

Additions and Corrections

2,3-Diphenylvinylene Sulfone [*J. Amer. Chem. Soc.*, **87**, 5804 (1965)]. By LOUIS A. CARPINO and LOUIS V. MCADAMS, III, Department of Chemistry, University of Massachusetts, Amherst, Massachusetts.

Reference 21 should read: G. Hesse, E. Reichold, and S. Majmudar, *ibid.*, **90**, 2106 (1957).

Stereospecific Cationic Rearrangements of *syn*- and *anti*-Bicyclo[6.1.0]nonane Derivatives [*J. Amer. Chem. Soc.*, **92**, 4274 (1970)]. By C. DALE POULTER, EDWIN C. FRIEDRICH, and S. WINSTEIN, Department of Chemistry, University of California, Los Angeles, California 90024.

In Scheme I, the arrow between *syn*-5d-OH and 10 should be reversed. In Table II, ΔS^\ddagger for *anti*-5d-OPNB is -9.3 eu.

The Thermochemistry of 1,2-Dioxetane and Its Methylated Derivatives. An Estimate of Activation Parameters [*J. Amer. Chem. Soc.*, **92**, 6553 (1970)]. By H. EDWARD O'NEAL and WILLIAM H. RICHARDSON, Department of Chemistry, San Diego State College, San Diego, California 92115.

Table V should read as follows.

Table V. Calculated Available Energies from the Decomposition of 1,2-Dioxetanes

Reactant	$\Delta H_r^{\circ a, b}$	$(E_1 - \Delta H_r^{\circ})^a$
Ia	-55.4	76.9
Ib	-58.8	80.5
Ic	-61.1	84.0
Id	-62.2	84.9
Ie	-63.2	84.9
If	-65.6	89.3
Ig	-68.8	93.5

^a Kcal/mol. ^b $\Delta H_r = H_f^\circ(1,2\text{-dioxetane}) - \Delta H_f^\circ(\text{carbonyl products})$.

Note that the argument regarding those species capable of light emission as a result of reaction exothermicity is unchanged. Only reactant Ia has insufficient energy.

Methylchlorocarbene [*J. Amer. Chem. Soc.*, **92**, 6951 (1970)]. By ROBERT A. MOSS and ANDREW MAMAN-

TOV, Wright Laboratory, School of Chemistry, Rutgers, The State University of New Jersey, New Brunswick, New Jersey 08903.

Methylchlorocyclopropanes I-V have also been prepared by G. A. Olah and J. M. Bollinger [*J. Amer. Chem. Soc.*, **90**, 6082 (1968)] and J. M. Bollinger, J. Brinich, and G. A. Olah [*ibid.*, **92**, 4025 (1970)] using an alternative procedure. The nmr assignments of the *syn*- and *anti*-1-chloro-1-methyl-*cis*-2,3-dimethylcyclopropane isomers are reversed in the latter paper. Future discussions of these isomers should employ the assignments of Moss and Mamantov.

Perfluorophenylsilver [*J. Amer. Chem. Soc.*, **92**, 6985 (1970)]. By KWOK K. SUN and WILLIAM T. MILLER, Department of Chemistry, Cornell University, Ithaca, New York 14850.

The first unnumbered equation on page 6985 should be a part of footnote 6.

Halomethyl Metal Compounds. XXXIX. Reactions of Phenyl(trihalomethyl)mercury-Derived Dihalocarbenes with Cyclic Allylic Alcohols, Acetates, and Methyl Ethers [*J. Amer. Chem. Soc.*, **92**, 7412 (1970)]. By DIETMAR SEYFERTH and VIRGINIA A. MAI, Department of Chemistry, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139.

Throughout this paper, change all 3-cycloalkenol names to 2-cycloalkenol. Involved are 3-cyclohexenol, 3-cycloheptenol, 3-cyclooctenol, and 3-cyclononenol, all of which are the 2-cycloalkenols (*i.e.*, the allylic alcohols, 3-hydroxycycloalkenes).

On page 7413, under Results and Discussion, line 7, change bicyclo[6.1.0]nonanol-1 to bicyclo[6.1.0]nonanol-2.

