

Recent Reviews. 38

compiled by Veronica M. Cornel and Dennis C. Liotta

Department of Chemistry, Emory University, Atlanta, Georgia, 30322

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 two categories: regularly issued review journals and series volumes followed by other monographs. Titles are numbered serially, and these numbers are used for reference 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 principally the early part of the 1995 literature. Previous installment: *J. Org. Chem.* 1995, 60(14), 4669-4676.

These Recent Review articles are now also available in a database form on the ACS Organic Division WWW site <http://www.chem.emory.edu:80/oh/ordine/org.html>.

Regularly Issued Journals and Series Volumes

Accounts Of Chemical Research

1. Gasparrini, F.; Lunazzi, L.; Misiti, D.; Villani, C. Organic Stereochemistry and Conformational Analysis from Enantioselective Chromatography and Dynamic Nuclear Magnetic Resonance Measurements. **1995**, 28(4), 163-70.
2. Otting, G.; Liepinsh, E. Protein Hydration Viewed by High-Resolution NMR Spectroscopy: Implications for Magnetic Resonance Contrast. **1995**, 28(4), 171-7.
3. Kenyon, G. L.; Gerit, J. A.; Petsko, G. A.; Kozarich, J. W. Mandelate Racemase: Structure-Function Studies of a Pseudosymmetric Enzyme. **1995**, 28(4), 178-86.
4. Lund, E.; Björkhem, I. Role of Oxysterols in the Regulation of Cholesterol Homeostasis: A Critical Evaluation. **1995**, 28(6), 241-50.
5. Moore, P. B. Determination of RNA Conformation by Nuclear Magnetic Resonance. **1995**, 28(6), 251-6.
6. Allen, A. D.; Ma, J.; McAllister, M. A.; Tidwell, T. T.; Zhao, D. New Tricks from an Old Dog: Bisketenes after 90 Years. **1995**, 28(6), 265-72.

Advances in Organometallic Chemistry

7. Williams, R. E. Early Carboranes and Their Structural Legacy. **1994**, 36, 1-56.
8. Bowser, J. R. Organometallic Derivatives of Fullerenes. **1994**, 36, 57-94.
9. White, D.; Coville, N. J. Quantification of Steric Effects in Organometallic Chemistry. **1994**, 36, 95-158.
10. Zybill, C.; Handwerker, H.; Friedrich, H. Silaorganometallic Chemistry on the Basis of Multiple Bonding. **1994**, 36, 229-82.
11. Schaverien, C. J. Organometallic Chemistry of the Lanthanides. **1994**, 36, 283-362.

Angewandte Chemie, International Edition in English

12. Böhrner, V. Calixarenes, Macrocycles with (Almost) Unlimited Possibilities. **1995**, 34(7), 713-45.

13. Pratviel, G.; Bernadou, J.; Meunier, B. Carbon-Hydrogen Bonds of DNA Sugar Units as Targets for Chemical Nucleases and Drugs. **1995**, 34(7), 746-69.

14. Kurreck, H.; Huber, M. Model Reactions for Photosynthesis-Photoinduced Charge and Energy Transfer Between Covalently Linked Porphyrin and Quinone Units. **1995**, 34(8), 867-80.

15. Dodt, J. Anticoagulatory Substances of Bloodsucking Animals: From Hirudin to Hirudin Mimetics. **1995**, 34(8), 867-80.

16. Schreiber, S. L.; Chen, J. K. Combinatorial Synthesis and Multidimensional NMR Spectroscopy: An Approach to Understanding Protein-Ligand Interactions. **1995**, 34(9), 953-69.

17. Lunsford, J. H. The Catalytic Oxidative Coupling of Methane. **1995**, 34(9), 970-80.

18. Berrisford, D. J.; Bolm, C.; Sharpless, K. B. Ligand-Accelerated Catalysis. **1995**, 34(10), 1059-70.

19. Britzinger, H. H.; Fischer, D.; Mülhaupt, R.; Rieger, B.; Waymouth, R. M. Stereospecific Olefin Polymerization with Chiral Metallocene Catalysts. **1995**, 34(11), 1143-70.

Australian Journal of Chemistry

20. Bendall, J. G.; Cambie, R. C. Invited Review: Totarol-A Nonconventional Diterpenoid. **1995**, 48(5), 883-917.

21. Li, C. P.; Blackman, A. J. Cylindricines H-K, Novel Alkaloids from the Ascidian *Clavelina cylindrica*. **1995**, 48(5), 955-65.

