

## Recent Reviews. 12

Reviews are listed in order of appearance in the sources indicated. In multidisciplinary review journals, only those reviews which fall within the scope of this Journal are included. Sources are listed alphabetically in three categories: regularly issued review journals and series volumes, contributed volumes, and monographs. Titles are numbered serially, and these numbers are used for references in the index.

Major English-language sources of critical reviews are

covered. Encyclopedic treatises, annual surveys such as *Specialist Periodical Reports*, and compilations of symposia proceedings are omitted.

This installment of Recent Reviews covers the first half of this 1983 literature. Previous installment: *J. Org. Chem.* 1983, 48, 1394. For regularly issued journals and series volumes, the coverage in this installment continues from the last items included in Recent Reviews 11.

### Regularly Issued Journals and Series Volumes

#### Accounts of Chemical Research

1. Lown, J. W. Newer Approaches to the Study of the Mechanisms of Action of Antitumor Antibiotics. 1982, 15, 381.
2. Jarvis, B. B.; Mazzola, E. P. Macrocyclic and Other Novel Trichothecenes: Their Structure, Synthesis, and Biological Significance. 1982, 15, 388.
3. Hayashi, T.; Kumada, M. Asymmetric Synthesis Catalyzed by Transition-Metal Complexes with Functionalized Chiral Ferrocenylphosphine Ligands. 1982, 15, 395.
4. Kwart, H. Temperature Dependence of the Primary Kinetic Hydrogen Isotope Effect as a Mechanistic Criterion. 1982, 15, 401.
5. Williams, F.; Sprague, E. D. Novel Radical Anions and Hydrogen Atom Tunneling in the Solid State. 1982, 15, 408.
6. Hutchinson, C. R. Biosynthetic Studies of Macrolide and Polyether Antibiotics. 1983, 16, 7.
7. Minisci, F.; Citterio, A.; Giordano, C. Electron-Transfer Processes: Peroxydisulfate, a Useful and Versatile Reagent in Organic Chemistry. 1983, 16, 27.
8. Kanamori, K.; Roberts, J. D. <sup>15</sup>N NMR Studies of Biological Systems. 1983, 16, 35.
9. Kuczkowski, R. L. Formation and Structures of Ozonides. 1983, 16, 42.
10. Mander, L. N. New Strategies for the Construction of Highly Functionalized Organic Molecules: Applications to C<sub>19</sub> Gibberellin Synthesis. 1983, 16, 48.
11. Adlington, R. M.; Barrett, A. G. M. Recent Applications of the Shapiro Reaction. 1983, 16, 55.
12. Shanzer, A.; Libman, J.; Frolow, F. Macrocyclic Carbonyl Compounds as Structural Models of Natural Ion Carriers. 1983, 16, 60.
13. Swenton, J. S. Quinone Bis- and Monoketals via Electrochemical Oxidation. Versatile Intermediates for Organic Synthesis. 1983, 16, 74.
14. Okamura, W. H. Pericyclic Reactions of Vinylallenes: From Calciferols to Retinoids and Drimanens. 1983, 16, 81.
15. Knowles, W. S. Asymmetric Hydrogenation. 1983, 16, 106.
16. Guthrie, J. P. Thermodynamics of Metastable Intermediates in Solution. 1983, 16, 122.
17. Mariano, P. S. Electron-Transfer Mechanisms in Photochemical Transformations of Iminium Salts. 1983, 16, 140.
18. Allen, F. H.; Kennard, O.; Taylor, R. Systematic Analysis of Structural Data as a Research Technique in Organic Chemistry. 1983, 16, 146.
19. Gutsche, C. D. Calixarenes. 1983, 16, 161.
20. Serratos, F. Acetylene Diethers: A Logical Entry to Oxocarbons. 1983, 16, 170.
21. Fukuto, J. M.; Jensen, F. R. Mechanisms of S<sub>E</sub>2 Reactions: Emphasis on Organotin Compounds. 1983, 16, 177.
22. Miller, L. L. Organic Plasma Chemistry. 1983, 16, 194.
23. Schultz, A. G. Photochemical Six-Electron Heterocyclization Reactions. 1983, 16, 210.

