

Book Reviews

Advances in Drug Research. Volume 1. Edited by N. J. HARPER (Allen and Hanburys Ltd., Ware, England) and ALMA B. SIMMONDS (Chelsea College of Science and Technology, London). Academic Press Inc., London. 1964. ix + 209 pp. 16 × 24 cm. \$6.25.

This is the first slender volume of a new series in the snowballing field of review monographs on drug research. This particular book contains four articles which have little connection with each other. The grouping of these four chapters under one cover reflects the increasing difficulty of persuading experts to write critical reviews of their own fields in medicinal research. Thus the editors are forced to place side by side those articles which they could get at a given deadline, regardless of the unity of the presentation. This volume contains authoritative reviews on penicillins (F. P. Doyle and J. H. C. Naylor of Beecham Research Laboratories), the physiological transport of drugs (L. S. Schanker, NIH), antitussives (F. P. Doyle and M. D. Mehta), and adrenergic neurone blocking agents (F. C. Copp, The Wellcome Research Laboratories). Assuming that the last two reviews will be of special interest to pharmacodynamically oriented readers, it may be hoped that these readers will also look forward to the excellent article on drug transport. This forms the bridge to the penicillins which should be inherently of interest to a narrower segment of chemotherapists and organic chemists.

Throughout the book emphasis is heavy on chemistry. It would have been an advantage not to interrupt constantly structure-activity discussions with syntheses as has been done in the chapters on antitussives and adrenergic neurone blocking agents. Surely a compound must be made available for biological study, but the scheme of its laboratory synthesis does not contribute to an understanding of its biological behavior.

All chapters have been written with care and are well documented. Indeed, some of the authors give references to statements in monographs which they could not have discovered in the abstracts periodicals. Schanker's chapter on transport mechanisms is one of the best surveys in this area written in recent years.

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ALFRED BURGER

Molecular Modification in Drug Design. A Symposium Sponsored by the Division of Medicinal Chemistry at the 145th National Meeting of the American Chemical Society, New York, N. Y., 1963. FRED W. SCHUELER, Symposium Chairman. *Advances in Chemistry Series*, Vol. 45. American Chemical Society, Washington, D. C. 1964. vii + 228 pp. 16 × 23.5 cm. \$5.00.

Molecular modification is a term currently employed for structure-activity variations. The term seems to have been coined during congressional hearings of the pharmaceutical industry in which an effort was made to discredit the selective processes which guide us from a "lead" compound to a useful drug. The 1963 symposium was arranged in response to these hearings. It was to resurrect the scientific self-esteem of the medicinal chemist, brow-beaten by politicians. It was to unroll the methodology of our science which by deduction, induction, and occasionally by serendipity *via* the trained and specialized mind has produced, since 1935, more potent and more useful drugs than have been recorded in all previous history. The topics discussed at the symposium cover a wide range: after a keynote chapter by M. Tishler, the effect of molecular modification on the development of newer anti-infective agents is presented. J. C. Sheehan writes on the synthetic penicillins, G. Zbinden on sulfonamides, and L. P. Garrod on the impact of these drugs on antibacterial chemotherapy. Five papers are devoted to drugs for cardiovascular disorders. After introductions to hypertension (I. H. Page) and antihypertensive therapy (E. D. Freis), C. J. Cavallito presents beautifully the modern antihypertensive agents except the diuretic antihypertensives which are reviewed separately by J. M. Sprague. Further structural modifications in the sulfonamide field, beyond the thiazide drugs, has led to the anti-

hyperglycemic sulfonylureas which are discussed by F. G. McMahon. The next five papers deal with drugs for disorders of the central nervous system. Some rationales for the development of antidepressant drugs are presented lucidly by J. H. Biel. Phenothiazine drugs with tranquilizing, antiemetic, anti-histaminic, and many other valuable properties are described by M. Gordon, P. N. Craig, and C. L. Zirkle. Narcotic antagonists as analgetics are reviewed by S. Archer, A. S. Keats, and their colleagues. D. G. Friend sums up the role of synthetic drugs in the therapy of mental disease. The clinical control of fertility (G. Pincus), synthetic progestational agents (J. C. Babcock), and androgenic-anabolic steroids (A. Segaloff) conclude the survey of the shimmering array of modern therapeutic agents. Each of these drugs owes its origin to some novel ideas in the mind of one investigator, but none of them could have been selected for use in medicine without carefully planned molecular changes, accompanied by the keen observation of the gradual separation of main and side effects which have characterized the collaboration between biologists and medicinal chemists.

The chapters are in the form of lectures as they were given at the symposium. The outstanding qualities of the contributors made only a minimum of editing necessary. Because of their lecture form, these surveys are addressed both to the medicinal scientist and the chemist and physician whose primary interest does not lie in medicinal specialties. The book, with its brilliant conclusion by the late F. W. Schueler, should be a valuable aid to everyone in the midstream and on the fringes of medicinal chemistry.

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Science Citation Index. Volume 1, 1964. Institute for Scientific Information, Philadelphia, Pa. 1964. 23 × 30 cm.