Biosynthesis of Pyridoxine [*J. Amer. Chem. Soc.*, **93**, 518 (1971)]. By R. E. HILL, R. N. GUPTA, F. J. ROWELL, and I. D. SPENSER, Department of Chemistry, McMaster University, Hamilton, Ontario, Canada.

The first word of line 6 (below Table II) of the right-hand column of page 520 should read 5-deoxy-D-xylulose and not 5-deoxy-D-xylose, as now appears.

Book Reviews

Organic Synthesis. Volume 2. By MARY FIESER and LOUIS FIESER, Harvard University. Interscience Publishers (John Wiley & Sons, Inc.), New York, N. Y. 538 pp. \$17.50.

The Fiesers' second volume updates, revises, and adds immensely to the content and worth of their first compilation of organic reagents. The need for a sequence of handbooks such as the Fiesers'

have provided has long been recognized, and the authors' almost traditional association with, keen awareness of, and interest in the special techniques of organic chemistry make the reading and study of these works especially worthwhile. The coverage of this second volume adds to those reagents found in the first book some 1320 new references. In addition, 226 reagents not covered in the first

compilation are now reviewed. Not all of these reagents have been developed since the first volume, and thus the first book is not only updated, but coverage is also expanded. Continuing in the style of the first volume, there are a number of unique elements to this new handbook. The book contains not only a wealth of reagents but a broad spectrum of the literature to serviceable practical methods and recipes for the bench chemist. Again the index is complete, well organized, and nicely arranged as separate subject and reaction-type sections, so that any particular reaction may be conveniently found. The index section of errata for the first volume is helpful, although the important note on the shock sensitivity of *p*-toluenesulfonyl azide tucked away at the end of this section could have had more exposure. Indeed, warning indications of hazardous procedures or of highly toxic reagents are rarely mentioned. There are a number of rather easily identified errors in Volume 2. It is hoped that, as in the errata of this new volume, these errors will be corrected in a third compilation and revision.

Of necessity, the Fiesers have been selective of their material and occasionally some chemists may be disappointed that their particularly favored, useful reagent is omitted. Nevertheless, this book provides an extraordinary amount of highly organized practical data for quick reference. I would recommend the purchase and use of both volumes by all practicing organic chemists.

Richard G. Lawton, *University of Michigan*

Medicinal Chemistry. Third Edition. Edited by ALFRED BURGER, University of Virginia. Interscience Publishers (John Wiley & Sons, Inc.), New York, N. Y. 1970. Part I: xix + 835 pp. \$37.50. Part II: xv + 1181 pp. \$37.50.

New subdivisions of areas once considered to be homogeneous have resulted from greater knowledge of mechanisms of action of drugs. Thus ample justification is made for thirteen additional chapters and the current excellent third edition of this well-known treatise. Editor Burger called upon 86 experts including himself to cover various areas of the interdisciplinary field of medicinal chemistry through the year 1967 and often beyond. Positive results are emphasized. Details of organic synthesis, outlined in previous editions, have been largely omitted except by reference, no doubt primarily in an effort to save space. But omission of the concrete tools of the medicinal chemist provides further evidence that his science is becoming one with pharmacology.

J. H. Burckhalter, *The University of Michigan*

Ion Molecule Reactions. By E. W. McDANIEL, V. CERMAK, A. DALGARNO, E. E. FERGUSON, and L. FRIEDMAN. Interscience Publishers (John Wiley & Sons, Inc.), New York, N. Y. 1970. \$19.95.

This volume is in effect a collection of five review articles by five distinguished workers in the field of ion-molecule processes. Although the authorship of each chapter is not separately credited, it seems that each was written independently of the other.

Almost half the book is taken up with a review of experimental methods. This chapter is complete, well-organized, and authoritative. A slight problem, which is almost inevitable in such a rapidly developing field, is that some important developments of the last year or two are not covered.

The chapter entitled "Theory of Ion-Molecule Collisions" is really concerned with the quantum theory of scattering. The treatment is fundamental, mathematical, and so general that most of it applies to all collision processes, not just ion-molecule reactions. Indeed most of this material is already available in standard textbooks dealing with scattering theory. While this formal presentation is impressive, chemists will miss an account of the simple conceptual ideas and approximations which underlie the understanding of chemical change, particularly in the field of ion-molecule reaction. To an extent this is made up by the chapter on "Ion-Molecule Chemistry" which discusses miscellaneous aspects of the subject. But this reviewer was disappointed not to find anywhere in the book a critical, unified, and reasonably complete account of current theoretical and conceptual understanding of ion-molecule reactions.

