

$\pi$  delocalization of positive spin density involving  $\psi_4$  and negative spin density involving  $\psi_7$  or  $\psi_8$ ."

**The Acid-Catalyzed and Mercuric Ion Catalyzed Hydrolysis of 2-(para-Substituted phenyl)-1,3-oxathiolanes** [*J. Am. Chem. Soc.*, **90**, 7266 (1968)]. By NIMAI C. DE and LEO R. FEDOR, Department of Medicinal Chemistry, School of Pharmacy, State University of New York at Buffalo, Buffalo, New York 14214.

The rate constant for the acid-catalyzed hydrolysis of 2-(*p*-nitrophenyl)-1,3-oxathiolane (**5**), Table III, is  $0.0025 M^{-1} \text{ min}^{-1}$ . Accordingly, for the acid-catalyzed reaction  $\rho = -2.82 \pm 0.13$ .

**Synthetic Spectroscopic Models Related to Coenzymes and Base Pairs. II. Evidence for Intramolecular Base-Base Interactions in Dinucleotide Analogs** [*J. Am. Chem. Soc.*, **90**, 7302 (1968)]. By DOUGLAS T. BROWNE, J. EISINGER, and NELSON J. LEONARD, Department of Chemistry and Chemical Engineering, University of Illinois, Urbana, Illinois 61801, and Bell Telephone Laboratories, Inc., Murray Hill, New Jersey 07974.

On page 7309, column 1, line 15, Ad-C<sub>3</sub>-Ad should be Ad-C<sub>n</sub>-Ad.

On page 7313, column 1, line 24, Ad-C<sub>n</sub> should be Ad-C<sub>n</sub>-Ad.

On page 7320, column 1, compound **35**, O<sub>16</sub> in formula should be O<sub>e</sub>.

**Polarized Electronic Spectroscopy of Molecules Oriented by a Nematic Liquid Crystal** [*J. Am. Chem. Soc.*, **91**,

191 (1969)]. By GERALD P. CEASAR and HARRY B. GRAY, Arthur Amos Noyes Laboratory of Chemical Physics, California Institute of Technology, Pasadena, California 91109.

The name *p*-(*p*'-ethoxybenzoxy)phenyl butyl carbonate as used in the paper is incorrect. The correct name is butyl *p*-(*p*-ethoxyphenoxycarbonyl)phenyl carbonate.

**A Large Deuterium Solvent Isotope Effect on a Photochemical Reaction** [*J. Am. Chem. Soc.*, **91**, 198 (1969)]. By MARGARET J. JORGENSEN, Department of Chemistry, University of California, Berkeley, California.

On page 199, column 1, the last sentence should read as follows: The low *d*<sub>2</sub> content of **2** and **3** (Table I) argues for a negligible rate of  $\gamma$  deuteration of dienols **5** and **6** (**5a** and **6a** to **1a** and **5b** and **6b** to **1b**).

**Polarized Infrared Spectroscopy of Molecules Oriented in a Nematic Liquid Crystal. Application to Mn<sub>2</sub>(CO)<sub>10</sub> and Re<sub>2</sub>(CO)<sub>10</sub>** [*J. Am. Chem. Soc.*, **91**, 772 (1969)]. By GERALD P. CEASAR, ROBERT A. LEVENSON, and HARRY B. GRAY, Arthur Amos Noyes Laboratory of Chemical Physics, California Institute of Technology, Pasadena, California 91109.

The name *p*-(*p*'-ethoxybenzoxy)phenyl butyl carbonate as used in the paper is incorrect. The correct name is butyl *p*-(*p*-ethoxyphenoxycarbonyl)phenyl carbonate.

## Book Reviews

**Molecular Orbital Theories of Bonding in Organic Molecules.** By ROBERT L. FLURRY, JR., Department of Chemistry, Louisiana State University, New Orleans, La. Marcel Dekker, Inc., 95 Madison Ave., New York, N. Y. 1968. x + 334 pp. 16 × 23 cm. \$17.95.

The object of this book is to provide the reader with "a conceptual knowledge of the principles of chemical bonding, as explained by molecular orbital theory" and "a *working* knowledge of the methods in common usage for applying molecular orbital theory to moderately large molecules." After a brief introduction to MO theory, successive chapters deal with the free electron theory, LCAO theory, perturbation methods, the HMO method, group theory and symmetry orbitals, atomic structure, SCF MO methods, and bonds, with a very brief final chapter (19 pp) on application to specific problems.

The author's general approach is to state theoretical results with little or nothing by way of derivation, and to illustrate their use by detailed discussions of their application to specific simple problems. Thus in Chapter III, the HMO method is illustrated by a detailed discussion of H<sub>2</sub>, and of the  $\pi$  electrons in butadiene, following empirical rules for constructing the MO equations, and in Chapter 5 the solution of such equations is discussed in great detail; however, neither the basic principles of the HMO method nor the approximations implicit in it are discussed at all. Similar comments apply to the rest of the book, and indeed it is clear that the author has set out with the object of training chemists to use MO theory as a kind of black box without their understanding in the least the basic principles involved.

Those who consider such an approach satisfactory will find this an admirable text for their courses; it is clearly written, well produced, and reasonable in price.

M. J. S. Dewar

Department of Chemistry, The University of Texas  
Austin, Texas 78712

**Photoluminescence of Solutions. With Applications to Photochemistry and Analytical Chemistry.** By C. A. PARKER, Ph.D., D.Sc., F.R.M.S., F.R.I.C., Royal Navy Scientific Service, Admiralty Materials Laboratory, Holton Heath, Poole, Dorset, England. American Elsevier Publishing Co., Inc., 52 Vanderbilt Ave, New York, N. Y. 1968. xvi + 544 pp. 15.5 × 23 cm. \$30.00.

