

cations for use, risks, benefits, limitations, costs and alternatives. Lesser-known techniques, while not covered in as much detail, are adequately referenced.

Several of the authors give the reader unusual insights into the reasons why certain monitoring devices have evolved into their current form. An example of this is the discussion of the use of gain and zero adjustments on modern pressure-monitoring transducer/amplifier combinations. Such information is not readily found in other textbooks, papers, or manufacturers' manuals.

We mention only a few of the many high points in this book. The chapter concerning body chemistry is directed to anyone considering setting up an analysis laboratory structured for caring for the acutely ill. Respiratory function monitoring is interestingly divided into essential, special, and advanced monitoring. Patient assignment is based on pre-existing pulmonary dysfunction and estimation of further dysfunction that may result in the operating room. A similar classification is also given for postoperative monitoring. Tables are provided in the latter instance for the ten major physiologic systems. Measurements and frequencies of application that define three levels of monitoring are listed. The discussion of neurosurgical anesthesia describes the use of some of the more recently developed monitoring techniques included in the text. The chapter on computers should be particularly helpful for those seeking to become familiar with their potential for anesthesia. In this chapter, explanation is simple, a glossary is included, and numerous applications in anesthesia are given.

The book is easily read, highly informative, and dedicated to practical application. It is ideal for the beginning anesthesiologist, of value to the bioengineer or other basic scientist, and even offers new information or approaches for the more seasoned anesthesiologist.

In summary, this book is a "must" for the libraries of practitioners of cardiac or neurosurgical anesthesia or intensive care medicine. It should be consulted by anyone planning to select and purchase monitoring equipment.

Rapid technical advances are already making parts of the book obsolete. One can only hope that the editors will produce revised editions from time-to-time, and that this excellent monograph will evolve into the standard textbook on the subject.

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Physiology and Pathobiology of Axons. EDITED BY S. G. WAXMAN.
New York, Raven Press, 1978. Pages: 462. Price: \$32.50.

This beautifully illustrated book presents most of the numerous advances in our understanding of normal and diseased axonal structure and function that have occurred during the past decade. The 25 papers by 34 authors convincingly show that axons are not simple all-or-none cables linking receptor and effector ends of the neuron, but are complex regions responsible for important types of information processing, especially at branch points and terminal arborizations.

The first half of the book contains excellent papers about normal axons, including the normal structures of peripheral and central axons as shown by electron microscopy and freeze-fracture techniques; axonal conduction properties and mechanisms; structural

and functional specialization at initial segments and nodes of Ranvier; normal variations in axonal morphology; activity-dependent variations in conduction properties; differential transmission at axon branches; and after-effects as a coding mechanism. These papers clearly show that axons have a complex function, and this wealth of new data about normal axons will help bring interpretation of axonal disease closer to subcellular and molecular levels.

The second half of the book considers the axonal abnormalities caused by neurotoxins, defective axonal transport, or Wallerian degeneration; the demyelinating disorders of immunologic, virologic, genetic, nutritional, toxic, or traumatic origin; abnormal sensation following peripheral-nerve injury, regeneration, neuroma formation or leprosy neuropathy; spinal cord regeneration and axonal sprouting; axonal regulation of Schwann cell differentiation and myelin thickness. Perhaps the most interesting contribution of these papers is to remind us that precise study of abnormal or diseased axons can provide unusual insight into normal structure and function; the papers on neurotoxins, neuromas, and myelin disorders are especially interesting in this regard.

Almost all the chapters are well written, with cogent summaries, extensive up-to-date bibliographies, and numerous excellent diagrams and micrographs. The only disappointment was the occasionally inaccurate chapter on axonal transport; but this is not a serious problem, and the book will be very useful to a large number of neuroscientists, especially to those interested in mechanisms of anesthesia, neurophysiology and neuropathology.

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Laryngeal Biomechanics. BY B. R. FINK AND ROBERT J. DEMAREST.
Cambridge, Mass., Harvard University Press. Pages: 134.
Price \$30.00.

The reader may wonder what more could be said about laryngeal biomechanics, since Dr. Fink has already elucidated the principles of laryngeal folding, mechanical coupling, elastic recoil, and other nonmuscular influences on laryngeal behavior in previous publications. In addition, he has brought these principles together in a recent volume, *The Human Larynx: A Functional Study*. What is new in the present volume, and what makes this book useful to the student of laryngeal function, is its illustrations by the coauthor, R. J. Demarest. Using line drawings, tone drawings, and photographs, Demarest has illustrated the principles of laryngeal biomechanics in terms of springs, levers, couplings, and other mechanical devices that clarify the various nonmuscular forces acting upon the vocal folds, aryepiglottic folds, epiglottis and other laryngeal components. Together with the text, these illustrations clarify laryngeal biomechanical principles better than any other work currently available, to the best of this reviewer's knowledge.

The list of references lacks certain key reports, but most of these can be found in Fink's previous publication, *The Human Larynx*.

In addition to its obvious appeal to the laryngologist, the book should be of particular interest and use to singing teachers and voice therapists.

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