

This volume, containing 43 short papers by 126 international scholars, records the proceedings of the Sixth International Congress of Pharmacology's 1975 Helsinki Symposium on Marihuana. These concise papers present methods, data, and brief discussions organized under the headings: Detection and Identification of Cannabinoids and their Metabolites; Kinetics and Biotransformation; Effects on Isolated Cell Systems; Interaction with Neurotransmitters; Organic and Developmental Effects of Cannabinoids.

The volume should be of great interest to individuals already engaged in laboratory studies of the chemical, metabolic, neuropharmacologic, pathologic, and forensic actions of the cannabinoids. For the novice worker, the book summarizes recent laboratory findings and provides concise and organized bibliographical entry into the voluminous data on the subject that have appeared during the last six years.

The analysis of cannabis constituents is now highly sophisticated, and has been advanced rapidly by the "need to know" sparked by recent marihuana debates, the pressure mounting as the liberalization of marihuana laws progresses. Investigations by Mechoulam, Waller, Salemink, Kephala and others have employed gas-liquid chromatography, mass spectrometry, radioimmunoassay, and mass fragmentographic assays for the detection, identification and quantification of cannabinoids. Auzurell, Lemberger, and Perez-Reyes *et al.* describe the uses of these techniques to study the absorption, metabolism and pharmacokinetics of cannabis-related substances.

Neurochemistry and neuropharmacology, while addressed in this volume in terms of neurohumoral transmitter interactions with the cannabinoids, are much less advanced. Studies by Bowie *et al.*, Ho, Capek, Anspen, and Domino reveal that a great deal of additional work must be done before cohesive hypotheses concerning mechanisms of the central nervous system actions of cannabinoids can be forthcoming.

The cellular biology of cannabinoids, from toxicology to fundamental molecular mechanisms, is addressed in this volume and is of great interest. These are studies of the effects of cannabinoids on hepatic sites, fibroblasts, lysosomes, repair mechanisms after radiation injury, pulmonary macrophages, spermatozoa, basic histones of spermatozoa, and polymorphonuclear leukocytes, cell division in primitive organisms, and rabbit fetus. The results of these studies are somewhat disquieting and need to be interpreted with caution. Studies such as these performed *in vitro* need *in vivo* epidemiologic studies in order to evaluate their significance with regard to the human organism as a whole. However, disquieting potential dangers pointed to by laboratory studies need to be systematically studied before definitive statements concerning the safety and efficacy of cannabis derivatives can be made.

Unlike Nahas' previous work on this subject,

Marihuana, Deceptive Weed, Raven Press, 1973, the present volume is not marred by nonscientific biases covering the general spread of cannabis use among young people, and can be recommended for study by the serious worker or graduate student. Persons with a general interest in marihuana will find the technical ramifications of this volume somewhat overwhelming. Thus, it can be recommended as a general source book only to those in the specific disciplines represented.

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Muscle Relaxants, EDITED BY R. L. KATZ. Amsterdam, The Netherlands, Excerpta Medica, 1975. Pages: 430. Price: \$49.95.

The extensive experience of Ronald L. Katz in the study and use of relaxant drugs was bound some day to be collected into a book bigger and better than prior similar efforts. Dr. Katz has wisely not attempted to survey single-handedly the vast amount of basic and clinical information on neuromuscular blocking agents; instead, he has enlisted the aid of 20 internationally known authorities. The latter have produced 15 separate reviews (chapters).

A list of the authors and chapter headings provides good insight into the general content and quality of the monograph: "Physiology and pharmacology of neuromuscular blocking agents," by B. E. Waud and D. R. Waud; "Prejunctional effects of neuromuscular blocking and facilitating drugs," by W. F. Riker, Jr.; "Molecular basis of curare action," by P. G. Waser; "Uptake, distribution and elimination of skeletal muscle relaxants," by D. P. Crankshaw and E. N. Cohen; "Cholinesterases and anticholinesterases," by E. J. Pantuck and C. B. Pantuck; "Factors affecting the action of muscle relaxants," by R. D. Miller; "Muscle relaxants in pediatric anesthesia," by J. F. Ryan and N. G. Goudsouzian; "The use of muscle relaxants in obstetrics," by P. J. Poppers and M. Finster; "Complications of muscle relaxants," by L. F. Walts; "Clinical use of relaxants in Europe," by J. Stovner; "Interaction of anesthetics with relaxants," by S. H. Ngai; "Electromyography in evaluation of the response to muscle relaxants," by R. M. Epstein and R. A. Epstein; "Clinical considerations in the use of muscle relaxants," by R. L. Katz and G. J. Katz; "Use of muscle relaxants outside the operating room," by J. H. Karis; "Myasthenia gravis," by F. F. Foldes.

