

1-Phenylcyclooctene-4,4,5,6,6-*d*₅ (11). A sample of 622 mg of crystalline *cis*-5-phenylcyclooctyl-1,2,2,8,8-*d*₅ tosylate was prepared and solvolyzed as described for the undeuterated material. Work-up afforded 269 mg of oil. Cleavage of the formates with lithium aluminum hydride, followed by chromatography, gave 228 mg of olefins (82.5%) of which 94% was **11**; collection from column E (180°) gave analytically pure **11**; $\lambda_{\text{max}}^{\text{EtOH}}$ 249 m μ (ϵ 11,800); n_{D}^{20} 1.5588; nmr: δ 5.86 (triplet, 1 H, $J = 8$ cps), 2.42–2.70 (multiplet, 2 H), 2.23 (doublet, 2 H, $J = 8$ cps), and 1.38–1.75 (multiplet, 3 H).

Anal. Calcd for C₁₄H₁₃D₅: C, 87.89; H, 9.48. Found: C, 87.73; H, 9.50. Average number of D/molecule, 4.67 (falling drop).

4-Phenyl-4-hydroxycyclooctanone Hemiketal (12). A solution of phenyllithium was prepared from 208 mg of lithium wire and 2.35 g of redistilled bromobenzene in 25 ml of ether. This was added dropwise to a solution of 2.0 g of 1,4-cyclooctanedione [A. C. Cope, A. H. Keough, P. E. Peterson, H. E. Simmons, and G. W. Wood, *J. Am. Chem. Soc.* **79**, 3900 (1957)] in 20 ml of ether at 0° over a period of 15 min. After the mixture had been stirred for 1 hr, 3 ml of saturated

ammonium chloride solution was added, followed by 10 ml of water. The layers were separated, and the ether layer was washed with water. Drying and removal of the solvent, followed by evaporation overnight at 0.1 mm, left 1.597 g of an oil. An 800-mg sample of the oil was dissolved in 5 ml of ether, diluted with 50 ml of pentane, and washed with three portions of water.

Aromatic Azapentalenes. I. Dibenzo-1,3a,4,6a-tetraazapentalene and Dibenzo-1,3a,6,6a-tetraazapentalene. New Heteroaromatic Systems [*J. Am. Chem. Soc.*, **89**, 2618 (1967)]. By R. A. CARBONI, J. C. KAUER, J. E. CASTLE, and H. E. SIMMONS. Central Department, Experimental Station, E. I. du Pont de Nemours and Company, Wilmington, Delaware.

On page 2625, column 1, second paragraph, a line was omitted. The first sentence should read: A mixture of 250 g of *o*-phenylenediamine, 500 g of *o*-chloronitrobenzene, 500 g of anhydrous sodium acetate, 50 g of copper powder, and 2 l. of absolute alcohol was mechanically stirred and heated to reflux on a steam bath for 3 days.

Book Reviews

Free Radicals. By WILLIAM A. PRYOR, Associate Professor of Chemistry, Louisiana State University. McGraw-Hill Book Co., Inc., 330 West 42nd St., New York, N. Y. 1966. xii + 354 pp. 15.5 × 23 cm. \$12.00.

Since comparison with C. Walling's classic monograph on free radicals is inevitable, it seems best to begin with this problem. In fact, the books are so different in conception and scope as to make comparison meaningless.

Pryor's "Free Radicals" aims to introduce the advanced undergraduate or beginning graduate student to the chemistry of free radicals. The approach is that of a modern organic chemist with an emphasis on mechanistic (as opposed to synthetic) insight. Most of the important methods of investigation and results are covered. Data are drawn freely from the extremes of gas-phase kinetics and solution-phase product studies. After a general introduction, the book follows the organization of most radical reactions, "Production," "Reactions," and "Termination." References to the literature are common, and each chapter ends with a list of suggestions for further reading. Problems are also included; their utility is enhanced by further references and a "Solutions Manual" published in 1967.

In general, the book is clearly written and the coverage is both thorough and up-to-date. The current thinking on a given problem is usually well presented, although the author occasionally creates an atmosphere of certainty which is not apparent from reading the literature. I routinely recommend the book to research students as the best place to begin.

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BOOKS RECEIVED, September 1967

ARTHUR W. ADAMSON. "Physical Chemistry of Surfaces." Second Edition. Interscience Publishers, John Wiley and Sons, Inc., 605 Third Ave., New York, N. Y. 1967. 747 pp. \$15.00.

SAM ARONOFF. "Techniques of Radiobiochemistry." Hafner Publishing Co., 31 East 10th St., New York, N. Y. 1967. 228 pp. \$8.50.

H. M. ASSENHEIM. "Introduction to Electron Spin Resonance." Plenum Publishing Corp., 227 West 17th St., New York, N. Y. 1967. 200 pp. \$9.50.

THOR A. BAK and JONAS LICHTENBERG. "Vectors, Tensors and Groups. Mathematics for Scientists." Volume 1. W. A. Benjamin, Inc., 1 Park Ave., New York, N. Y. 1967. 129 pp. \$2.95.

THOR A. BAK and JONAS LICHTENBERG. "Functions of One and Several Real Variables. Mathematics for Scientists." Volume 2. W. A. Benjamin, Inc., 1 Park Ave., New York, N. Y. 1967. 178 pp. \$2.95.

THOR A. BAK and JONAS LICHTENBERG. "Series, Differential Equations, and Complex Functions. Mathematics for Scientists." Volume 3. W. A. Benjamin, Inc., 1 Park Ave., New York, N. Y. 1967. 169 pp. \$2.95.

B. R. BAKER. "Design of Active-Site-Directed Irreversible Enzyme Inhibitors. The Organic Chemistry of the Enzymic Active-Site." John Wiley and Sons, Inc., 605 Third Ave., New York, N. Y. 1967. 325 pp. \$13.50.

J. O'M. BOCKRIS, Editor. "Modern Aspects of Electrochemistry." Number 4. Plenum Publishing Corp., 227 West 17th St., New York, N. Y. 1966. 316 pp. \$12.00.

T. BRAUN and J. TÖLGYESSY. "Radiometric Titrations." Pergamon Press Inc., 44-01 21st St., Long Island City, N. Y. 1967. 168 pp. \$8.50.

B. L. BROWNING. "Methods of Wood Chemistry." Volume II. Interscience Publishers, John Wiley and Sons, Inc., 605 Third Ave., New York, N. Y. 1967. 882 pp. \$18.75.

JOHN D. BU'LOCK. "Essays in Biosynthesis and Microbial Development." John Wiley and Sons, Inc., 605 Third Ave., New York, N. Y. 1967. 71 pp. \$5.95.

ALFRED BURGER, Editor. "Drugs Affecting the Peripheral Nervous System." Volume I. Marcel Dekker, Inc., 95 Madison Ave., New York, N. Y. 1967. 620 pp. \$27.50.

HARRIS BUSCH, Editor. "Methods in Cancer Research." Volume 1. Academic Press Inc., 111 Fifth Ave., New York, N. Y. 1967. 612 pp. \$28.00.

P. N. CAMPBELL and J. R. SARGENT, Editors. "Techniques in Protein Biosynthesis." Volume 1. Academic Press Inc., Ltd., Berkeley Square House, Berkeley Square, London, W.1., England. 1967. 336 pp. \$15.00.

MANFRED J. R. CANTOW, Editor. "Polymer Fractionation."