24. Lowe, G. Chiral [<sup>16</sup>O,<sup>17</sup>O,<sup>18</sup>O]Phosphate Ester. 1983, 16, 244.

#### Advances in Carbohydrate Chemistry and Biochemistry

25. Zamoiski, A.; Banaszek, A.; Gryniewicz, G. The Synthesis of Sugars from Non-Carbohydrate Substrates. 1982, 40, 1.

#### Advances in Heterocyclic Chemistry

26. Albert, A. Annelation of a Pyrimidine Ring to an Existing Ring. 1982, 32, 3.
27. Barker, J. M. *gem* Diethienylalkanes and Their Derivatives. 1982, 32, 83.
28. Klemm, L. H. Syntheses of Tetracyclic and Pentacyclic Condensed Thiophene Systems. 1982, 32, 127.
29. Sammes, M. P.; Katritzky, A. R. The 2*H*- and 3*H*-Pyrroles. 1982, 32, 234.
30. Kurzer, F. 1,2,4-Thiadiazoles. 1982, 32, 286.
31. Reid, S. T. The Photochemistry of Oxygen- and Sulfur-Containing Heterocycles. 1983, 33, 1.
32. van der Plas, H. C.; Wozniak, M.; van den Haak, H. J. W. Reactivity of Naphthyridines toward Nitrogen Nucleophiles. 1983, 33, 96.
33. Paudler, W. W.; Sheets, R. M. Recent Developments in Naphthyridine Chemistry. 1983, 33, 147.
34. Timpe, H.-J.; El'tsov, A. V. Pseudoazulenes. 1983, 33, 185.
35. Hermezc, I.; Meszaros, Z. Chemistry of Pyrido[1,2-*a*]pyrimidines. 1983, 33, 242.

#### Advances in Organometallic Chemistry

36. Macomber, D. W.; Hart, W. P.; Rausch, M. D. Functionally Substituted Cyclopentadienyl Metal Compounds. 1983, 21, 1.
37. Housecroft, C. E.; Fehlner, T. P. Metalloboranes: Their Relationships to Metal-Hydrocarbon Complexes and Clusters. 1983, 21, 57.
38. Darensbourg, D. J. Mechanistic Pathways for Ligand Substitution Processes in Metal Carbonyls. 1983, 21, 113.
39. Van Koten, G.; Vrieze, K. 1,4-Diaza-1,3-butadiene ( $\alpha$ -Diimine) Ligands: Their Coordination Modes and the Reactivity of Their Metal Complexes. 1983, 21, 152.
40. Satgé, J. Multiply Bonded Germanium Species. 1983, 21, 241.

#### Advances in Physical Organic Chemistry

41. Davidson, R. S. The Chemistry of Excited Complexes: A Survey of Reactions. 1983, 19, 1.
42. Parker, V. D. The Study of Reactive Intermediates by Electrochemical Methods. 1983, 19, 131.

43. Ahlberg, P.; Jonsäll; Engdahl, C. Degenerate Carbocation Rearrangements. 1983, 19, 223.  
 44. Williams, D. L. H. Nitrosation Mechanisms. 1983, 19, 381.

**Aldrichimica Acta**

45. Masamune, S.; Choy, W. Advances in Stereochemical Control: The 1,2- and 1,3-Diol Systems. 1982, 15, 47.  
 46. Black, T. H. The Preparation and Reactions of Diazo-methane. 1983, 16, 3.  
 47. Stang, P. J.; White, M. R. Triflic Acid and Its Derivatives. 1983, 16, 15.  
 48. Whitesides, G. M.; Wong, C.-H. Enzymes as Catalysts in Organic Synthesis. 1983, 16, 27.

**Angewandte Chemie, International Edition in English**

49. Samuelsson, B. The Leukotrienes. Highly Biologically Active Substances Involved in Allergy and Inflammation. 1982, 21, 902.  
 50. Osawa, E.; Musso, H. Molecular Mechanics Calculations in Organic Chemistry: Examples of the Usefulness of this Simple Non-Quantum Mechanical Model. 1983, 22, 1.  
 51. Weidmann, B.; Seebach, D. Organometallic Compounds of Titanium and Zirconium as Selective Nucleophilic Reagents in Organic Synthesis. 1983, 22, 31.  
 52. Kaim, W. The Versatile Chemistry of 1,4-Diazines: Organic, Inorganic and Biochemical Aspects. 1983, 22, 171.  
 53. Van de Sande, C. C. Dye Diffusion Systems in Color Photography. 1983, 22, 191.  
 54. Martin, H.-D.; Mayer, B. Proximity Effects in Organic Chemistry—The Photoelectron Spectroscopic Investigation of Non-Bonding and Transannular Interactions. 1983, 22, 283.  
 55. Stella, L. Homolytic Cyclization of *N*-Chloroalkenylamines [New Synthetic Methods (38)]. 1983, 22, 337.  
 56. Prakash, C. K. S.; Rawdah, T. N.; Olah, G. A. Stable Carbocations. 1983, 22, 390.  
 57. Hall, H. K., Jr. Bond-Forming Initiation in Spontaneous Addition and Polymerization Reactions of Alkenes. 1983, 22, 440.

**Chemical Reviews**

58. SeEVERS, R. H.; Counsell, R. E. Radioiodination Techniques for Small Organic Molecules. 1982, 82, 575.  
 59. Fabre, P.-L.; Devynck, J.; Trémillon, B. Thermodynamic Behavior of Alkanes in Superacid Media. 1982, 82, 591.  
 60. Zefirov, N. S.; Makhon'kov, D. I. X-Phylic Reactions. 1982, 82, 615.  
 61. Dilling, W. L. Polymerization of Unsaturated Compounds by Photocycloaddition Reactions. 1983, 83, 1.  
 62. Seeman, J. I. Effect of Conformational Change on Reactivity in Organic Chemistry. Evaluations, Applications, and Extensions of Curtin-Hammett/Winstein-Holness Kinetics. 1983, 83, 83.

