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## Book Reviews

**Perspectives in Membrane Biophysics.** Edited by D. P. Agin with 22 contributors. Gordon and Breach, New York, London, and Paris. 1972. 317 pp. 16 × 23.5 cm. \$12.50.

This book was conceived as a tribute to K. S. Cole and presents a collection of 16 papers by scientists who have made significant contributions to the study of membrane properties. The format of the volume is pleasing; regrettably, some of the articles contain many typographical errors. The individual presentations vary greatly in length and in scope. Five papers (papers 1, 2, 4, 5, and 7) concern findings on squid axons. They cover the results of direct measurements of the influx of Na ions during the action potential, recent models of active ion transport, biionic potentials in perfused axons, a model for the mechanism of inactivation of the sodium conductance, and the temperature dependence of excitability. Paper 3 is a broad discussion of electrogenic phenomena with emphasis on non-linear voltage-current relations. Paper 6 presents studies of the relationship between structure of macrocyclic compounds and their capacity to function as ion carriers across artificial membranes. Four papers (papers 8, 10, 11, and 15) are mainly theoretical. One stresses the need for further studies of membrane capacity under different experimental conditions. The other papers present a model of ion transport across the membrane in terms of conformational changes in the protein subunits of the channels, a mathematical treatment of ion flow in an electrolyte-membrane-electrolyte system, and an extension of a theoretical method by Cole to calculate membrane current variations with membrane potential at any point in a fiber. Paper 9 describes a rapid voltage-clamp data processing system. Paper 12 concerns ion flux ratio determinations under nonsteady state conditions. Paper 13 is a review of ionic conductances at synapses. Paper 14 is a comprehensive review of pharmacological data obtained on axonal and end-plate membranes. Paper 16 points out similarities and differences in the development of ideas and methods in research on nerve and muscle. Anyone who is interested in this area will find the discussions, which clearly indicate some of the major open problems, stimulating.

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**Antiarrhythmic Agents.** By Arthur J. Moss and Robert D. Patton. Charles C Thomas, Springfield, Ill. 1973. xi + 161 pp. 16 × 23.5 cm. \$10.00.

Although this book was written primarily for the clinician, it should also be useful to teachers of pharmacology, clinical pharmacy, and medicinal chemistry. The first chapter is a concise review of the electrophysiologic properties of cardiac tissue while the second is a very brief description of arrhythmogenic mechanisms. A five and one-half page discussion of the general principles of pharmacodynamics completes the first section of the book.

The second section consists of ten chapters, each of which is devoted to a single antiarrhythmic drug. The drugs covered in this section are: quinidine, procainamide, lidocaine, diphenylhydantoin, propranolol, bretylium, atropine, digitalis glycosides, potassium, and isoproterenol. Five or six pages are devoted to each drug and the discussion of the individual agents is divided into the following subheadings: introduction (including a description of chemical structure), electrophysiologic properties, pharmacologic considerations (absorption, metabolism, excretion), therapeutic uses, and adverse drug reactions. The authors have restricted their discussion of the drugs as much as possible to those aspects relating to antiarrhythmic activity. For example, the general utility of atropine as an anticholinergic agent and the anti-convulsant properties of diphenylhydantoin are mentioned only in passing. The use of digitalis as an inotropic agent is not covered. Thus, the scope of the "therapeutic use" sections is quite limited.

The third section of the book, called "general therapeutic considerations," consists of a chapter which compares the electrophysiologic properties, pharmacodynamics, adverse reactions, and costs of the ten drugs described in the second section along with a chapter on the management of refractory arrhythmias. The chapter devoted to comparison of the agents is a well-written summary and contains tables which greatly facilitate comparison of electrophysiologic properties and side effects.

The book contains 426 references, a substantial number of which were published in the years 1969-1971. In spite of the brevity of this book, the authors appear to have accomplished their goal of summarizing the current state of knowledge about the principles which underlie antiarrhythmic drug therapy and the agents which are most frequently used in the management of patients with cardiac arrhythmias.

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**Advances in Immunology.** Vol. 15. Edited by F. J. Dixon and Henry G. Kunkel. Academic Press, New York, N. Y. 1972. 329 pp. 23 × 15 cm. \$18.50.

