather than serum urea nitrogen in the chapter on renal function tests.

While this review seems harsh, the merits of the book outweigh the demerits, and my overall impression is positive.

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Relief of Pain in Clinical Practice. BY SAMPSON LIPTON. Oxford, Blackwell Scientific Publications, 1980. Pages: 373. Price: $48.75.

With the recognition that chronic pain is in itself a disease state, more comprehensive and authoritative textbooks are needed. The author's attempt to be comprehensive and complete is partially fulfilled by excellent reviews of currently accepted techniques, as well as by "newer" methods of stimulation-produced analgesia, transcutaneous neural stimulation, acupuncture, and deep brain stimulation. As stated in the author's preface, this volume describes the clinical techniques useful in the management of pain for those health care professionals involved in pain management.

Neural blockades, both temporary and permanent, form the bulwark of this work, with clear, stepwise and specific techniques that the author states with clarity and authority. Unfortunately, these time-honored and respected invasive procedures are not put into temporal perspective. When are these methods to be optimally utilized in the natural history of a pain syndrome? Algorithms for appropriate diagnosis and sequential treatment of various pain syndromes would have enhanced this excellent volume on nerve blocks. In contradistinction to the voluminous pages on neural blockade, the neural modulation of pain by sensory stimulation is given only one chapter of 11 pages.

Both peripheral and central stimulation-produced analgesia have their specific indications in a logical fashion, as do nerve blocking techniques. The author is to be commended for the brief attempt to put acupuncture medicine into perspective in the management of intractable pain. Muddy waters concerning the traditional mechanisms of action distract from the more acceptable use of acupuncture as another form of stimulation-produced analgesia. Most modern textbooks of acupuncture (including those in the Peoples' Republic of China) have taken a more scientific neuroanatomic, neurophysiologic, and neuropeptide approach, rather than evoking the classic mechanisms of action, which include the pulse diagnosis, law of five elements, the imaginary lines called "meridians" and the life force "Chi." Considerable scientific data suggest that acupuncture belongs in the arena of sensory stimulation and not in mythology.

For the more serious practitioner of management of acute and chronic pain, the six pages devoted to operant conditioning will perhaps leave a vacuum in the minds of psychologically oriented physicians in the interdisciplinary pain clinics. Chronic pain is a total perceptual experience of mind and body, and behavior modification alone is fraught with failure, as are nerve blocks alone. This reviewer is confident that future editions of this excellent work will expand upon hypnosis, biofeedback, and other psychological techniques that now enjoy a significant role in the overall optimal management of intractable pain.

These minor criticisms are outweighed by the author's excellent overall attempt to present informative material. In our institution, this volume will be placed in the residents' library for an easily understood and authoritative reference.

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