In November 1963 there appeared the first five volumes of a new bibliographic service entitled *Science Citation Index*. The volumes included some 1.5 million source and reference citations appearing in 613 scientific and biomedical journals published in 1961. The current volume is the first of a series of quarterly volumes which attempt to cover all major disciplines of science. They are to be cumulated at the end of the year in the last issue for 1964 which is scheduled for publication in April 1965.

The decision to publish the citations currently on a quarterly basis meant that the source years 1962 and 1963 had to be skipped. On the other hand, the present volume includes patents as well as articles from some 650 source journals. It is expected that all of the 50,000 domestic patents to be issued during 1964 will be covered.

The purpose of this vast and expensive venture is to direct a searcher from one to other related works by giving him references to articles which have cited the original work in its bibliography or footnotes. In short, the index helps a searcher to determine subsequent papers which have included a particular reference.

The arrangement of the citations is in alphabetical order by the name of the first author of the article which has been quoted or cited in subsequent works, or by the patent number in the *Patent Citation Index*. A companion compilation, entitled *Source Index*, contains the full titles of the articles and patents in which the citations have appeared, names of coauthors and assignees of patents, and other bibliographic data.

Needless to add, this like other current giant indexing ventures in the natural sciences is being accomplished using computers which place certain limitations on the product. For example, only 18 characters have been allowed for the name of the cited author, including 3 initials, and cited journal title abbreviations are cut off at a maximum of 20 characters. The reference year is represented by the last two digits only. Thus, "62" could mean 1962, 1862, or 1762.

Another limitation growing out of the use of initials instead of complete first names is the listing under a single name of articles by two authors having identical last names and initials. However, the citations to each individual article cited are separated by indented dotted lines.

Probably the greatest impediment against subscribing to the service is the price. Colleges, universities, medical schools, and similar educational institutes pay \$1250 annually, while industrial organizations, governmental agencies, and nonprofit organizations primarily engaged in industrial and/or governmental contract research and services are charged \$1950 for the first copy. It appears likely that these figures may increase in future years, as subscribers to *Chemical Abstracts*, *Index Medicus*, and similar publishing ventures may have learned in recent years.

In an article by Eugene Garfield [*Science*, **146**, 649 (1964)] it is claimed that the index ". . ." is the first really serious attempt at universal bibliographical control of the science literature since the turn of the century." Whether citations from 600 journals in 1964 represent "universal bibliographical control" may be subject to serious question. On the other hand there is a continuing need for the bibliographic coverage of the scientific literature since the existing indexing and abstracting services may not have reached the degree of speed, ease of use, and comprehensiveness which many scientists may desire. Moreover, the index, if continued over a period of generations, will provide future historians with an invaluable source to the history of ideas in science. Seen from this perspective the *Science Citation Index* requires careful evaluation.

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WILHELM MOLL

Pharmaceutical Microbiology. By MALCOM HARRIS. Bailliere, Tindall and Cox, London. 1964. vii + 269 pp. 15 × 23 cm. \$7.00.

The author has written a text for the student of pharmacy and allied medical sciences which concisely presents the fundamentals and techniques most important to those interested in pathological microbiology and public health. The first part of this book, besides including chapters on basic microbiology, contains excellent directions for experimental techniques such as: slide preparation and staining, culture media preparation and use, bacterial counts, and isolation of colonies. The second section deals with applied microbiology and concerns itself with human diseases, their pre-

vention and treatment. The author covers these areas in well-written chapters on immunology, chemotherapy, disinfection, sterilization, and bacterial chemistry.

The book is inexpensive, clearly written, and contains good experimental instructions for the student. Whether the reader is a student or someone desirous of obtaining a fundamental background in medical microbiology, he will find it a welcome addition to his library.

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CHARLES J. PAGET

Handbook of Chemistry and Physics. Edited by R. C. WEAST, S. M. SELBY, and C. D. HODGMAN. 45th Ed. The Chemical Rubber Co., Cleveland, Ohio. 1964. xxi + 1461 pp. 27 × 20 cm.

After 46 years of continuous publication, this old stand-by of generations of chemists, chemical engineers, and physicists, has expanded its physical dimensions to a large treatise format. This change in page size has made it possible to continue under one cover the presentation of the snowballing amount of data which the modern scientist would expect to find in a handbook. For example, approximately 5000 more compounds have been added to the table of physical constants of organic compounds, and the description and history of the elements has been reorganized and updated. The usual excellence and clarity has been maintained in the mathematical tables. The sections on isotopes, inorganic compounds, and physical constants have been greatly augmented and contain most of the information needed in connection with the use of modern instrumentation. There are conversion tables, the whole recommended list of organic nomenclature (IUPAC, 1957), thousands of definitions of terms, and formulas for chemical and physical calculations. No doubt whoever does not yet own a very recent copy of the Handbook will want to acquire this new edition.

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CORRECTION

Ti Li Loo, author of a Note (Purification of Aminopterin) which appeared in *J. Med. Chem.*, **8**, 139 (1965), wishes to apologize to Dr. Seeger and co-workers for overlooking their paper [D. R. Seeger, D. B. Cosulich, J. M. Smith, Jr., and M. E. Hultquist, *J. Am. Chem. Soc.*, **71**, 1753 (1949)] in which they described the purification of aminopterin by essentially the same method.