BOOK REVIEWS

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Applied Respiratory Physiology. Fourth Edition. By J. F. Nunn. Jordan Hill, Butterworth Heinemann, 1993. Pages: 658. Price: $85.00.

Originally published as *Applied Respiratory Physiology with Special Reference to Anesthesia* in 1969, the title was changed to *Applied Respiratory Physiology* with the publication of the second edition in 1978. The third edition (1987) represented a major reorganization of the text into two major sections called "basic principles" and "applications." The fourth edition of this reference text (1993) on respiratory physiology continues with similar organization as it paves a common path for both clinicians and scientists with interest in the respiratory system. The text is comprised of 32 chapters; 12 chapters devoted to basic principles and 20 chapters covering clinical applications.

It is suggested that this text is designed for students entering anesthesia, who are not well prepared to manage pulmonary problems. Although the work considers respiratory physiology from both basic science and clinical perspectives, I do not believe it serves as a primary text for students; other texts, such as those by Comroe or West, may better satisfy this need. However, when the more advanced student, physiologist, pulmonologist, or anesthesiologist is considering an up-to-date text on pulmonary physiology, Nunn's book is made-to-order.

Since the third edition, the text has been expanded slightly (from 582 to 658 pages), which represents updates of existing chapters to varying extents to include the scientific and clinical advances of the past 5 yr, as well as the addition of three new chapters. These include, "Evolution of the Atmosphere," The Transplanted Lung," and "Respiratory Aspects of Anemia." The overall usefulness of these chapters is variable. The first chapter of the new edition is essentially a review of college biology; I'm not sure how important much of this material is to its target audience and in relation to the remainder of the text. Given this fact, this chapter is brief and well written. The chapter "The Transplanted Lung" is extremely brief (4 pages) and simply provides an overview of the area of lung transplantation, referring the reader to two review articles at the end of the first paragraph. The third new chapter is about anemia. It, too, is relatively brief; however, this chapter reviews material presented in an earlier chapter dealing with oxygen. This may be a reflection of the division of the book into two main sections, one dealing with basic science, the other with clinical applications.

Although the text provides something for all, that is to say it is useful to both basic scientists and clinicians, it approaches the topic material from more of a basic science (physiologic) perspective. As in the third edition, there is no indexed reference to pulmonary artery catheter or Swan-Ganz catheter. The closest reference, "pulmonary arteries," does not discuss catheters. In a text with a clinical focus, this topic would be described in great detail. In contrast, however, the use of the laryngeal mask airway is discussed.

The reference list has been expanded significantly in the current edition. It contains almost 300 more references than the third edition. Overall, current citations have been added to the reference list, and perhaps more importantly, many of the references are from sources that are probably not widely reviewed by anesthesiologists. For an anesthesiologist, a review of many of these citations may provide a fresh prospective. It is most unfortunate that these references are provided in a single section at the end of the book, just before the index, rather than at the end of each chapter. This makes the job of locating a specific primary reference more cumbersome.

The latest edition of *Applied Respiratory Physiology* is an important revision of a text that should be a part of the library of every respiratory physiologist, pulmonologist, anesthesiologist, and intensive care specialist. Although this is not the text for a beginning basic scientist or student of clinical medicine, nor is it the last word in clinical applications, it is most certainly one of the best at providing the clinician with a scientific perspective while giving the scientist clinical insight.

In the foreword to the fourth edition, as he has done in previous editions, Dr. John Severinghaus refers to Hypnos and the Flame; in this latest revision of Nunn's classic treatise, . . . the flame burns on.

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Anesthesia Equipment: Principles and Applications. By Jan Ehrenwerth and James B. Eisenkraft. St. Louis, Mosby-Year Book, 1993. Pages: 709. Price: $85.00.

Understanding Anesthesia Equipment: Construction, Care and Complications. Third edition. By Jerry A. Dorsch and Susan E. Dorsch. Baltimore, Williams & Wilkins, 1994. Pages: 797. Price: $79.00.

While the practice of anesthesiology always has depended on the proper use of specialized equipment, this is even more evident today. Instead of finding ourselves "handcuffed" to the anesthesia machine, we are bound to a much broader range of technology necessary for state-of-the-art practice of anesthesiology. These two books attempt to join knowledge of the physical principles and use of most of our "basic" anesthesia equipment.

The books address many of the same topics with some marked exceptions. From the medical gas supply to the anesthesia machine with its vaporizers, ventilators, carbon dioxide absorbers, and anesthesia breathing systems, every component is dealt with in detail in both books. They explain not only how they work but what can go wrong with them and what the pros and cons are between each manufacturer's system. Nerve stimulators, capnography, pulse oximetry,

and temperature monitoring also are covered in detail. The major difference is that the Dorsch and Dorsch book goes on to give special attention to face masks, airways, laryngoscopes, and tracheal tubes and rounds out what I consider to be our most basic anesthesia equipment. Ehrenwerth and Eisenkraft's book instead discusses blood pressure and electrocardiogram monitoring, infusion pumps, temporary pacemakers, and defibrillators and goes much further, explaining integrated monitoring systems, alarms, and the ergonomics of the work place.

The third edition of the Dorsch and Dorsch book is the benchmark to which all books on this subject must be compared. The previous two editions were reference books on anesthesia equipment that adorned the libraries of most anesthesia departments. The new edition maintains wonderful detail on all of the components that make up the anesthesia machine, from discussion of fusible plugs on medical gas cylinders to an explanation of the reason why oxygen flow tubes are always the last gas before the vaporizers. For departments wanting to review their cleaning and sterilization procedures, it includes a comprehensive chapter detailing procedures for almost every piece of equipment. For anyone wondering which anesthetic gas monitor to choose, it clearly details the pros and cons of each type of analyzer and contains an excellent section on the laryngeal mask airway for anyone wanting to add the laryngeal mask airway to their practice. It also includes an exhaustive chapter on things that can go wrong with your anesthesia machine and breathing systems.

The book by Ehrenwerth and Eisenkraft has the advantage of not being based on previous editions. Although still adequately reviewing most of the "basic" anesthesia equipment, it ventures into a wider range of equipment to which anesthesiologists frequently are exposed. The book is less encyclopedic in style and therefore more readable, and its large unglossy pages are loaded with excellent graphics. For example, the physics section is less detailed but easier to read, and the humidification chapter is much more clinically useful. It deals with pediatric anesthesia equipment and closed-circuit anesthesia in separate detailed chapters. Being a multi-authored book, the style and quality varies somewhat from chapter to chapter, but repetition is minimal.

Both books meet their goals of being texts for anesthesia students, and the sections on the anesthesia machine should be required reading for any serious student. For the practitioner, the Dorsch and Dorsch book is an excellent authoritative reference book to have on your shelf when particular questions arise and, because it sticks to basic areas, it will be useful for many years to come. Except for the practitioner who plans to sit down and read most of the book to update his knowledge of equipment, Ehrenwerth and Eisencraft's book is more comprehensible and deals with a greater number of contemporary topics. Both books are reasonably priced and should be in the library of every anesthesia department.

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