**Chemical Society Reviews**

63. Muetterties, E. L. Hydrocarbon Reactions at Metal Centres. 1982, 11, 283.  
 64. Ackroyd, J.; Scheinmann, F. The Synthesis of Leukotrienes: A New Class of Biologically Active Compounds Including SRS-A. 1982, 11, 321.  
 65. Holland, H. L. The Mechanism of the Microbial Hydroxylation of Steroids. 1982, 11, 371.  
 66. Morris, D. G. Carbonyl Group Transpositions. 1982, 11, 397.  
 67. Ager, D. J. Silicon-Containing Carbonyl Equivalents. 1982, 11, 493.  
 68. Gilchrist, T. L. Nitroso-Alkenes and Nitroso-Alkynes. 1983, 12, 53.  
 69. Redpath, J.; Zeelen, F. J. Stereoselective Synthesis of Steroid Side-Chains. 1983, 12, 75.

70. Scriven, E. F. V. 4-Dialkylaminopyridines: Super Acylation and Alkylation Catalysts. 1983, 12, 129.  
 71. Murphy, W. S.; Sattanasin, S. Anionic Cyclization of Phenols. 1983, 12, 213.

**Heterocycles**

72. Sliwa, W.; Thomas, A. Fused 1,2,5-Thiadiazoles and Selenadiazoles. 1983, 20, 71.  
 73. Lee, S.-J.; Cook, J. M. Synthesis of Azaphenalenenes. 1983, 20, 87.  
 74. Saraf, S.; Khan, M. A.; Al-Mousawi, S. Infrared Spectra of Phenothiazines. 1983, 20, 283.  
 75. Elnagdi, M. H.; Elfahham, H. A.; Elgemeie, G. E. H. Utility of  $\alpha,\beta$ -Unsaturated Nitriles in Heterocyclic Synthesis. 1983, 20, 519.  
 76. Box, V. G. S. The Role of Lone Pair Interactions in the Selective Functionalization of Some 4,6-*O*-Benzylidenehexopyranosides by Both the Phase Transfer Esterification Reactions and the Tin-mediated Esterification and Alkylation Reactions. 1983, 20, 677.  
 77. Broadbent, T. A.; Paul, E. G. Carbon-13 Nuclear Magnetic Resonance in Alkaloid Chemistry. 1983, 20, 863.  
 78. Iddon, B. Cycloaddition, Ring-Opening, and Other Novel Reactions of Thiophenes. 1983, 20, 1127.  
 79. Cocagne, P.; Elguero, J.; Gallo, R. The Present Use and the Possibilities of Phase Transfer Catalysis in Drug Synthesis. 1983, 20, 1379.  
 80. Shin, C.-G. Stereoselective Synthesis of the Geometric and Optical Isomers of Unsaturated 3-Mono- and 3,6-Di-substituted 2,5-Piperazinediones. 1983, 20, 1407.  
 81. Witczak, Z. J. Synthesis and Preparative Applications of Monosaccharide Thiocyanates. 1983, 20, 1435.

**Organic Preparations and Procedures International**

82. De Kimpe, N.; Schamp, N. Reactivity of  $\beta$ -Haloenamenes. 1983, 15, 71.

**Organic Reactions**

83. Castro, B. R. Replacement of Alcoholic Hydroxyl Groups by Halogens and Other Nucleophiles via Oxyphosphonium Intermediates. 1983, 29, 1.  
 84. Noyori, R.; Hayakawa, Y. Reductive Dehalogenation of Polyhalo Ketones with Low-Valent Metals and Related Reducing Agents. 1983, 29, 163.  
 85. Crandall, J. K.; Apparau, M. Base-Promoted Isomerizations of Epoxides. 1983, 29, 345.

**Progress in the Chemistry of Organic Natural Products**

86. Asakawa, Y. Chemical Constituents of the Hepaticae. 1982, 42, 1.  
 87. Ingham, J. I. Naturally Occurring Isoflavonoids (1855-1981). 1983, 43, 1.  
 88. Koskinen, A.; Lounasmaa, M. The Sarpagin-Ajmaline Group of Indole Alkaloids. 1983, 43, 267.

**Recueil: Journal of the Royal Netherlands Chemical Society**

89. Wiersum, U. E. Flash Vacuum Thermolysis, A Versatile Method in Organic Chemistry. Part II, Fragmentation Patterns in Specific Classes. 1982, 101, 365.  
 90. Altona, C. Conformational Analysis of Nucleic Acids. Determination of Backbone Geometry of Single-Helical RNA and DNA in Aqueous Solution. 1982, 101, 413.  
 91. Laarhoven, W. H. Photochemical Cyclizations and Intramolecular Cycloadditions of Conjugated Arylolefins. 1983, 102, 185.  
 92. Laarhoven, W. H. Photochemical Cyclizations and Intramolecular Cycloadditions of Conjugated Arylolefins. Part 2: Photocyclizations Without Dehydrogenation of Photo-

cycloadditions. 1983, 102, 241.

