

BOOK REVIEWS

Edward Lowenstein, M.D., Editor

Gas Mixing and Distribution in the Lung. BY L. ENGEL AND M. PAIVA. New York, Marcel Dekker, 1985. Pages: 432. Price: \$75.00 in the U. S. and Canada. \$90.00 all other countries.

This is an excellent work, first-class in all important respects; I don't see how it could be much better. It has the right editors and they have drawn the right boundaries around their topic. They have selected superior authors and left their styles intact; the result is an informal lucidity that includes welcome explanatory asides about basic things that are elementary to the authors but obscure to newcomers.

In eight chapters and 432 pages, the book addresses the interplay between convection and diffusion in the transport, distribution, and mixing of gases in the airways and airspaces of the lung. It starts with basic concepts of molecular diffusion but wisely does not undertake an introduction to fluid mechanics. Lung anatomy, especially airway geometry, is dealt with early, for it is central to the theoretical and experimental approaches that follow, including mathematical and physical models and studies in excised lungs and intact mammals. There are chapters on high-frequency ventilation, regional distribution of ventilation (including anesthetized humans), and nonmammalian vertebrate gas exchange organs. Major experimental methods and results (radioactive gases and various washout techniques) are covered in detail.

The authors are notably successful in outlining core concepts, citing key publications that trace their development, and evaluating the evidence that bears on them. When there is no satisfactory evidence, they say so. This is the case for several important questions, *e.g.*, why is the alveolar plateau sloped, and straight, in single-breath washout curves?

In their closing remarks, the editors say that the book is intended to stimulate further research. They are surely correct in their view that recent advances, well-summarized in this splendid review, set the stage for progress in related areas. In particular, anesthesiologists are given fresh tools that beg for application to the transport and exchange of very soluble gases.

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Hypotensive Anaesthesia. BY G. E. H. ENDERBY, F.F.A.R.C.S. Edinburgh, Churchill-Livingstone, 1985. Pages: 281. Price: \$30.00.

Controlled hypotension is such an integral part of modern anesthetic care that it is difficult to imagine the problems associated with intro-

ducing the technique into clinical practice in the 1950s. This monograph, by one of the pioneers of this movement, stands as eloquent testimony to the success of his efforts. The foreword by James Eckenhoff, an early collaborator with Enderby, and a chapter covering the history of the practice of deliberate hypotension, permit the reader to appreciate how far this field has advanced in three decades.

The text is divided into two parts, entitled "Applied Physiology of Blood Pressure and Flow," and "Practice of Deliberate Hypotension." The former part is by far the stronger of the two, with well-written chapters on the physiology of arterial pressure and the responses of the pulmonary, cerebrovascular, and microvascular circulations to induced hypotension. The latter contains excessive repetition of material presented in the first part. While this is probably inevitable in a multi-authored book (there are 12 contributors), it is particularly annoying in so short a text. The chapter entitled "Indications for Hypotensive Anesthesia" by Enderby's plastic surgery colleague is an entirely un-referenced ode to the purported benefits of deliberate hypotension interspersed with such gratuitous comments as insistence that the surgeon should obtain a "sensible past medical history" (since this might not be forthcoming from the anesthetist's preoperative visit!).

There are glaring differences in clinical practice across the Atlantic, and this book makes these evident. In discussing the use of infusion pumps for sodium nitroprusside (SNP) administration, the opinion that "It is unwise for clinicians to become so habituated to the use of precision, powered regulators that they cannot happily conduct SNP therapy with less complicated devices" would not, I suspect, find many advocates in this country. Isoflurane, certainly one of the major agents for neurosurgical hypotension in the United States, receives only one paragraph in Enderby's text. Labetalol, only recently introduced in the United States, is described in sufficient detail to make one cast a skeptical eye on the glowing advertising pronouncements from the distributor.

The most valuable section of this book is the techniques and physiologic implications of the original East Grinstead formula for controlled hypotension: head-up tilt, positive airway pressure, pharmacologic blockade, and halothane as needed. The physiology is well reviewed, and the clinical acumen involved becomes palpable to the reader. The book is recommended primarily for departmental libraries.

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