

Book Reviews*

Animal, Plant, and Microbial Toxins. Volume 2. Chemistry, Pharmacology, and Immunology. Edited by A. OHSAKA, K. HAYASHI, and Y. SAWAI. Plenum Publishing Corp., New York, N.Y. 1976. xxv + 562 pp. \$59.50.

The second volume of these Proceedings is even more unsettling than the first. The emphasis is on snakes and scorpions, the venoms of which are largely proteins. Many of the papers describe the isolation of the toxins and determination of the sequence of the amino acids. The section on chemistry is followed by a large one on pharmacology, a small one on immunology, and a group of papers on clinical aspects. These include case histories, including one of a man who "was bitten on the left foot at 2:30 A.M., 28 October, 1968, while sleeping in his house", by a disrespectful krait. Some very clinical photographs embellish this section. The book is well produced and well indexed; it should have a substantial interdisciplinary appeal, but will bring no joy to the tourist industry.

Rodd's Chemistry of Carbon Compounds. Second Edition. Volume 1. Part G. Edited by S. COFFEY. Elsevier Scientific Publishing Co., Amsterdam and New York. 1976. xiv + 344 pp. \$51.95 (subscription price \$44.25).

Part G of Volume 1 is devoted to tetrahydric alcohols and their analogs, derivatives, and oxidation products. It is the last part of Volume 1 and contains a cumulative index for the entire volume. There is but one chapter in this book, written by J. E. G. Barnett and P. W. Kent. Its content reflects a broad interpretation of its title, for it includes hydroxy and oxo dicarboxylic acids, and even alkenetetracarboxylic acids. There is thus a lot of material covered in its brief 50 pages (the index takes the lion's share of the pages).

Thermal Conductivity. 14. Edited by P. G. KLEMENS and T. K. CHU. Plenum Publishing Corp., New York, N.Y. 1976. xv + 566 pp. \$45.00.

This volume is the proceedings of the fourteenth of the International Thermal Conductivity Conferences, which was held in June, 1975. It consists of a large number of papers photoreproduced from typescript. They are generally reports of original research and include tables, graphs, and references, and in many instances experimental details, although some papers are unfortunately only abstracts. The general areas covered are: Solids at Low Temperatures; Solids at High Temperatures; Reference and Technical Materials; Gases and Fluids, and Experimental Methods and Numerical Analysis. There is a brief subject index.

Topics in Current Chemistry. Volume 45. Dynamic Chemistry. Springer-Verlag, Berlin. 1974. 221 pp. \$22.40.

Five topics are covered as described below, each with numerous additional references.

I. Empirical Force Field Calculations. By Cornelius Altona and Dirk H. Faber (The University, Leiden). A general overview of these calculations is given for the benefit of the slightly knowledgeable reader who wishes to unify his own understanding of the techniques. There follow a discussion of the properties calculated (energies, vibrational frequencies, geometries) and a discussion of the energy parameters which are used in the calculations (bond force constants, rotations, bond angle forces, nonbonded forces). A short but useful section deals with specific methods used to approach the minimum strain energy, as well as a short block flow diagram of the calculation

process. The remaining pages are devoted to specific molecules which have been treated by several submethods for comparison.

II. The Removal of Orbital Symmetry Restrictions to Organic Reactions. By Frank D. Mango (Shell Development Co.). The processes by which transition metal complexes cause a relaxation of symmetry restrictions due to the loss of bond order in organic reactions is discussed. Detailed explanations using diagrammatic methods are given for a large number of specific examples. Adequate attention is given to alternative views on the process, but the chapter is primarily intended to explain many of the observed reactions as due to the opening of normally forbidden pathways by metal-ligand interactions.

III. The Relationship between Mass Spectrometric, Thermolytic and Photolytic Reactivity. By Ralph C. Dougherty (Florida State University). Correlations are made among the reaction processes occurring in excited molecular states produced thermally, photolytically, or by electron impact. Positive and negative correlations are discussed in terms of the exact natures of the respective excited states, namely the electronic state, internal energy, and charge.

A list of qualitative guidelines is given to aid in making future correlations and predictions. Several exceptions are given which indicate the limits of value of the correlations. A very large number of specific examples are given which serve to illustrate the points of the text.

IV. Chair-Chair Interconversion of Six-Membered Rings. By J. Edgar Anderson (University College, London). The problems of conformational changes in six-membered rings is discussed in clarity and simplicity without sacrificing attention to necessary detail. The reader is led into the discussion from a point of basic understanding common to all. Each main type of atomic interaction important to the conversion process is discussed in turn and illustrated by specific comparative examples. Heterocyclic, cyclo-substituted, fused rings, and unsaturated rings are included in subsequent sections.

V. Dynamics of Eight-Membered Rings in the Cyclooctane Class. By Frank L. Anet (University of California at Los Angeles). Conformational changes of a number of eight-membered rings are discussed in relation to energy barriers between forms, strain energies, multiple pathways, and effects of substituent groups. Experimental evidence is provided by dynamic NMR results. A use of concise notation and terminology requires a basic familiarity by the reader with the processes involved, but does not preclude understanding for the less practiced reader. Explanation of all processes use specific examples, some including actual NMR spectra, tables of strain energies, and unambiguous drawings.

J. Gary Pruett, *University of Pennsylvania*

Encyclopedia of Environmental Science and Engineering. Volumes 1 and 2. Edited by J. R. PFAFFLIN and E. N. ZIEGLER (University of Windsor and Polytechnic Institute of New York). Gordon and Breach, New York, N.Y. 1976. xvi + 1091 pp. \$180.00.

These two volumes cover a wide variety of topics of interest to students of environmental problems. Included are general discussions of pollution, waste and water problems, pesticides, environmental health and law, various aspects of microbiology, energy sources, desalination, reverse osmosis, sulfur removal, and urban problems. The educated layman would find these two books extremely valuable as a source of useful information since most sections present material on an introductory level. Most sections include an extensive bibliography.

M. C. W. Smith, *University of Michigan*

* Unsigned book reviews are by the Book Review Editor.