### Russian Chemical Reviews

93. Starodub, V. A.; Krivoshei, I. V. Highly Anisotropic Molecular Solids. 1982, 51, 439.
94. Dombrovskii, A. V. Halogen Derivatives of 1,4-Dioxan. 1982, 51, 457.
95. Zvezdina, E. A.; Zhadonva, M. P.; Dorofenko, G. N. Reactions of Pyrylium Salts with Nitrogen-Containing Nucleophiles. 1982, 51, 469.
96. Kashin, A. N.; Kelet'skaya, I. P. Oxidation of Organometallic Compounds by Transition Metal Salts. 1982, 51, 503.
97. Filippova, T. V.; Blyumberg, E. A. Mechanism of the Epoxidation of Alkenes by Molecular Oxygen. 1982, 51, 582.
98. Bogatskii, A. V.; Zhilina, Z. I. Sterically Hindered Porphyrins. 1982, 51, 592.
99. Klabunovskii, E. I. Advances in Enantioselective Hydrogenation in the Presence of Chiral Complexes of Rhodium, Palladium, and Cobalt. 1982, 51, 630.
100. Vlad, P. F. The Chemistry of Perfumes Based on Labdane Diterpenoids. 1982, 51, 644.
101. Zdanovich, V. I.; Seitembetova, A. Zh.; Setkina, V. N. Transition Metal Complexes of Cyclopentadienylides and Pentafulvenes. 1982, 51, 659.
102. Fokin, A. V.; Sudnev, Yu. N.; Kuznetsova, L. D.; Krotovich, I. N. Reactions of Peroxydisulphuryl Difluoride and Halogen Fluorosulphates with Organic Compounds. 1982, 51, 719.
103. Daloutin, V. I.; Pashkevich, K. I.; Postovskii, I. Ya. Fluorine-Containing  $\alpha$ -Dicarbonyl Compounds and Their Derivatives. 1982, 51, 736.
104. Cherkasov, R. A.; Ovchinnikov, V. V.; Pudovik, M. A.; Pudovik, A. N. The Reactivity of 1,3,2-Diheterophospholans and 1,3,2-Diheterophosphorinanes with a Tetracoordinate Phosphorus Atom. 1982, 51, 746.
105. Kozina, M. P.; Mastryukov, V. S.; Mil'vitskaya, E. M. The Strain Energy, Geometrical Structure, and Spin-Spin Coupling Constants of Cyclic Hydrocarbons. 1982, 51, 765.
106. Valters, R. The Electronic and Steric Effects in Heterolytic Intramolecular Cyclization Reactions. 1982, 51, 788.
107. Voronkov, M. G.; Knutov, V. I. Advances in the Chemistry of Sulphur-Containing Macrocyclics. 1982, 51, 856.
108. Kamernitskii, A. V.; Turuta, A. M. Reactivity and Conformation of Systems Containing a Three-Membered Heterocycle Conjugated with an Unsaturated Group. 1982, 51, 872.
109. Mavrov, M. V. Advances in the Chemistry of  $\alpha$ -Halogenoallenes. 1982, 51, 887.
110. Vurov, S. V.; Smirnova, M. P. Protection of the Amino-Group in Peptide Synthesis. 1982, 51, 902.
111. Gilyarov, V. A. Phosphorus Acid Azides. 1982, 51, 909.
112. Nifant'ev, E. E.; Zavalishina, A. I. Advances in the Chemistry of Phosphorus(III) 1,3,2-Diheterophosphorinanes. 1982, 51, 921.
113. Milaeva, E. R.; Rubezhov, A. Z.; Prokof'ev, A. I.; Okhlobystin, O. Yu. The Unpaired Electron in Transition Metal Complexes. 1982, 51, 942.
114. Denisova-Dyatlova, O. A.; Glyzin, V. I. Natural Xanthones. 1982, 51, 1007.
115. Porshnev, Yu. N.; Mochalin, V. B.; Cherkashin, M. I. Polycyclic Azulenoid Systems. 1982, 51, 1089.

### Synthesis

116. Gokel, G. W.; Dishong, D. M.; Schultz, R. A.; Gatto, V. J. Syntheses of Aliphatic Azacrown Compounds. 1982, 997.
117. Brownbridge, P. Silyl Enol Ethers in Synthesis—Part I. 1983, 1.
118. Brownbridge, P. Silyl Enol Ethers in Synthesis—Part II. 1983, 85.
119. Yakobson, G. G.; Akhmetova, N. E. Alkali Metal Fluorides in Organic Synthesis. 1983, 169.
120. Bhatt, M. V.; Kulkarni, S. U. Cleavage of Ethers. 1983, 249.

121. Becker, K. B. Synthesis of Stilbenes. 1983, 341.
122. Santelli-Rouvier, C.; Santelli, M. The Nazarov Cyclization. 1983, 429.