The book attempts "to provide the clinician with the basic material necessary for the rational use of muscle relaxants," as well as to present "the accumulated experience of clinicians with a basic science background" in neuromuscular physi-

ology and pharmacology. The authors' writing styles were not extensively edited "to keep the book from having a MAC value of 3." Certainly the book has achieved these purposes. Although one might argue that chapter-to-chapter continuity and cohesiveness might have been improved by further editing, each section may be read independently and they may be read in almost any order, but at the expense of considerable duplication of material in certain chapters. This was permitted, as Katz mentions in the preface, "to provide different ways of looking at the same things." However, this reviewer strongly recommends that Chapter 1 be read first, as it supplies generic information and sets the tone for the chapters that follow.

The comparative *laissez-faire* of the editor indicates that the quality of each chapter depends entirely upon the input of its authors. There is some variability in the excellence of chapters. The works of Wand and Wand, Riker, and Walts stand out, and make the book worth purchasing. The comprehensive review by Riker of the actions of junctionally-active drugs upon the motor nerve terminal is certainly the best on the subject that the reviewer has encountered. The initial chapter on pharmacology and physiology by the Wands leans heavily upon electrophysiology and receptor pharmacology. Structure-activity relations and the chemistry of junctional and receptor pharmacology are treated only briefly by Wasser. The important side effects of relaxants, involving other pharmacologic actions of these agents, are discussed in a clinical fashion by Walts in his chapter on complications. The value of the latter section lies in its thoroughness. It is doubtful whether Walts overlooked any reference. Nearly as complete is Miller's presentation of the interaction of relaxants with various physiologic and pharmacologic factors.

One might be overly critical in noting that Stovner's description of the use of relaxants in Europe rambles and is largely repetitive of material contained in other chapters, or in questioning whether the use of relaxants in pediatrics, obstetrics, and the intensive care unit is so importantly different as to require treatment in separate chapters. On the other hand, it might be argued that this separation is valuable to the relatively uninitiated.

If we remember that this book is aimed principally at clinicians, and that practitioners vary markedly in their levels of training, experience, interest in and knowledge of relaxants, then the value of the book is placed in perspective. The material is broad and deep enough to be instructive at many levels. The medical student or beginning resident may find it difficult reading in certain areas unless he has prepared himself with some basic information. The knowledgeable practitioner and clinical scientist will find this book an encyclopedia of information on relaxant drugs, an excellent

reference worth purchasing if he can afford the (by the editor's own admission) high price.

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Physiological Basis of Anaesthesiology. Theory and Practice. EDITED BY W. W. MUSHIN, J. W. SEVERINGHAUS, M. TIENGO, AND S. GOBBI. Piccin Medical Books, 1975. Pages: 367. Price: \$16.00.

This book is a compendium of 21 papers, each presented as an individually written chapter, from the First International Seminar on the Physiological Basis of Anesthesia, Milan, 1973. In general, it deals with physiology of respiration and cardiovascular function.

The individual chapters range from excellent to mediocre. Some, such as those on mechanics of the chest wall, small-airway closure, and ventilation-perfusion relationships, are outstanding, comprehensive, and informative reviews. Many of the remaining chapters are less well-organized, are of minimal scientific or clinical interest, and tend to detract from the total quality of the text.

The figures and photographs are generally well reproduced, with adequate legends, although in several instances incomplete translation from the original language makes interpretation difficult. The references are generally limited in number and also often appear to be somewhat outdated. There are numerous typographical and spelling errors throughout the text.

Unfortunately, the title is misleading, since the book is not an organized presentation of basic concepts but rather covers selected aspects of circulatory and respiratory function in both normal and disease states. This text should be useful to anyone interested in several of the diverse aspects of physiology that are considered, but not to those attempting to develop basic concepts in clinical physiology.

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Paediatric Intensive Care. Second edition. BY K. D. ROBERTS AND J. M. EDWARDS. Philadelphia, J. B. Lippincott, 1975. Pages: 307. Price: \$20.00.

Drs. Roberts and Edwards have succeeded in their aim of providing a book that makes "clear to resident doctors and senior nurses the basic principles underlying the care of the critically ill child."

The authors have provided a rather complete