The Biochemistry of Viruses. Edited by Hilton B. Levy. Marcel Dekker, New York, N. Y. 1969. xiv + 657 pp. 23.5 × 16 cm. $28.50

The study of viruses and their interaction with cell systems has made a major contribution in expanding molecular biology. Purified viruses—and especially animal viruses in increasing number—are an excellent source of homogeneous nucleic acids for chemical and physical studies. Virus infections permit access to the events that lead from DNA to protein biosynthesis. Such investigations have been going on for 15 yr, and the time is appropriate for a review of many facets of these fields as presented in this book. Addressed to the knowledgeable graduate student and research worker, the book is nevertheless written so clearly that it can serve as a text. Chemistry and tertiary structure of animal viruses are discussed in the first two chapters. These are followed by a description of the replication of picornaviruses, tracing the development from the virion to viral intracellular RNA, and including inhibitors of the various stages of development. The poliovirus is analyzed genetically. Each chapter terminates with a conclusion that describes major unsolved problems in a stimulating manner.

The bulk of the book is a systematic but always functional discussion of major groups of animal viruses, their infective processes, and their effects on host cells. This includes myxoviruses, reoviruses, RNA tumor viruses, adenoviruses, poxviruses, herpesviruses, and DNA-containing bacteriophages. These viruses depend on permissive cells for replication, and these interactions form the most fascinating sections of these chapters. The book ends with a discussion of the biochemistry of Interferon.

The authors and editors are to be congratulated on the homogeneity of approach in this volume, and on the clear presentation of very difficult details. To us as medicinal chemists this book may well become a major source of background information in our search for antiviral drugs.

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Proceedings of the Institute on Drug Literature Evaluation. American Society of Hospital Pharmacists, Washington, D.C. a compilation of papers presented at an institute conducted in Philadelphia, Pa., March 11–15, 1968, 1969. 204 pp. $7.00.

Although this symposium was sponsored by the American Society of Hospital Pharmacists, the topics that were discussed have a broad appeal and should be of interest to medicinal chemists, pharmacologists, clinicians, and others. The volume contains 17 monographs on topics ranging from laboratory design of drugs to clinical evaluation and regulatory procedures. A somewhat similar symposium was scheduled by the Drug Information Association in Washington in January 1970, and we await the publication of the latter proceedings for comparative purposes.

H. F. Dowling provides a history of clinical evaluation which gives perspective and insight into the current problem. R. G. Smith reviews the history of Federal regulations pertaining to drugs, and recounts the classic disasters that have led to improved controls. Included among these are the tetanus epidemic of 1901, which resulted from the use of contaminated diphtheria antitoxin, the sulfanilamide elixir disaster of 1937, and the thalidomide tragedy of the 1960's. We are fortunate that these incidents occurred as infrequently as decades apart, and that each of them led to more effective drug legislation. In his article, Smith also discusses the controls applied to drugs of abuse, like depressants, stimulants, and hallucinogens, which came under more stringent control in 1965.

The discovery, development, and early testing of new drugs is sketched by J. K. Weston. Beginning with the early folklore, drugs were developed mainly from natural products. Then, as chemical synthesis and pharmacology grew in sophistication, synthetic drugs came to replace many natural products. However, in the antiinfective and antitumor areas, agents isolated from microorganisms and from higher plants continue to be of major medical importance. Weston's comments about the declining importance of reference drugs may be debated, since questions of relative biological availability have greater importance in clinical trials than in pharmacological evaluations, where excipients are usually absent.

G. V. Rossi reviews animal experimentation as a prelude to human drug studies. He highlights the importance of species selection in animal trials, but probably tends to overestimate the utility of these trials in predicting activity in humans. He points out the importance of considerations such as drug metabolism, enzyme induction, genetic differences, protein binding, etc., and cautions that "screening programs formulated by using prototype drugs as standards or templates have a built-in rigidity," which may fail to detect potential new drugs with novel and possibly superior mechanisms of action.

R. M. Hodges reviews the toxicological evaluation of potential drugs, and D. F. Burkholder puts the subject in further context. C. A. Walton, M. M. Reidenberg, and W. S. Frankl are the authors of a series of papers on clinical evaluation which point out the highlights and pitfalls of this complex field of investigation.

H. Mendlike reviews the statistical design and evaluation of clinical drug investigation, and S. L. Wallenstein reminds us of the importance of controls, double-blind procedures, and crossover comparisons. The collection and interpretation of clinical data is described by S. S. Bloomfield, by L. Sigell, and by S. O. Waife, who includes examples of summary tables of data.

Finally S. Schor discusses the current status of the clinical drug literature. He might have said more about the deficiencies of the literature and the very real difficulties in searching for clinical data on new drugs which do not yet have index entries in Medlars. In general, his essay is more relevant to the topic of statistics than to the broader subject of clinical drug literature, but as always he is a delight to read.

This book should interest a wide audience of readers, but it might have developed into a handbook in the field if it had been indexed and more tightly edited. In its present form, it is not likely to be consulted as often as it deserves to be.

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The Chemistry and Biochemistry of Steroids. By Leland J. Chinn, Paul D. Klimstra, John S. Baran, and Raphael Pappo. Geron-X, Los Altos, Calif. 1969. iv + 166 pp. 22 × 26.5 cm. $12.00

This book consists of ten chapters which are based on lectures which were presented by the authors in the graduate studies program of the School of Pharmacy, University of Southern California during the Fall of 1968. The material in the chapters is documented by lists of references at the end of each, but this documentation is selective and, in some cases, is less than a dozen references for the entire topic under discussion. The topics discussed include an introduction to steroid chemistry, a discussion of the significance of the mineralocorticoids and of conformational analysis by Chinn; a discussion of biosynthesis of cholesterol, hypocholesterolemic agents, and estrogenic hormones by Baran; a discussion of oral contraceptives, and androgens, and anabolic agents by Klimstra and a discussion of oxasteroids and total and partial synthesis of steroids by Pappo. For no discernible reason, a list of the scientific publications of all four authors is included and this is followed by an author index and a subject index.

This book does not by any means fulfill the scope suggested by its title, as, for example, the corticoids are not discussed at all. It is merely a written record, with some documentation, of some interesting lectures in the steroid area and as such might constitute a few evenings of reading for a medicinal chemist in the steroid area. Some of the chapters include interesting, unpublished structure–function relationships obtained in the Searle Laboratories where all of the authors are employees. Typographically the book is easy to read and quite free from obvious errors.

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