### Tetrahedron

123. Weinreb, S. M.; Staib, R. R. Synthetic Aspects of Diels-Alder Cycloadditions with Heterodienophiles. 1982, 38, 3087.
124. Morton, T. H. Gas Phase Analogues of Solvolysis Reactions. 1982, 38, 3195.
125. Hickmott, P. W. Enamines: Recent Advances in Synthetic, Spectroscopic, Mechanistic, and Stereochemical Aspects—II. 1982, 38, 3363.
126. L'abbé, G. Some Ring Transformation Reactions of Sulfur-Containing Heterocycles. 1982, 38, 3537.
127. Narang, S. A. DNA Synthesis. 1983, 39, 3.
128. Werstiuk, N. H. Homoenate Anions and Homoenate Anion Equivalents. Mechanistic Aspects and Synthetic Applications. 1983, 39, 205.
129. Kane, V. V.; Singh, V.; Martin, A.; Doyle, D. L. The Chemistry of 1,2-Carbonyl Transposition. 1983, 39, 345.
130. Salomon, R. G. Homogeneous Metal-Catalysis in Organic Photochemistry. 1983, 39, 485.
131. Gasc, M. B.; Lattes, A.; Perie, J. J. Amination of Alkenes. 1983, 39, 703.
132. Menger, F. M. Directionality of Organic Reactions in Solution. 1983, 39, 1013.
133. Parry, R. J. Biosynthesis of Some Sulfur-Containing Natural Products. Investigations of the Mechanism of Carbon-Sulfur Bond Formation. 1983, 39, 1215.
134. Croft, A. P.; Bartsch, R. A. Synthesis of Chemically Modified Cyclodextrins. 1983, 39, 1417.
135. Green, R. H.; Lambeth, P. F. Leukotrienes. 1983, 39, 1687.
136. Ginsburg, D. The Role of Secondary Orbital Interactions in Control of Organic Reactions. 1983, 39, 2095.
137. Rao, A. S.; Paknikar, S. K.; Kirtane, J. G. Recent Advances in the Preparation of Synthetic Applications of Oxiranes. 1983, 39, 2323.

### Topics in Current Chemistry

138. Veith, M.; Recktenwal, O. Structure and Reactivity of Monomeric, Molecular Tin(II) Compounds. 1982, 104.
139. Gielen, M. Chirality, Static and Dynamic Stereochemistry of Organotin Compounds. 1982, 104.
140. Rzaev, Z. M. O. Coordination Effects in Formation and Cross-Linking Reactions of Organotin Macromolecules. 1982, 104.
141. Eliel, E. L. Prostereoisomerism (Prochirality). 1982, 105.
142. Consiglio, G.; Pino, P. Asymmetric Hydroformylation. 1982, 105.
143. Ashe, A. J., III. The Group 5 Heterobenzenes—Arsabenzene, Stibabenzene and Bismabenzene. 1982, 105.
144. Reetz, M. T. Organotitanium Reagents in Organic Synthesis. A Simple Means to Adjust Reactivity and Selectivity of Carbanions. 1982, 106.
145. Sigel, H. J. Lithium Halocarbenoids. Carbanions of High Synthetic Versatility. 1982, 106.
146. Majestic, V. K.; Newkome, G. R. Pyridinophanes, Pyridinocrowns, and Pyridocryptands. 1982, 106.
147. Pillai, V. N. R. New Perspectives in Polymer-Supported Peptide Synthesis. 1982, 106.

### Topics in Stereochemistry

148. Oki, M. Recent Advances in Atropisomerism. 1983, 14, 1.
149. Sandström, J. Static and Dynamic Stereochemistry of Push-Pull and Strained Ethylenes. 1983, 14, 83.
150. Hirschmann, H.; Hanson, K. R. On Factoring Chirality and Stereoisomerism. 1983, 14, 183.
151. Haubenstock, H. Asymmetric Reductions with Chiral Complex Aluminum Hydrides and Tricoordinate Aluminum Reagents. 1983, 14, 213.

## Contributed Volumes

**The Alkaloids, Volume 21. Chemistry and Pharmacology**, A. Brossi, Ed., Academic Press: New York, 1983.

152. Gerzon, K.; Svoboda, G. H. Acridone Alkaloids: Experimental Antitumor Activity of Acronycine.  
 153. Bergman, J. The Quinazolinocarboline Alkaloids.  
 154. Aral, T.; Kubo, A. Isoquinolinequinones from Actinomycetes and Sponges.  
 155. Cai, J.-C.; Hutchinson, C. R. Camptothecin.  
 156. Witkop, B.; Cössinger, E. Amphibian Alkaloids.  
 157. Lundström, J. Simple Isoquinoline Alkaloids.  
 158. Collins, M. A. Mammalian Alkaloids.

**Chemistry of Heterocyclic Compounds. Small Ring Heterocycles Part I**, A. Hassner, Ed., Academic Press: New York, 1983.

159. Deyrup, J. A. Aziridines.  
 160. Nair, V. Azirines.  
 161. Zoller, V. Three-Membered Rings Containing Sulfur.

**Organic Photochemistry, Volume 6**, A. Padwa, Ed., Marcell Dekker: New York, 1983.

162. Schultz, A. G.; Motyka, L. Photochemical Heterocyclizations of Systems Isoelectronic with Pentadienyl Anion.  
 163. Sundberg, R. J. Chloroacetamide Photocyclizations and Other Aromatic Alkylations Initiated by Photo-Induced Electron Transfer.  
 164. Tolbert, L. M. The Photochemistry of Organic Anions.  
 165. Farid, S.; Mattes, S. L. Photochemical Electron Transfer Reactions of Olefins and Related Compounds.  
 166. Cristol, S.; Bindel, T. A. Photosolvolyses and Attendant Photoreactions Involving Carbocations.

