

effect of the introduction of an *N*-oxide function into a compound, it is disappointing that so few biologically useful *N*-oxides have been found. The two amine oxides having the most widespread use, chlordiazeponoxide and 2-mercaptopyridine 1-oxide, are not aromatic *N*-oxides despite the nomenclature of the latter. One of the chapters of Professor Eiji Ochiai's "Aromatic Amine Oxides," reviews in detail the attempts to employ *N*-oxidation in favorably altering biological properties.

Other chapters of this comprehensive and informative treatise cover the history, the preparation, and the reactions of the aromatic heterocyclic *N*-oxides. Electrophilic and nucleophilic substitution of compounds containing *N*-oxides and the effects of an *N*-oxide function upon other substituents are reviewed.

As befits a true expert, Professor Ochiai has called upon another, Dr. C. Kaneko, to provide a chapter on the physicochemical properties of the amine oxides. The book is limited to the aromatic *N*-oxides as its title indicates, but aliphatic *N*-oxides receive some attention for the purposes of differentiation.

It is a tribute to Professor Ochiai's 1953 article in the *Journal of Organic Chemistry* (18, 534) that so much of the western synthetic work recorded here was stimulated by that seminal review. Nevertheless, a large part of the original work on *N*-oxides has been published in Japan, and it is helpful that experimental details for many syntheses are provided in this volume.

The personal identification of Professor Ochiai with this segment of organic chemistry—an identification of a type that is rare nowadays—makes this an especially attractive book. Its long-term usefulness makes it well worth owning.

The translation is serviceable but is not always idiomatic and better editorial work by the publisher might have changed such awkward usage as "active to substitution." A grossly incomplete author index is included. The literature has been reviewed through 1963.

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Fundamentals of Immunology. 4th ed. By WILLIAM C. BOYD. Interscience Publishers, Inc., 605 Third Ave., New York, NY 10016, 1966. xvii + 773 pp. 15.5 × 23 cm. Price \$14.95.

"Fundamentals of Immunology" continues to be an excellent text for the beginning student and as indicated in the title, does not require previous knowledge of the subject. Exception must be taken to the phrase on the fly-leaf, "completely rewritten." Although there has been updating in some chapters, it might be more accurate to state that the book has been reprinted. It is difficult to know just how much material on laboratory and clinical techniques should be included in a book of this type, but it is this reviewer's opinion that more techniques should have been added rather than deleted in this issue. This reviewer also feels that development of fluorescent antibody techniques and applications would have been advantageous to the reader.

As in previous editions, all phases of immunology are developed or at least mentioned. The book includes chapters on: Immunity and Immunology, Antibiotics and Antibody Specificity, Antigens, Cell Antigens, Blood Groups, Antibody-Antigen Reactions, Complement and Complement Fixation, Immediate Hypersensitivity, Delayed Hypersensitivity, Non-Immunological Equivalents of Hypersensitivity Reactions, Hypersensitivity and Immunity, Immunological Tolerance and Intolerance, Autoimmunization and Disease, Immunity in Action, Practical Use of Immunity and Hypersensitivity, Laboratory and Clinical Technic, and Quantitation and Statistical Methods in Immunology. Comprehensive references are provided at the end of each chapter for those individuals who wish to delve more deeply into the text material.

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Peptides. Edited by H. C. BEYERMAN, A. VAN DE LINDE, and W. M. VAN DEN BRINK. North-Holland Publishing Co., Amsterdam, Holland. Available in the U. S. from John Wiley & Sons, Inc., 605 Third Ave., New York, NY 10016, 1967. xii + 292 pp. 15.5 × 23 cm. Price \$14.50

This book, the latest in the series of publications of the Proceedings of annual European Peptide Symposia, is a welcome addition to the desk of researchers interested in peptide work. There are eight sections, and each section contains the presentations by authors intimately associated with the material presented. Bibliography of most of the articles in this book is most up-to-date and is intended to familiarize the reader with pertinent information concerning various aspects of peptide chemistry.

While the sections of this book devoted to coupling methods, protecting groups, synthesis of peptides with polymeric supports, and mass spectroscopy in peptide chemistry, are of general interest, the medicinal chemists, however, will benefit most from sections on sequential polymers, racemization, and biologically active peptides. Among the peptides with biological activity, a very interesting discussion is focused on the recent developments in the synthesis of biologically active corticotropin fragments. Several peptides with biological activity, such as human gastrin, glucagon, secretin, melittin, and others, have also been discussed from a synthetic and biological activity point of view.

The only improvement in this book would have been the inclusion of subject index.

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