The review of "Reaction Rates from Ionospheric and Airglow Data" is a concise and readable account of the subject. The final chapter which summarizes quantitative data is equally valuable.

Richard Wolfgang, *Yale University*

Advances in Heterocyclic Chemistry. Volumes 11 and 12. Edited by A. R. KATRITZKY and A. J. BOULTON, University of East Anglia. Academic Press, New York, N. Y. 1970. Volume 11: x + 568 pp. \$27.50. Volume 12: ix + 339 pp. \$18.00.

It is an unusual event to have two volumes in an "Advances" series in one year. Volume 11 has chapters on naphthyridines, benzothiofenenes, and quinuclidines, in addition to chapters on physicochemical properties of pyrroles and photochemistry of heterocycles. The preface is dated November 1969, but the cut-off date for the chapters was evidently much earlier; references after 1968 are not evident, and one chapter has none after 1967.

Volume 12 contains reviews in depth on selenophenes, 3-piperidines, imidazoles, lactim ethers, and electrolysis of N-heterocyclic compounds. In addition, this volume contains a three-page cumulative index of titles for the first twelve volumes. The preface is not dated, but one chapter has many references to 1969 papers, whereas the others refer to almost nothing after 1968. All chapters are in polished, idiomatic English, although the selection of authors is impressively international, and no mention is made of the efforts of a translator. Both volumes are thorough and authoritative and will be very useful.

Biomedical Polymers. Edited by A. REMBAUM and M. SHEN, California Institute of Technology and University of California, Berkeley. Marcel Dekker Inc., New York, N. Y. 1971. xi + 292 pp. \$17.50.

This book presents the proceedings of a symposium held in 1969, and consists of sixteen chapters divided into the categories General, Properties and Compatibility, Potential Biomedical Polymers, and Future Developments. References are given in each chapter, but the number is rather small (4 to 26), consistent with the relative newness of the field.

The Chemistry of Functional Groups. SAUL PATAI, Series Editor. **The Chemistry of Alkenes. Volume 2** (xiv + 669 pp. \$31.00). **The Chemistry of Carbonyl Compounds. Volume 2** (xv + 428 pp. \$23.00). **The Chemistry of Amides** (xv + 927 pp. \$38.50). All edited by J. ZABICKY, Weizmann Institute of Science. Interscience Publishers (John Wiley & Sons, Inc.), New York, N. Y. 1970.

The appearance of three more volumes in this very useful series in one year is worthy of special note. The great effort required of editors of books such as these, which consist of chapters by a large number of authors, are not always properly appreciated, but some insight into the problems is given by the Forewords, in each one of which apologies are given for the fact that certain chapters had in the end to be omitted, owing to failure of authors to deliver. The volumes on carbonyl compounds and amides carry 1970 dates at the foot of the Forewords, whereas the Foreword to the volume on alkenes is dated 1968; these dates might be thought to give some idea of the timeliness of the literature coverage. Curiously, a few chapters in one of the volumes (alkenes) show the date when the manuscript was received, but the other volumes show nothing. This information would be valuable to have for every chapter of all books of the series, and, for that matter, of all other books containing chapters by many authors; such information would save the serious reader much work when he wishes to bring his acquaintance with the subject up to date.

The volume on alkenes supplements what is in Volume 1, which appeared in 1964. It includes chapters on nmr spectroscopy, alkene carbonium ions and carbanions, photochemistry, mass spectrometry, radiolysis, alkene rearrangements, hydrogenation, alkene complexes with transition metals, unsaturated polymers, and, somewhat surprisingly, olefinic properties of cyclopropanes. As usual, the bibliographies are extensive and the reviews are well organized and critical.

The volume on carbonyl compounds is actually concerned with the narrower subject, aldehydes and ketones. It is also a supplement, containing topics not included in the original volume published in 1966. These include radiation chemistry, mass spectrometry, equilibrium additions to carbonyl compounds, oxidation, enolization, and oxocarbons.