**The Peptides. Analysis, Synthesis, Biology, Volume 5, Special Methods in Peptide Synthesis**, E. Gross and J. Meienhofer, Eds., Academic Press: New York, 1983.

167. Wetzel, R.; Goeddel, D. V. Synthesis of Polypeptides by Recombinant DNA Methods.  
 168. Yajima, H.; Jujii, M. Acidolytic Deprotection Procedures in Peptide Synthesis.  
 169. Bodanszky, M.; Martinez, J. Side Reactions in Peptide Synthesis.

170. Benoiton, N. L. Quantitation and Sequence Dependence of Racemization in Peptide Synthesis.  
 171. Noda, K.; Shimohigashi, Y.; Izumiya, N.  $\alpha,\beta$ -Dehydropeptides.  
 172. Roberts, D. C.; Vellaccio, F. Unusual Amino Acids in Peptide Synthesis.  
 173. Johansen, J. T. Enzymatic Synthesis of Peptides.

**Progress in Physical Organic Chemistry, Volume 13**, R. Taft, Ed., Wiley-Interscience: New York, 1983.

174. Pross, A.; Radom, L. A Theoretical Approach to Substituent Interactions in Substituted Benzenes, p 1.  
 175. Godleski, S. A.; Schleyer, P. v. R.; Osawa, E.; Wipke, W. T. The Systematic Prediction of the Most Stable Neutral Hydrocarbon Isomer, p 63.  
 176. Charton, M. Electrical Effect Substituent Constants for Correlation Analysis, p 119.  
 177. Stock, L. M.; Wasielewski, M. R. The Trifluoromethyl Group in Chemistry and Spectroscopy Carbon-Fluorine Hyperconjugation, p 253.  
 178. Runge, W. Substituent Effects in Allenes and Cumulenes, p 315.  
 179. Abboud, J. L. M.; Kamlet, M. J.; Taft, R. W. An Examination of Linear Solvation Energy Relationships, p 485.

**Reactive Intermediates**, R. A. Abramovitch, Ed., Plenum Press: New York.

Volume 2. 1982

180. Scriven, E. F. V. Solution Chemistry of Aryl Nitrenes.  
 181. Padwa, A.; Carlsen, J. H. J. Nitrile Ylides and Nitrenes from 2*H*-Azirines.  
 182. Surzur, J.-M. Cyclizations by Intramolecular Additions.  
 183. Tang, Y.-N. Reactions in Silicon Atoms and Silylenes.  
 184. Reinecke, M. G. Five-Membered Hetarynes.  
 185. Baretta, A.; Waegell, B. Favorskii Rearrangement Mechanisms.

Volume 3. 1983

186. Tiecco, M.; Testaferri, L. Homolytic Aromatic Substitution by Alkyl Radicals.  
 187. Wilt, J. W. Radical Reactions of Silanes.  
 188. Bentrude, W. G. Phosphoranyl Radicals.  
 189. Szeimies, G. Bridgehead Olefins.  
 190. Brun, P.; Waegall, B. Synthetic Applications and Reactivity of Alkoxy Radicals.  
 191. Rappoport, Z. Vinyl Cations.

## Monographs

192. Baerheim-Svendsen, A.; Verpoorte, R. Chromatography of Alkaloids. Elsevier: New York, 1983.  
 193. Bands, R. E. Preparation, Properties, and Industrial Applications of Organofluorine Compounds. Wiley: New Jersey, 1982.  
 194. Bérdy, J. CRC Handbook of Antibiotic Compounds, Volumes V-VII (1981); Volumes VIII-X (1982). CRC Press: Boca Raton, FL.  
 195. Burkert, U.; Allinger, N. L. Molecular Mechanics. American Chemical Society: Washington, DC, 1982.  
 196. Hiraoka, M. Crown Compounds. Kodansha Ltd.: Tokyo, 1982.  
 197. Marchand, A. P. Stereochemical Applications of NMR Studies in Rigid Bicyclic Systems, Volume 1. Verlag Chemie: Deerfield Beach, FL, 1982.  
 198. Marshall, J. L. Carbon-Carbon and Carbon-Proton NMR Couplings: Applications to Organic Stereochemistry and Conformational Analysis, Volumes 2. Verlag Chemie:

Deerfield Beach, FL, 1982.

