safety and monitoring aids can be ineffective, however, in the hands of a less than knowledgeable user and present their own hazards. Anesthetists must be intimately familiar with their equipment to use it safely. The second edition of *Understanding Anesthesia Technology* provides a comprehensive reference on the fundamental principles of operating anesthesia delivery systems and the underlying issues regarding their use.

While many sections are similar or identical to the first edition, the second edition has been expanded and updated. The equipment designs mandated by the American National Standards Institute Z 79.10 are detailed.

The chapter on breathing systems now contains a section on vigilance aids including oxygen analyzers, breathing circuit pressure alarms, capnometry, and mass spectrometry. This information is especially useful in light of their potential for reducing critical incidents. Each technology is examined, its application discussed, and potential limitations presented. The section on capnometry includes sample traces and interpretations of normal and abnormal waveforms. Convenient tables are provided indicating capnographic signal changes as a result of physiologic changes or equipment malfunctions.

Several new chapters have been added that address many of the current safety issues. That on the control of waste anesthetic gas reviews the literature and the complex issues surrounding the effects of exposure to trace gas concentrations. Various scavenging systems and the means of monitoring their effectiveness are reviewed. The chapter that reviews hazards of anesthesia equipment is oriented toward the outcomes of equipment failure (example: hypoxia), with suggestions for prevention and a protocol for reviewing incidents. The chapter dedicated to equipment inspection and maintenance is another welcome addition. The recommended procedures are straightforward and do not require specialized test equipment. Specific recommendations are made regarding preventive and corrective maintenance services.

Understanding Anesthesia Equipment, second edition, is an important contribution to the literature on anesthesia and an essential text for the library of every practicing anesthetist. It is particularly useful to individuals involved in the procurement or maintenance of equipment. To the experienced practitioner, it provides clear, concise descriptions of newer technologies. The new chapters are particularly valuable for those responsible for new equipment purchases. To the anesthetist-in-training, it is an essential reference for acquiring an understanding of the operation of the basic tools of anesthesia and for developing sound practices.

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Acute Respiratory Failure. EDITED BY WARREN M. ZAPOL AND KONRAD J. FALKE. New York, Marcel Dekker, 1985. Pages: 675. Price: 99.75.

The series of monographs on "Lung Biology in Health and Disease" is 12 years old and includes invaluable state-of-the-art reference texts on a variety of topics. Each monograph has been edited by acknowledged authorities and comprises chapters by active researchers in the field. The emphasis has been to summarize available knowledge and to highlight areas in which we remain poorly informed. Although the series is a most unusual reference source, the editorial policy of including references to the bibliography as authors' names and dates (in the text, rather than as superscripted numbers) makes the reading somewhat difficult.

This twenty-fourth volume in the series is no exception. It is authoritative and contains a remarkable amount of information. Although some chapters are devoted to clinical issues, the main thrust appropriately reflects the largely unsolved issues of mechanisms of ARDS at the cellular and biochemical levels. As one might expect, there is considerable emphasis on the pulmonary vasculature, and special mention should be made of a particularly good chapter on pulmonary vascular pathology, followed by discussions of various other functional aspects, most of which are from the groups in the SCOR program at the Massachusetts General Hospital. A most interesting chapter on Blood Alterations in ARDS has been contributed by Carvalho. Other chapters address various aspects that may be important either etiologically or as a focus for new therapeutic directions. These include, for example, the role of neutrophils and oxygen radicals, the behavior of human neutrophil elastase, complement-mediated inflammation, and peptides and lipids as toxic substances.

This is not a text that will be helpful to those looking for clinical guidance. On the other hand, it will be of great interest to those engaged in ARDS-related research, as well as to those who enjoy conjecture as to the nature of the disease and its possible solutions. In that regard, I would have enjoyed a brief summarizing or epilogue chapter as a means of providing perspective. Certainly this would have been difficult. It may be too soon to answer questions as to the possible importance, for example, of studies in which 100% oxygen is used to stimulate neutrophils to produce oxygen radicals; where these fit with the release of specific peptides and lipids; and how both these phenomena relate to changes in coagulation factors. To what extent can we distinguish between primary causes of disease, secondary effects, and the effects of the therapy applied to the disease? Said, in his chapter on Peptides and Lipids as Mediators of Acute Lung Injury, provides a useful review of the evidence for biochemical mediation and modulation of lung injury. Many of the chapters conclude with a useful summary but the whole picture remains (perhaps inevitably) somewhat cloudy at this time.

This volume begins with a most moving tribute in memory of "Mike" Laver, written by Henrik Bendixen. Drs. Myron B. Laver, Henrik H. Bendixen, and Henning Pontoppidan were the leaders of the group who established the Respiratory Unit at the Massachusetts General Hospital between two and three decades ago. From that base, great contributions have been made to our knowledge of the nature and management of respiratory failure. This volume reflects the current research endeavors of that group and their successors, as well as those of colleagues elsewhere in the United States and in Europe. It is most fitting that Dr. Laver should be remembered in this way.

I highly recommend this book.

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