The volume on amides was meant to cover the entire range of carboxamide chemistry, which it does with great success in thirteen chapters ranging from synthesis to radiation chemistry. Only analysis and mass spectrometry are omitted. In the same rubric are included thioamides, hydrazides, and imides (rather strangely called "imide compounds"), but not sulfonamides, etc.

All three volumes have comprehensive author and subject indices, the former being about three times as long as the latter, although one would think them the less important.

Chemical Kinetics. Second Edition. By B. STEVENS, University of South Florida. Chapman and Hall Ltd. Distributed in the U. S. A. by Barnes & Noble, Inc., New York, N. Y. 1970. viii + 110 pp. \$2.00

This small paperback contains a lucid, nonspecialized review of the subject for undergraduates and for graduates in fields peripheral to chemistry. Unfortunately, it cannot be recommended, for pages 40, 41, 44, and 45 are missing, and in their place pages 96-97 and 100-101 are duplicated. This is a printing, not binding, error, and presumably affects the entire edition.

pH Meters. By A. WILSON, Unilever Research. Barnes & Noble, Inc., New York, N. Y. 1970. 119 pp. \$6.50.

This is a guide for technicians and others making heavy use of pH meters. Theory is presented from an elementary level, but the bulk of the book is concerned with application, including industrial, biological, and medical aspects, with much practical detail. There are useful appendices, including comparison in tabular form of twenty-three different makes of meters and six automatic titrators.

Encyclopedia of Industrial Chemical Analysis. Volume 10. Edited by FOSTER DEE SNELL and LESLIE S. ETTRE. John Wiley & Sons, Inc., New York, N. Y. 1970. xiii + 680 pp. \$45.00.

This volume covers "Cigarettes" to "Copper" by way of "Coffee" and "Contraceptives," and is clearly in the mainstream of modern industrial culture.

International Conference on Singlet Molecular Oxygen and its Role in Environmental Sciences. Edited by A. M. TROZZOLO, Bell Telephone Laboratories. Annals of the New York Academy of Sciences, Volume 171, Article 1. 1970. 302 pp. \$25.50.

This is essentially a paper-bound book, in which are gathered the taped lectures given at the conference. There are in all 25 papers, divided among five sections: Physical Chemistry in Solution, Organic Chemistry, Biological Applications, Gas-Phase Studies, and Air Pollution and Degradation Studies. The papers carry extensive bibliographies, but there is unfortunately no index. It must be the most complete treatment of singlet oxygen at present available.

Named Organic Reactions. By R. C. DENNEY, Woolwich Polytechnic. Plenum Press, New York, N. Y. 1969. viii + 252 pp. \$9.95.

This rather expensive paperback is intended to be an aid to the student by providing in succinct form a description of 72 of the most important organic reactions commonly known by a man's name. Brief remarks on historical development, mechanism, reaction conditions, and applications are given, with about a dozen references for each reaction, emphasizing reviews. It is a useful lead to what is beyond the general textbook, but it is necessary to be on guard against the considerable number of oversimplifications, anachronisms, and occasionally misleading statements.

Numerical Tables of Two-Center Overlap Integrals. By E. A. BOUDREAU, L. C. CUSACHS, and L. D. DUREAU, Louisiana State and Tulane Universities. W. A. Benjamin, Inc., New York, N. Y. 1970. vi + 425 pp. \$25.00.

This book is composed entirely of tables, apart from an eight-page introduction on "Calculation of Overlap Integrals." The tables are designed to enable quantum mechanical computations to be carried out without the need for a computer and are intended for researchers in chemistry, physics, and biology at the advanced undergraduate level or higher. The book was reproduced directly from the authors' typescript, which not only eliminates one source of possible errors but reduces the price. It is to be hoped that the typing was faultless, for it is hard to imagine a proofreader retaining his sanity long enough to reach the last page without a slip.

Organic Reaction Mechanisms. Second Edition. By RONALD BRESLOW, Columbia University. W. A. Benjamin, Inc., New York, N. Y. 1969. ix + 272 pp. \$15.00 (cloth); \$4.95 (paper).

This second edition, appearing five years after the first, includes a new chapter, "Photochemistry," and a new special topic, "Orbital Symmetry Relationships in Thermal and Photochemical Rearrangements," in keeping with contemporary interests. There are, in addition, small changes in the older part of the text. With these improvements, Professor Breslow's book can be expected to continue to play an influential role in the education of organic chemists.