Advances in the understanding of molecular electronic processes in conjunction with simultaneous advances in chemical instrumentation have increased the number of chemists engaged in synthetic and analytical studies involving excited states. For a long time no suitable texts were available for this field. Recently, the relationship between absorption spectra and the geometry of excited molecules has been adequately covered by several authors. This left a conspicuous need for a companion volume on solution photoluminescence. C. A. Parker is a recognized spectroscopist who has published papers dealing with almost every branch of this field. He is exceedingly well qualified to write on such a topic and his book fulfills this need.

The text is organized in an operational manner. Basic principles and definitions are discussed first, then kinetics of photoluminescence, apparatus and experimental methods, special topics and applications, and lastly application to analytical chemistry. This book is well documented with 443 references and a separate textbook bibliography. Also, a complete listing of symbols is compiled as an appendix. The subject index is comprehensive and includes every mention of a chemical compound.

The author has attempted to write a book that at the same time instructs the student in the basic principles, and yet serves the expert as a source of reference. To this end, very little important material has been omitted, but several times rearrangement of topics or a change in emphasis would improve the usability of the book for the novice. As an example, the subject of energy transfer is treated in several different places. A more logical discussion would result if these parts were pulled together and placed in the first chapter. Also, it is felt that the kinetic approach and delayed fluorescence were both overemphasized.

The object of the section on apparatus and experimental methods is to provide the reader with sufficient information to set up an instrument for himself, or to judge the merits of commercially available units. This is done exceptionally well and is the strong point of the book. The last two sections on applications are highly recommended and will probably be read again and again by practicing spectroscopists.

This book will most likely serve the field as the first well-organized collection of experimental and theoretical facts concerning solution photoluminescence. It is doubtful, however, that it will serve as a beginner's text.

The price of the book is outrageous. This cannot be over-emphasized in view of the drab and inexpensive paper on which the book is printed and the fact that the binding of the reviewer's copy warped within several weeks. It is a shame that the book cannot be obtained from a different publishing company.

Fred E. Lytle

*Department of Chemistry, Purdue University  
Lafayette, Indiana 47907*

## BOOKS RECEIVED, May 1969

- L. BOLTZMANN. "Wissenschaftliche Abhandlungen." Volumes I, II, III. Chelsea Publishing Co., Inc., 159 East Tremont Ave., Bronx, N. Y. 1969. 1976 pp (3 volumes). \$39.50 (three-volume set).
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie. Metallurgie des Eisens." Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1968. 538 pp. DM 492.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 3. "Sauerstoff." Lieferung 8. "Hydroxyl, Perhydroxyl, Hydrogenozonid, Höhere Wasserstoffperoxide." Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1969. 421 pp. DM 470.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 6. "Chlor." Ergänzungsband. Teil A. "Das Element (ausschliesslich Nachweis und Bestimmung)." Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1968. 396 pp. DM 456.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 6. "Chlor." Ergänzungsband. Teil B, Lieferung 1. "Verbindungen bis Chlor und Wasserstoff." Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1968. 314 pp. DM 364.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 14. "Kohlenstoff." Teil B, Lieferung 1. "Das Element. Isotope, Atom, Molekeln, Einstoffsystem, Dampf, Diamant." Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1967. 352 pp. DM 396.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 14. "Kohlenstoff." Teil B, Lieferung 2. "Das Element: Graphit." Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1968. 436 pp. DM 490.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 14. "Kohlenstoff." Teil B, Lieferung 3. "Chemisches Verhalten von Graphit. Graphitverbindungen. Kolloider Kohlenstoff." Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1968. 262 pp. DM 308.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 16. "Phosphor. Formel- und Schlagwortregister." Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1967. 210 pp. DM 120.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 34. "Quecksilber." Teil B, Lieferung 2. "Quecksilber-Halogenverbindungen." Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1967. 552 pp. DM 635.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 34. "Quecksilber." Teil B, Lieferung 3. "Verbindungen von Quecksilber und Schwefel bis Quecksilber und Kohlenstoff." Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1968. 346 pp. DM 402.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 48. "Vanadium." Teil A, Lieferung 1. "Geschichte. Vorkommen. Technologie. Darstellung des Elements." Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1968. 320 pp. DM 368.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 48. "Vanadium." Teil A, Lieferung 2. "Das Element." Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1968. 408 pp. DM 470.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 48. "Vanadium." Teil B, Lieferung 1. "Verbindungen bis Vanadium und Wismut." Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1967. 368 pp. DM 426.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 48. "Vanadium." Teil B, Lieferung 2. "Schluss der Verbindungen. Legierungen. Koordinationsverbindungen." Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1967. 471 pp. DM 544.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 50. "Tantal." Teil A, Lieferung 1. "Geschichtliches. Vorkommen. Technologie." Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1969. 276 pp. DM 332.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 57. "Nickel." Teil A I. Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1967. 641 pp. DM 608.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 57. "Nickel." Teil A II, Lieferung 1. Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1967. 398 pp. DM 372.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 57. "Nickel." Teil A II, Lieferung 2. Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1968. 760 pp. DM 844.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 57. "Nickel." Teil C, Lieferung 1. Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1968. 496 pp. DM 540.
- GMELIN INSTITUT. "Gmelins Handbuch der Anorganischen Chemie." System Nr. 57. "Nickel." Teil C, Lieferung 2. Verlag Chemie, GmbH, Weinheim/Bergstrasse, Germany. 1969. 749 pp. DM 854.