199. Pettit, G. R. Synthetic Peptides, Volume 6. Academic Press: New York, 1982.  
 200. Rossi, R. A.; de Rossi, R. H. Aromatic Substitution by the  $S_{RN}1$  Mechanism. American Chemical Society, Washington, DC, 1983.  
 201. Pelletier, S. W. Alkaloids. Chemical and Biological Perspectives, Volume 1. Wiley: New Jersey, 1983.  
 202. Rétey, J.; Robinson, J. A. Stereospecificity in Organic Chemistry and Enzymology, Volume 13. Verlag Chemie: Deerfield Beach, FL, 1982.  
 203. Robinson, B. The Fischer Indole Synthesis. Wiley-Interscience: New York, 1982.  
 204. Touchstone, J. C. Practice of Thin Layer Chromatography, 2nd Ed. Wiley: New Jersey, 1983.  
 205. Warren, S. Organic Synthesis: The Disconnection Approach. Wiley: New Jersey, 1982.

## Index

- Acetylene diethers, 20  
 Acridone alkaloids, 152  
 Alcohols, replacement of hydroxyl group, 83  
 Aldol condensation, stereochemistry, 45  
 Alkaloids, 152-185, 201  
   chromatography, 192  
   sarpagine-ajmaline, 88  
   <sup>13</sup>C NMR, 77  
 Alkanes, in super acid, 59  
 Alkenes, addition and polymerization, 57  
   amination, 131  
   bridgehead, 189  
   epoxidation with O<sub>2</sub>, 97  
   photochemistry, 165  
 Allenes, halo, 109  
   substituent effects, 177  
   vinyl, 14  
 Amines, from alkenes, 131  
 Amino groups, protection, 110  
 Anisotropic molecular solids, 93  
 Antibiotics, 194  
   macrolide, 6  
   mechanism of action, 1  
 Aromatic substitution by S<sub>RN</sub>1, 200  
 Asymmetric reductions, 151  
 Asymmetric hydroformylation, 142  
 Asymmetric hydrogenation, 99  
 Aza crown compounds, aliphatic, 116  
 Azaphenalenones, synthesis, 73  
 Azides, phosphorus acid, 111  
 Aziridines, 159  
 Azirines, 160  
 Azulenes, polycyclic, 115  
   pseudo, 34  
 Biosynthesis, macrolide antibiotics, 6  
   sulfur compounds, 133  
 Calixarenes, 19  
 Camptothecin, 155  
 Carbanions, photochemistry, 164  
   reactivity, 144  
 Carbocations, rearrangements, 43  
   di-, 56  
   vinyl, 191  
 Carbohydrates, cyclodextrins, 134  
   functionalization, 76  
   isocyanates, 81  
 Carbonyl groups, transposition, 66, 129  
 N-Chloroalkenylamines, homolytic cyclization, 55  
 Conformation and reactivity, 62  
 Conformation, conjugated systems, 108  
   nucleic acids, 90  
 Crown compounds, 106  
 Crystallographic data, 18  
 Cyclizations, intramolecular, 182  
   Nazarov, 122  
 Cyclodextrins, 134  
 Cyclopentadienyl metal compounds, 36  
 Dehalogenation, polyhalo ketones, 84  
 Dehydropeptides, 171  
 Deprotection, in peptide synthesis, 168  
 1,4-Diazines, 52  
 Diazomethane, reactions, 46  
 Diels-Alder reaction, heterodienophiles, 123  
 Diimines, as ligands, 39  
 Dioxane, halogen derivatives, 94  
 Directionality of reactions, 132  
 DNA synthesis, 127  
 Dye diffusion in color photography, 53  
 Electrochemical oxidation, 13  
 Electrochemistry, 42  
 Electron transfer, photoinduced, 163, 165  
   reactions, 7  
   reactions in photochemistry, 17  
 Electronic and steric effects in cyclizations, 106  
 Enamines, 125  
 Enzymes, in synthesis, 48  
 Epoxides, 137  
   base-promoted isomerization, 85  
   from alkenes, 97  
 Ethers, cleavage, 120  
 Exciplexes, reactions, 41  
 Favorskii rearrangement, 185  
 Flash vacuum thermolysis, 89  
 Fluorides, alkali, in synthesis, 119  
 Fluorine compounds, 193  
   α-dicarbonyl, 103  
 Germanium compounds, 40  
 Gibberellin synthesis, 10  
 β-Haloenamides, 82  
 Halogen fluorosulfates, 102  
 Hetarynes, 184  
 Heterobenzenes, 143  
 Heterocyclic compounds, 26-35, 159-161  
   synthesis from unsaturated nitriles, 75  
 Heterocyclization, photochemical, 23, 162  
 Heterophilic reactions, 60  
 Homoenate anions, 128  
 Hydrocarbons, cyclic, strain energy, 105  
 Hydrocarbon isomers, stability, 175  
 Hydrocarbon reactions, on metals, 63  
 Hydrogenation, asymmetric, 15  
 Hydroxylation, steroid, 65  
 Indole alkaloids, 88  
 Indoles, Fischer synthesis, 203  
 Infrared spectra, 74  
 Ionophores, 12  
 Isoflavonoids, 87  
 Isoquinoline alkaloids, 157  
 Isoquinolinequinones, 154  