This most recent addition to the *Advances in Immunology* series contains chapters by a number of distinguished authors. In the first chapter, "The Regulatory Influence of Activated T Cells on B Cell Responses to Antigen," D. Katz and B. Benacerraf discuss the interaction of B and T cells in the immune response, the mechanism of T cell regulation of B cells, and the functions of the B and T cells in such immune phenomena as tolerance, anamnesis, and cellular immunity. E. Unanue's chapter on "The Regulatory Role of Macrophages in Antigenic Stimulation" is timely considering the intense interest over the past couple of years concerning the role of macrophages in the immune response. The author stresses the need for improvement of and experience with tissue culture methodology to clarify the cellular interactions be-

tween macrophages and lymphocytes. Immunological enhancement encountered in tumor and transplantation immunology, the fetus as a homograft, and a variety of viewpoints on tolerance are topics reviewed by J. Feldman in the third chapter entitled "Immunological Enhancement: A Study of Blocking Antibodies." The last two chapters, "Genetics and Immunology of Sex-linked Antigens" by D. Gasser and W. Silvers and "Current Concepts of Amyloid" by E. Franklin and D. Franklin, will perhaps not be received with as widespread interest as the first three chapters, but they are well written and edited and will be of interest to individuals working in these areas.

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**The Benzodiazepines.** Edited by S. Garattini, E. Mussini, and L. O. Randall with 115 contributors. Raven Press, New York, N. Y. 1973, xxi + 685 pp. 16 × 24 cm. \$35.00.

This book is meant to be a comprehensive survey of the 1,4-benzodiazepine tranquilizers. With most topics an excellent, comprehensive coverage is presented. The book has five main divisions—Chemistry and Pharmacology, Biochemistry, Characterization of Activity, Selective Topics in Clinical Use, and Drug Interaction.

About one-third of the book covers the topic of metabolism, distribution, and the effects of the benzodiazepines on neurotransmitters. This division, representing work from a number of different laboratories, is well organized, easy to follow, and up to date.

The division covering characterization of activity includes both animal and clinical discussions. The section on anti-anxiety effect proposes several theories on the mechanisms of action of benzodiazepines. Sections on antiaggression and anticonvulsant effects are also included. The chapters concerning clinical activity are more difficult to follow, possibly representative of the difficulty of applying animal data to the human situation.

The division on selected clinical uses of benzodiazepines has excellent chapters on utility of these tranquilizers in treating alcoholism and insomnia. Chapters on muscle relaxation effects are included but cover somewhat diverse topics in a brief manner.

The final division covers drug interactions. This division is not comprehensive but is limited to a discussion of benzodiazepine interactions with anticoagulants and two local anesthetics. Some drug interactions were covered in earlier chapters.

The book is introduced with a chapter on chemistry of 1,4-benzodiazepines. This chapter is a historical review of the chemistry and far superior reviews are available by the same author. The chapter does serve as a compilation of literature references and chemical structures of benzodiazepines. The same can be said for the introductory chapter on pharmacology. It simply introduces, broadly, the topics to be covered in the following chapters.

One criticism of the book is redundancy. Because of the large number of contributors this might be expected. In most cases this does not detract from the overall book, but, in places, chapters

could have been deleted or integrated for smoother presentation. Overall, the book is well done and should serve as a valuable work for those involved in or interested in the benzodiazepine tranquilizers.

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**Metabolic Pathways (3rd ed). Vol. VI. Metabolic Transport.** Edited by Lowell E. Hokin with 18 contributors. Academic Press, New York and London. 1972. xxi + 704 pp. 15.8 × 23.3 cm. \$35.00.

Even though numerous monographs and reviews on the subjects related to "membranology" have appeared in recent years, the present volume on "Metabolic Transport" edited by Lowell E. Hokin should be considered as a welcome addition. The volume is part of the famous series entitled Metabolic Pathways. To be sure, the high standards of this series have been maintained in this book. The editor is to be congratulated for an excellent attempt at putting together, in a single volume, a rather wide range of topics dealing with various aspects of membrane transport. The subjects discussed include transport of electrolytes (monovalent and divalent cations) and nonelectrolytes (carbohydrates, amino acids) in microorganisms and mammalian cells and ion transport in subcellular particles (mitochondria, sarcoplasmic reticulum). Also provided are chapters on the transport ATPase, action of hormones on transport, and cellular transport of proton, water, biogenic amines, and drugs. Each chapter is written by experts in the areas of their research. Most chapters, though not all, are followed by a summary; it would have been better if all the reviewers had followed this format. Each chapter ends with a list of references cited in the text. The comprehensiveness of this bibliography varies with individual chapters. The book is printed in excellent type and is easily readable, although some errors have crept into print.

In examining this book two points come to this reviewer's mind. Firstly, the editor very wisely chose to open the reviews by inviting an article on the theoretical treatment of transport parameters. It would have been pertinent to follow it up with a chapter dealing with model systems used in transport studies and a chapter discussing the current theories of membrane structure. The addition of these two topics would have been immensely profitable. Secondly, it is this reviewer's opinion that the authors of the chapter dealing with the Sodium-Potassium Adenosine Triphosphatase have given too scant an account of the development of ideas on the models for Na and K transport (p 308). A slightly more detailed treatment of this portion would have been useful. Nonetheless, this compilation of reviews on transport should undoubtedly provide an excellent starting point for interested scientists and new investigators, as well as being an important source of information to investigators in the field of membrane transport.

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