Book Reviews

Art in Organic Synthesis. By N. Anand, J. S. Bindra, Central Drug Research Institute, Lucknow, India, and S. Ranganathan, Indian Institute of Technology, Kanpur, India. Holden-Day, Inc., San Francisco, Calif. 1970. XIV + 415 pp. 16 × 23 cm.

On a number of occasions graduate students have indicated to me a desire either for formal classroom work or reading references concerning the planning and strategy behind organic syntheses of a challenging nature. The number of extensive published accounts is small and suffers from the fact that the most highly skilled and successful practitioners of the art have not discussed synthesis as a topic in monograph form. This is not to say there are no sources of good material, for example, the chapter by Woodward in "Perspectives in Organic Chemistry" (Todd) and the plenary lecture by Corey in *Pure and Applied Chemistry*, **14**, 19 (1967), are both stimulating reading. I am now pleased to say that there exists a book, "Art in Organic Synthesis," which serves the purpose of explaining synthesis superbly. This is one of those rare technical books which can be read on many levels—first, at leisure and solely for enjoyment, second, to use as a basic text for a course in synthesis or for seminar discussions, or third, as a reference work for looking up ways of carrying out a particular, nontrivial transformation.

The format of the book is the presentation of flow sheets and critical and instructive commentary for one hundred synthetic accomplishments in organic chemistry. These have been selected to appeal to as broad an audience as possible and range from ribonuclease to interlocking rings and include steroids, terpenes, alkaloids, and highly strained hydrocarbons. The drawings are clear and well done and there are abundant literature references not only to the actual syntheses but to reviews of the particular compound. The pages are direct photographic reproductions of the original manuscript and rather free of errors. The only ones noted were the reversal of pages 60 and 61 and the drawing of yohimbine upside-down on page 368.

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Principles and Problems in Establishing The Efficacy of Psychotropic Agents. Edited by Jerome Levine, Burtrum C. Schiele, and Lorraine Bouthilet. Public Health Service Publication No. 2138. U. S. Government Printing Office, Washington, D.C. 1971. xiii + 392 pp. 23.6 × 15.5 cm. $3.25.

This monograph may well become the definitive source of information for conducting and interpreting clinical trials of psychotropic drugs at all stages of investigation, under the extremely complex conditions imposed by the preadult, adult, or geriatric type of patient and volunteer and the placebo reactors needed in such studies. The individual phases are presented by authorities in clinical and experimental psychiatry and psychology, biometrists, statisticians, and computer programming experts. The evaluation of clinical trials of drugs that produce a definite measurable effect such as a drop in parasite count or ion concentrations in various tissues and fluids, is difficult enough, but these problems are multiplied for psychotropic drugs. Every result can be interpreted variably and even investigators who agree on broad experimental design may find themselves on opposite sides of arguments concerning the meaning of a set of behavioral data.

In addition, the first 50 pages present one of the most cogent discussions of the philosophy of clinical drug trials which I have read. The limits of acceptable risks if one wants to measure really effective doses of any new drug in man are delineated clearly. These views lean to the side of the experimental scientist rather than to the stifling idea of "safety at all cost" promulgated by regulatory agencies and lay juries. Here again, where subjective opinion is based on educational background (lawyer *vs.* biologist), the carefully balanced and impeccably presented discussion of this controversial field should serve as a standard of judgement for legal, medical, and political scientists who are involved in reaching decisions about drug trial procedures.

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Chemistry and Biological Actions of 4-Nitroquinoline 1-Oxide. Edited by H. Endo, T. Ono, and T. Sugimura. Springer-Verlag, New York, N.Y. 1971. iv + 101 pp. x cm. $9.90.

The discovery of the carcinogenicity of 4-nitroquinoline 1-oxide by Nakahara in 1957 must have raised a flurry of excitement in the National Cancer Center Research Institute in Tokyo that culminated in the present slender book written by 9 Japanese contributors. The editors who are all among these contributors have done a faultless job in supervising English composition and grammar, and excellent documentation of all data. As may be expected from such a specialized volume, all angles of the chemistry, carcinogenicity, antitumor and microbiological action, metabolism, and interactions with potential receptors of the title compound are presented exhaustively. All contributors write from long personal experience in this field, and have thus made available their expertise and conclusions to others interested in such materials.

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Photometric Organic Analysis. Basic Principles with Applications. Part I. By Eugene Sawicki, Airborne Particulates Section, National Air Pollution Control Administration. Wiley-Interscience, New York, N. Y. 1970. XV + 679 pp. 15 × 23 cm. $32.50.