Oxidation: Techniques and Applications in Organic Synthesis. Volume 1. Edited by R. L. AUGUSTINE, Seton Hall University. Marcel Dekker, Inc., New York, N. Y. 1969. x + 368 pp. \$18.75.

Selection of Oxidants in Synthesis: Oxidation at the Carbon Atom. By L. J. CHINN, G. D. Searle and Co. Marcel Dekker, Inc., New York, N. Y. 1971. viii + 191 pp. \$12.50.

The first of these two books from the same publisher deals in depth with oxidation of organic compounds, and is largely organized according to reagent. The second covers the subject more lightly, and is organized according to type of transformation.

Professor Augustine's book is the first of what is apparently planned to be a two-volume work, and contains six chapters: Oxidation by Transition-metal Compounds (two chapters, by D. G. Lee); Oxidation by Selenium Dioxide (by E. N. Trachtenberg); Cleavage of Glycols (by A. S. Perlin); Oxidation by Peroxy Compounds (by S. N. Lewis); and Ozonization (by J. S. Belew). The first two chapters include lead and thallium compounds as well.

The chapters present the scope of the respective reactions in a highly organized fashion, with helpful generalizations prominently displayed, and with many brief, specific experimental descriptions throughout. These chapters are somewhat like those of "Organic Reactions" in purpose, although there are no long tabulations of examples. The references number from 67 to 246 per chapter and are thus extensive, but not encyclopedic. They appear to be carefully selected, with a strong bias toward modern papers and a cut-off date apparently somewhere in 1967. This book should be highly useful indeed.

Dr. Chinn's book is also the first volume of a series. The various types of oxidative transformation of functional groups are organized into thirteen chapters, in each of which the various reagents that accomplish the change under consideration are very briefly presented. The brevity of the treatment may be appreciated from the fact that the numbers of references per chapter are nearly all under fifty. For some important subjects, such as the Polonovski rearrangement, and oxidation of amines to amides, no references at all are given, and the Oppenauer oxidation (treated in one page) is allotted only three references.

The rationale of the publisher in producing these two books was presumably that the chemist would first consult the "Selection" book for a comparison of the methods available for the transformation he wants, and would then go to the appropriate chapter in the "Techniques" book for the full treatment of that method. Unfortunately, such a plan is crippled from the start because of the fact that Dr. Chinn's book contains no references to Professor Augustine's. The publishers must bear the blame for this, because Professor Augustine's manuscript must have been in their hands long before Dr. Chinn had finished writing.

Another shortcoming is the fact that the information presented in the "Selection" book is too brief and too incomplete in coverage to provide a useful comparison of methods, and it has far too few references. The level of presentation is not much above that of a good undergraduate textbook, and many methods are left out altogether. For example, the oxidation of amines to carbonyl compounds by *tert*-butyl hypochlorite (Bachmann, Cava, and Dreiding) and the conversion of oxidation-sensitive aldehydes to carboxylic acids through the Schmidt reaction are not mentioned. There are other infelicities, such as an equation in which $\text{Cr}(\text{OH})_3$ is given as a product of oxidation of an alcohol carried out in 8 molar sulfuric acid. A critical, penetrating book on selection among methods of oxidation would be useful, but this book falls short and cannot be recommended.

Rodd's Chemistry of Carbon Compounds. Volume IID. Second Edition. Edited by S. COFFEY. Elsevier Publishing Co., New York, N. Y. 1970. xvi + 500 pp. \$30.50.

In this volume devoted to steroids, the material of three chapters of the first edition, Volume IIB, amounting to 280 pages, has been expanded to 454 pages and fills a single volume, together with a 34-page section on "Revised Tentative Rules for Nomenclature of Steroids." The chapters cover Sterols and Bile Acids (by C. J. W. Brooks), Adrenocortical Hormones, and Cardiotonic Glycosides and Aglycons (both by P. G. Marshall). An additional volume (IIE) is promised to cover Saponins and Sapogenins, and Biogenesis of Steroids and Terpenes. It is difficult to check the references for timeliness, because they are buried within the text, except for references for tables, but dates as late as 1968, the year when the book went to press, are noted.