 Isotope effects, temperature dependence, 4  
 Leukotrienes, 49, 64, 135  
 Linear solvation energies, 179  
 Lithium halocarbenoids, 145  
 Macrocyclic carbonyl compounds, 12  
   calixarene, 19  
 Mechanisms, S<sub>N</sub>2 reactions, 21  
 Metalloboranes, 37  
 Molecular mechanics, 195  
   calculations, 50  
 Naphthyridines, 32, 33  
 Nitrenes, aryl, 180  
   from azirines, 181  
 Nitrosation mechanisms, 44  
 Nitrosoalkenes and alkynes, 68  
 NMR, coupling constants, 198  
   <sup>13</sup>C of alkaloids, 77  
   <sup>15</sup>N in biological systems, 8  
   rigid bicyclic systems, 197  
 Nucleic acids, conformations, 90  
 Orbital interactions, secondary, 136  
 Organometallic compounds, 36-40  
   oxidation, 96  
 Organotin compounds, macromolecular, 140  
   S<sub>N</sub>2 reactions, 21  
   stereochemistry, 139  
   structure and reactions, 138  
 Oxocarbons, 20  
 Ozonides, 9  
 Peptides, 199  
 Peptide synthesis, 167-173  
   polymer-supported, 147  
   protective groups, 110  
 Pericyclic reactions, 14  
 Peroxydisulfate, 7  
 Peroxydisulfuryl difluoride, 102  
 Phase-transfer catalysis, 79  
 Phenols, anionic cyclization, 71  
 Phenothiazines, infrared spectra, 74  
 Phosphate esters, chiral, 24  
 Phosphorus acid azides, 161  
 Phosphorus compounds, 1,3,2-dihetero-  
   phospholanes, 104, 112  
   in oxaphosphonium, 83  
 Photochemistry, 162-166  
   cyclizations, 91, 92  
   electron-transfer mechanisms in, 17  
   heterocyclic compounds, 31  
   heterocyclization, 23  
   metal-catalyzed, 130  
 Photocycloaddition, 61  
 Photoelectron spectroscopy, 54  
 Photography, dye diffusion in, 53  
 Piperazinediones, stereoselective synthesis, 80  
 Plasma chemistry, organic, 22  
 Polymerization, alkenes, 57, 61  
 Polypeptides, by recombinant DNA, 167  
 Porphyrins, hindered, 98  
 Pyridines, dialkylamino as catalysis, 70  
 Pyridino macrocycles, 146  
 Pyrindo[1,2-*a*]pyrimidines, 35  
 Pyrimidines, 26  
 Pyrroles, 2*H*- and 3*H*-, 29  
 Pyrylium salts, with nucleophiles, 95  
 Quinazolinocarboline alkaloids, 153  
 Quinone ketals, 13  
 Racemization, in peptide synthesis, 169  
 Radicals, alkoxy, 190  
   anion, 5  
   from *N*-chloroalkenylamines, 55  
   homolytic substitution, 186  
   phosphoranyl, 188  
   silane, 187  
 Radioiodination, 58  
 Rearrangements, carbocation, 43  
 Selenadiazoles, 1,2,5-, 72  
 Silicon compounds, carbonyl equivalents, 67  
   silylenes, 183  
 Silyl enol ethers, 117, 118  
 Solvolysis, photochemical, 166  
 Solvolysis reactions, gas phase, 124  
 Stereochemistry, atropisomerism, 148  
   chirality in, 150  
   in diol synthesis, 45  
   NMR coupling constants, 198  
   prochirality, 141  
   strained ethylenes, 149  
 Stereospecificity, 202  
 Steroids, microbiological oxidation, 65  
   side-chain synthesis, 69  
 Stilbenes, synthesis, 121  
 Structural data, analysis, 18  
 Substituent constants, electrical effects, 176  
 Substituent interactions, theory, 174  
 Sugars, synthesis of, 25  
 Sulfur compounds, biosynthesis, 133  
   heterocyclic, 126  
   three-membered rings, 161  
 Sulfur-containing macrocycles, 107  
 Synthesis, asymmetric, 3  
   disconnection approach, 205  
   enzymes in, 48  
   ether cleavage in, 120  
   gibberellins, 10  
   oxiranes in, 137  
   steroid side chains, 69  
   stilbenes, 121  
   sugars, 25  
   titanium compounds in, 144  
   titanium and zirconium compounds in,  
     51  
   with homoenolates, 128  
   with silyl enol ethers, 117, 118  
 Terpenoids, from hepaticae, 86  
   labdanes, 100  
 Thermodynamics, alkanes in super acid, 59  
   metastable intermediates, 16  
 Thiadiazoles, 1,2,4-, 30  
   1,2,5-, 72  
 Thiocyanates, monosaccharide, 81  
 Thiophenes, 27, 28  
   reactions of, 78  
 Titanium compounds in synthesis, 51, 144  
 TLC, 204  
 Tosylhydrazones, 11  
 Transition-metal complexes, 113  
   chiral, 3  
   cyclopentadienyl, 101  
 Tricothecenes, 2  
 Triflic acid, 47  
 Trifluoromethyl groups, 177  
 Xanthenes, natural, 114  
 Ylides, nitrile, 181  
 Zirconium compounds in synthesis, 51