

## The Anesthesiologist's Bookshelf

**Fundamentals of Drug Metabolism and Drug Disposition.** BY B. N. LADU, H. G. MANDEL, AND E. L. WAY. Baltimore, Williams and Wilkins, 1972. Pages: 615. Price: \$15.00.

**Absorption, Distribution, Transformation and Excretion of Drugs.** BY KNOEFEL, HUANG, KLINGELE, LE FEVRE, SCHARFF, AND WESTPHAL. Springfield, Ill., Charles C Thomas, 1972. Pages: 220. Price: \$13.50.

Chapters, much less books, on drug uptake, distribution and elimination usually make for heavy reading—the two books reviewed here are no exceptions. But unlike run-of-the-mill works on this subject, the book by La Du, Mandel and Way will make a strong appeal to anesthesiologists. For instance, there are whole chapters on "Drug Entry into Brain and Cerebrospinal Fluid," "Placental Transfer of Drugs," and "Pulmonary Disposition of Drugs" (the latter by Munson and Eger) that highlight anesthetics.

For the neophyte wanting to perform drug disposition and drug metabolism studies (as well as for the curious wanting to know just how the numbers are collected), excellent descriptions of the tools used—chromatography, spectrometry, autoradiography, etc.—are given. The new entrant into the field is also warned of pitfalls that lie ahead and guided through an excellent introductory set of laboratory experiments. The book grew out of three teaching workshops conducted by the contributors—maybe that is why it is not only a good learning source but a good teaching source as well.

Knoefel *et al.* have put together a primer for medical students on how drugs get into, about, and out of the body. It includes an elementary discussion of radioisotopes and instrumentation, and a laboratory exercise for each of the five main chapters. The discussions seldom allude to anesthetic drugs, but have a general relevance for the understanding of drug action.

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**Anesthesiology—Progress since 1940.** BY E. M. PAPPER, S. H. NGAI, and LESTER C. MARK. Coral Gables, Florida, University of Miami Press, 1973. Pages: 192. Price: \$7.95.

Because of the rapidly changing nature of medicine, physicians continually seek assurances and reassurances that they are "up to date" in their medical knowledge and practices. To this end they readily embrace verbal or written reviews that highlight "current trends" or "recent advances" in a discipline. This is particularly true of Anesthesiology, a field that interfaces with most, if

not all, other basic science and clinical disciplines in medicine. At each interface, a subspecialty of anesthesia with its own groups of subspecialists develop. From these groups comes new knowledge that through such media as review articles finds application in the hands of the large body of "generalists" in Anesthesiology.

One series of review articles that has been highly valued by anesthetist and nonanesthetist alike is that which has appeared periodically since World War II in the *New England Journal of Medicine*. Written in 1954 and 1963 by Drs. E. M. Papper and S. H. Ngai, and assisted by Dr. L. C. Mark in the most recent version (1970), these reviews have highlighted and placed in perspective the major advances in the subspecialties of anesthesia in the intervals since the previous review. This book is a compilation of the three reviews plus an introductory chapter that attempts to review the period between 1970 and 1973. The purpose of the book is to provide "a critical analysis of important developments in anesthesiology since the end of World War II."

As individual articles appearing in a current periodical, the reviews by Drs. Papper, Ngai, and Mark were timely, highly informative, and critically interpretive of existing facts and theories. As presented in this book, most of these commendations are lost. The organizational style alone forces the reader interested in a particular topic to follow a circuitous path through the book and to remember the vintage of the material being read. For example, if a reader is interested in a "critical analysis" of the important developments in the field of muscle relaxants, he must read a selection of chapter one to learn about pancuronium (vintage after 1970); a selection of chapter two to learn about the general pharmacology of muscle relaxants (vintage 1946–1954); a selection of chapter three to learn something about the uptake, distribution, sites of action, interactions with other drugs and theories of reversal of muscle relaxants (vintage 1954–1963); and selections from chapter four to learn more recent information (vintage 1963–1970) about uptake, distribution and mechanisms of action of muscle relaxants. Numerous other samples could be cited.

If one is interested in the prevailing point of view at a certain period in time, this book is the answer. If one is interested in a critical, comprehensive analysis of a field or subspecialty of anesthesia, this book is unsatisfactory. For most topics the bridges from one era to the next are narrow and difficult to traverse.