This book represents Volume 31 in "Chemical Analysis: A Series of Monographs on Analytical Chemistry and Its Applications," edited by P. J. Elving and I. M. Kolthoff, and is concerned with the ultraviolet and visible spectral properties of organic compounds possessing, in most cases, a high degree of electron delocalization. There is extensive use of the more traditional concepts of resonance to rationalize behavior of the various chromophores with little attention paid to quantum-mechanical treatment. I think this approach is entirely satisfactory in this case where the author's goal is to bring together a vast amount of information so that it may be applied in practical situations to the solution of real problems.

The book is very well done and represents an addition in keeping with the high standards of this series.

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Chemistry and Biology of Pteridines. Edited by K. Iwai, M. Akino, M. Goto, and Y. Iwanami. Editorial Committee for IPS Proceedings, Sasaki Institute, Kandra-Surugadai, Tokyo 101, Japan. 1970. xvii + 481 pp. 26.2 × 19.4 cm. $17.00.

In these days of inflation one does not often encounter a beautifully appointed and faultlessly presented monograph at a bargain price, made possible by the financial support of this symposium (Toba, Japan, 1969) volume by 59 Japanese firms ranging from optical and electrical companies to drug manufacturers. The deep fiscal troubles besetting American science could well be allayed if American industry would join in such generous ventures during a period of dwindling governmental funding. The symposium assembled 94 contributors from 7 countries who delivered the 45 papers collected in this volume. Topics range from the isolation and structure determination of naturally occurring pteridines (including folic acid) to syntheses

of pteridines, their metabolism, biosyntheses, pteridine-requiring enzymes, genetics of some pterins, and spectroscopic studies applicable to these classes of compounds. All investigators in this exciting field will want to own this book.

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Biochemical Toxicology of Insecticides. Edited by R. D. O'BRIEN and IZURU YAMAMOTO. Academic Press, New York, N. Y. 1970. vii + 218 pp. 16.3 × 23.5 cm. $8.50.

This book represents the proceedings of the 5th U. S.–Japan Cooperative Science Program held in Tokyo, June 1969. Its title sounds like that of a textbook, which it definitely is not, but it designates a collection of 17 research papers, most of them brief (4–10 typewritten reproduced pages) and some highly specialized. The contents are best characterized in the editors' preface: a cross section of some of the research frontiers in the study of insecticide action and metabolism.

Possibly because of the nature of the meeting there is little cohesion between the individual papers though, from a biochemical standpoint, cholinesterase and the microsomal enzymes figure prominently in the interpretations of experimental results. On the whole, the book resembles an excellent issue of a hypothetical Japanese–American journal on the biochemistry of insecticides. Those who would subscribe to such a journal will be much pleased with this volume.

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Interactions of Drugs with Cells. A Topic in Cell Biology. By D. R. H. GOURLEY. Charles C. Thomas, Springfield, Ill. 1971. xv + 141 pp. 16 × 23.4 cm. $8.50.

This small book is designed to serve as a text in an undergraduate course in pharmacology or cell biology. It will also provide a more advanced reader with up-to-date information on these subjects in a condensed form. The author, well known for his researches in membrane transport systems, quite naturally stresses data bearing on the way a drug gets to its place of action, and only then follows this up by a summary of how drug–cell interactions might produce a cellular response. The language is remarkably clear and understandable. In the chapters on drug receptors, tolerance, and mutagenic and teratogenic effects of chemicals, this is particularly gratifying because so many literature discussions of these ill-defined topics hedge and hide behind noncommittal phrases. Drug metabolism, interaction of drugs with biomacromolecules, and genetic disturbances by drugs are presented particularly clearly. Each chapter contains a brief list of pertinent review citations but there is no documentation of individual statements, as behooves an undergraduate text. The book is beautifully printed and appointed.

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Two Books on Testing Techniques. A. Techniques d'Enzymologie bacterienne. By JEAN BRISOU. Masson et Cie., Paris. 1971. viii + 286 pp. 16 × 24 cm. Paperback, 96 Francs.

B. Methods in Pharmacology. Volume 1. Edited by ARNOLD SCHWARTZ, with 35 contributors. Appleton-Century-Crofts, New York, N. Y. 1971. xiv + 585 pp. 17.4 × 24.3 cm. $26.50.

Each chapter in each of these books opens with brief statements on the significance of the test described; these statements are much more searching and critical in the Pharmacology book than in the French volume. Then follow experimental directions in great detail, again much more critically presented in the Pharmacology treatise. The French directions, written as in a cook book, should be of value for technicians, while the pharmacologic experimental descriptions will require more sophistication.

The pharmacologic test methods include local anesthetic, blood flow, various cardiovascular tests, measurements of hypertension, arrhythmias, mitochondrial and microsomal preparations, work with erythrocyte ghosts, contractile proteins, and others. In addition, biologists will find very useful chapters on the application of nmr to pharmacology, chemical transfer of acquired information, P analysis, and the use of microelectrodes in muscle. The French book systematically describes media, substrates, and bacterial enzyme preparations. Both volumes should be on the laboratory desks of experimental medicinal biologists.

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