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Book Reviews

Arzneimittel: Entwicklung, Wirkung, Darstellung. Edited by Gustav Ehrhart and Heinrich Ruschig. 2nd edition. Vol. 1. Therapeutics Acting on the CNS. xii + 382 pp. Vol. 2. Therapeutics Acting on the Peripheral Nervous System. xii + 471 pp. Vol. 4. Chemotherapeutics, Part 1. xii + 443 pp. 24.5 × 17.5 cm. In preparation: Vol. 3. Drugs Acting on the Respiratory and Digestive Tracts. Vol. 5. Chemotherapeutics, Part 2. Verlag Chemie, Weinheim/Bergstr. 1972. Each volume DM 330, all 5 volumes DM 1450.

When the last two volumes of this treatise will have been published this year, the medicinal chemist will have available one of the most thorough and extensive systematic surveys of drugs and their syntheses ever compiled by a homogeneous group of authors. The late Professor Ehrhart, together with Professor Ruschig, has assembled over 60 chemists, pharmacologists, and microbiologists within the laboratories of Farbwerke Hoechst A.G. to present the discovery, development, mode of action, and synthesis of all major classes of drugs. Arranged according to the diseases they are used to combat, and subdivided according to structural types, all drugs are arranged in a standardized way. A description of physiological conditions or parasitic life processes whose aberrations lead to disease introduces each chapter. Chemists whose training in neuroanatomy, neurophysiology, or microbiology is usually below par, will appreciate the concise, clearly written, and richly illustrated orienting articles in these fields. The discovery and development of drugs varies slightly in quality from one class of drugs to another. Older types, many of which made their first appearance in Europe, are described superbly. Many obscure yet significant historic vignettes will be found here, lovingly documented by contributors whose teachers told them the authentic tales of those events. For many of the drugs introduced in the last 30 years, mostly in the United States and the United Kingdom, the authors had to rely on published and patented information, and the fascinating accounts of their development become thinner.

The mode of action of all drugs is treated on a modern biochemical basis. Finally, without interrupting this narrative, a concluding section deals with the actual mode of synthesis and manufacture of each type of drug.

Each chapter also contains ample information on clinical uses of the drugs under discussion, and critically enumerates advantages, drawbacks, and side effects that limit the respective therapy. The amount of these clinical surveys is just broad enough to satisfy the nonclinical medicinal scientist, and not so detailed as to confuse him.

The American reader will have to overcome the difficulties of reading close to 2000 pages in German. He will be bewildered by the thousands of European Trade Names used in all chapters, although generic names will be found everywhere. He will wonder about the stories of priorities of drug discovery which give credit to foreign scientists while in some domestic texts some such credit has been given to American investigators. Where these stories are adequately

documented, however, we may have to conclude that not all our domestic information has been unbiased.

A treatise of such magnitude and scope should have been prefaced by general chapters on the theory of drug design and drug action, and by both chemical and physical methods which point the way to the scientific treatment of medicinal chemistry. There is no such chapter in these volumes; a few pertinent explanations of drug action based on physical-chemical data are interspersed in the text at appropriate junctures. This lack of generalization may be an admission of our present ignorance which, when the chips are down for a clinically useful agent, often condemns us to empiricism as of old.

The second drawback of these books is that molecular modification in each field is illustrated only by the progress from one clinically useful drug to another. Perhaps lack of space dictated this restriction, but the many fascinating and suggestive data divulged by molecular modification of clinically unsuccessful agents has been short-changed. This does not, however, detract from the enormity of this treatise, from the unified style and format in these books, and from the authenticity and care with which they have been prepared.

Few would-be readers will be able to afford these volumes. At the present rate of our monetary devaluation, they cost at least \$470.

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Tremors and Tremorogenic Agents. Roger W. Brimblecombe and Roger M. Pinder. Bristol Scientifica, Bristol, England. 1972. ix + 196 pp. 29.9 × 15 cm. £5.00.

Since Pelnar's clinically oriented book, *Das Zittern* (1913), no other book has covered the phenomenon of tremors. The present authors have pooled their experiences in pharmacology and medicinal chemistry to depict the present status of our knowledge (through 1970) of tremors, their possible causation, experimental production, and their treatment. Behind this compilation looms Parkinson's disease, and much of this book deals with this syndrome. A description of the physiology and pathology of tremor, its classification, and its measurement in animal models introduces the reader to this field. The chemical production of tremor, with emphasis on oxotremorin, is presented well and takes into account the many molecular modifications of tremorogenic agents. This section is followed by a good discussion of tremorogenic mechanisms (amine and cholinergic types) and a short summary of antiparkinsonism drugs. The last few pages float off into speculations about biochemical and neurophys-

iological correlations, but some of these less orthodox ideas may well give rise to future more concrete hypotheses.

The book is written in readable and unusually good English and should become a must for those interested in hyperkinetic phenomena.

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Heterocyclic Compounds. Volume 25. Indoles, Part I and Part II.
Edited by W. J. Houlihan, with 7 other contributors. John Wiley and Sons, Inc., New York, N.Y. 1972. Part I. ix + 587 pp. 15 × 22.6 cm. \$48. Part II. 616 pp. \$48.

Indole has long occupied an important place in heterocyclic chemistry. The initial interest, beginning in the midnineteenth century, centered around its use by the dyestuff industry. More recently indole has achieved considerable importance because of the recognition that it forms the nucleus of a wide variety of natural products derived from both plants and animals. The realization that many of these substances have interesting pharmacologic activity has prompted medicinal chemists to exert a vigorous synthetic effort in this area.

This treatise of indole chemistry forms a useful addition to "The Chemistry of Heterocyclic Compounds" series and replaces Volume 8 on the same subject. It is editorially divided into three parts. The first part was designed to give the student of heterocyclic chemistry a general knowledge of the physical properties and chemical behavior of indoles and synthetic methods useful for preparing this ring system. The second and third parts are composed of chapters which are devoted to specific aspects of indole chemistry and have a more complete coverage of the literature. The work appears to be based primarily on the literature through 1968. More recent references, when given, have for the most part been added as foot-

notes or addenda. Each part has a good subject index, but no author index.

Indoles. Part I. The first chapter by W. A. Remers is devoted to a good discussion of the physical properties and chemical reactions of the indole nucleus. In addition, some attention has been given to the indoline, indolenine, and isoindole systems as well as the oxygenated indole derivatives isatin, oxindole, and indoxyl. The section on physical properties includes topics such as π molecular complexes, solubility, acidity and basicity, X-ray crystallography, and tautomerism, as well as a particularly good discussion of spectroscopic properties of indole derivatives including the theoretical aspects and applications to structure determination. A short section on theoretical treatments of properties and reactions discusses indole in terms of both resonance and molecular orbital theory. The bulk of the chapter is devoted to a comprehensive discussion of the important chemical reactions of indole and is seasoned with a wealth of mechanistic detail.

The second chapter by Robert K. Brown provides an excellent survey of the classical methods of indole synthesis from the vantage point of the modern organic chemist. The discussion emphasizes mechanistic interpretations of these often-well-known reactions based on studies from the current literature. In addition, this chapter includes a survey of new methods of indole synthesis many of which may prove to be of considerable importance to the heterocyclic chemist.

Indoles. Part II contains chapters devoted to the "biosynthesis of compounds containing an indole nucleus; alkyl, alkenyl, and alkynyl indoles; haloindoles and organometallic derivatives in indoles; indoles carrying basic nitrogen functions; and oxidized nitrogen derivatives of indole." Each of these chapters probes the specific aspect of indole chemistry in detail and except for the chapter on biosynthesis, summarizes the literature in tabular form.

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