Another weakness of the book, in my opinion, is the authors' abrogation of responsibility for reviewing in greater detail the developments since 1970. Brief mention is made of the involvement of anesthesiologists in intensive care, but the readers are referred to a Medical Progress article in the *New England Journal of Medicine* for more details. No mention is made of such timely subjects as

closing volumes, PEEP, or current theories of respiratory care. The statement that there is a "lack of equipment immediately available for intermittent positive pressure breathing" (vintage 1954-1963) is not corrected or updated. Similarly, readers are referred to a symposium issue of the *British Journal of Anaesthesia* published a year earlier for a more detailed consideration of the problem of halothane hepatitis. Finally, no mention is made of such pharmacologic advances as the opiate antagonist naloxone, fentanyl, droperidol, diazepam, bupivacaine, etc. In summary, what is highly valued in one medium, is less so in another.

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**The Anesthesiologist, Mother and Newborn.** By S. M. SHNIDER and F. MOYA. Baltimore, Williams and Wilkins, 1974. Pages: 295. Price: \$16.50.

This outstanding publication is based on the 1972 Post Graduate Seminar of Anesthesiology of the Universities of Miami and Florida, at which 20 authorities in the field of perinatology discussed the recent advances in maternal and fetal physiology, obstetric anesthesia, and management of the distressed newborn. There are eight chapters on basic principles, six on controversial aspects of obstetric anesthesia, ten on the fetus and newborn. Hon discusses the diagnosis and management of fetal distress and the use of fetal monitoring equipment. Chapters by Gregory, Shnider, and James review the management of the depressed newborn. James' excellent review of the current status of respiratory distress syndrome leads into the final section, entitled "Mechanical Ventilation of the Newborn Infant," containing six chapters on the management of the newborn with respiratory distress. Shnider and Moya have done a superb job of editing the material, and the result is an interesting, useful survey of modern anesthesiologic management of the parturient, fetus and newborn.

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**Anesthetic Management of Endocrine Disease.** By T. OYAMA. New York, Springer-Verlag, 1973. Pages: 220. Price: \$21.80.

**Endocrines and Enzymes in Anesthesiology.** By C. M. BALLINGER AND V. L. BRECHNER. Springfield, Ill. Charles C Thomas, 1973. Pages: 240. Price: \$23.80.

Anesthesiologists have a dual interest in the endocrine glands: to what extent do changes in endocrine function alter the response to anesthetics, and, *vice*

*versa*, to what extent do anesthetics affect the function of endocrine glands? The former have proven more susceptible to quantitation than the latter. Recently, for example, the changes in anesthetic potency, or MAC, associated with thyroid dysfunction have been measured. The older literature contains information on how changes in output of female sex hormones may affect general anesthesia, at least in experimental animals. Still lacking are data on the extent to which disorders of the adrenal cortex or medulla, and other endocrine glands, may alter the response to anesthetics, but these presumably could be measured as readily as the effects of hyper- or hypothyroidism.

When it comes to evaluating how anesthetics affect the function of endocrine glands, we have much in the way of data, but strikingly little insight into the functional significance of changes. Investigators in this field continue to rely to a great extent on blood levels of various hormones as affected by anesthetics. This may be necessary because of the state of the art, but what do blood levels really tell us? When circulating levels of hormones become elevated during anesthesia or surgery, is it due to increased release (and normal tissue utilization), to decreased utilization (and normal release), or to increased release plus decreased utilization? Sometimes we know part of the answer; for example, elevated plasma cortisol levels during anesthesia reflect increased release of hormone from the adrenal cortex, and we even know this is occasioned by increased release of ACTH from the pituitary, but we still know little about rate of cortisol utilization and nothing about whether elevation of plasma cortisol elicits the same metabolic and physiologic responses during anesthesia as in the absence of anesthesia. Are the elevated plasma cortisol levels beneficial or harmful? We do not really know. Our ignorance is even greater when we try to interpret changes in plasma levels of insulin, thyroxine, or other hormones. We know little of either the etiology of recorded changes or of their significance.

Problems inherent in the interpretation of blood levels and other common indices of endocrine function during anesthesia must not serve as the basis for pharmacologic nihilism, for throwing up one's hands and falling back on pragmatic reporting of sterile laboratory data. A great deal of material is available and ripe for imaginative review and perceptive analysis of where we stand and where our future investigations should take us. One welcomes, therefore, the appearance of two texts which, their titles suggest, will provide the insight and perspective so needed in this field. Dr. Oyama is particularly qualified for such a task. He has worked longer and has published more on endocrine responses to anesthesia and surgery than anyone else. His monograph, "Anesthetic Management of Endocrine Disease," in 152 pages of text and 61 pages of references, supplies an encyclopedic presentation of most of the world literature on endocrine responses to anesthesia. A chapter is devoted to each of the endocrine glands, starting with an outline of normal function and concluding with extensive clinical