Bulletin de la Societe Chimique de France

22. Azerad, R. Application of Biocatalysts in Organic Synthesis. **1995**, 132(1), 17-51.

23. Chaudret, B. Chemistry of the Electrophilic CP*-Ru⁺ Fragment-Activation of C-H, C-O, C-C, C-Cl, and C-S Bonds and Some Applications. **1995**, 132(3), 268-79.

Canadian Journal of Chemistry

24. Chen, D.; Martell, A. E.; Mcmanus, D. Studies on the Mechanism of Chelate Degradation in Iron-Based, Liquid Redox H₂S Removal Processes. **1995**, 73(2), 264–74.

Chemical Reviews

25. Clark, D. L. Actinide Carbonate Complexes and Their Importance in Actinide Environmental Chemistry. **1995**, 95(1), 25–48.

26. Jessop, P. G.; Ikariya, T.; Noyori, R. Homogeneous Hydrogenation of Carbon Dioxide. **1995**, 95(2), 259–72.

27. Alexander, V. Design and Synthesis of Macrocyclic Ligands and Their Complexes of Lanthanides and Actinides. **1995**, 95(2), 273–342.

28. Hattori, H. Heterogeneous Basic Catalysis. **1995**, 95(3), 537–58.

29. Fletcher, M. T.; Kitching, W. Chemistry of Fruit Flies. **1995**, 95(4), 789–828.

30. Crabtree, R. H. Aspects of Methane Chemistry. **1995**, 95(4), 987–1007.

31. Rücker, C. The Triisopropylsilyl Group in Organic Chemistry: Just a Protective Group, or More? **1995**, 95(4), 1009–64.

32. Benetti, S.; Romagnoli, R.; De Risi, C.; Spalluto, G.; Zanirato, V. Mastering β -Keto Esters. **1995**, 95(4), 1065–115.

Chemical Society Reviews

33. Paquette, L. A. Centenary Lecture: Bridgehead Unsaturation in Compounds of Nature: A Proper Forum for Unleashing the Potential of Organic Synthesis. **1995**, 24(1), 9–17.

34. Gani, D.; Wilkie, J. Stereochemical, Mechanistic, and Structural Features of Enzyme-Catalysed Phosphate Monoester Hydrolyses. **1995**, 24(1), 55–63.

35. Pietra, F. Structurally Similar Natural Products in Phylogenetically Distant Marine Organisms, and a Comparison with Terrestrial Species. **1995**, 24(1), 65–71.

36. Chisholm, M. H. The Emerging Chemistry of Polynuclear Metal Hydrido Alkoxides: H_xM_y(OR)_z. **1995**, 24(2), 79–87.

37. Brunet, J.-J.; Chauvin, R. Synthesis of Diarylketones Through Carbonylative Coupling. **1995**, 24(2), 89–95.

38. Katti, K. V.; Reddy, V. S.; Singh, P. R. Coordination Chemistry of Phosphorus(III) and Phosphorus(V) Hydrazides. **1995**, 24(2), 97–107.

Chemistry and Industry

39. Brady, P. A.; Levy, E. G. Enzyme Mimics. **1995**, (1), 18–21.

40. Paik, Y. H.; Swift, G. Polysaccharides as Raw Materials. **1995**, (2), 55–9.

41. Spitz, I. M.; Agranat, I.; Antiprogestins: Modulators in Reproduction. **1995**, (3), 89–92.

42. Beare-Rogers, J. Controversies in Lipid Nutrition. **1995**, (4), 131–4.

43. Caldwell, J. 'Chiral Pharmacology' and the Regulation of New Drugs. **1995**, (5), 176–9.

44. Simpson, T. J. Polyketide Biosynthesis. **1995**, (11), 407–11.

45. Tietze, L. F. Domino Reactions in Organic Synthesis. **1995**, (12), 453–7.

Chemistry in Britain

46. Constable, E. C.; Smith, D. Building on Biology. **1995**, 32(1), 33–7.

47. Bissell, R.; Boden, N. Liquid Crystals Display New Potential. **1995**, 32(1), 38–41.

48. Leibler, L.; Fredrickson, G. H. The Shape of Polymers to Come? **1995**, 32(1), 42–5.

49. Bain, C. D.; Evans, S. D. Laying it on Thin. **1995**, 32(1), 46–8.

50. Hoekstra, E. J.; De Leer, E. W. B. Organohalogenes: The Natural Alternatives. **1995**, 32(2), 127–31.

51. Frost, J. W.; Draths, K. M. Sweetening Chemical Manufacture. **1995**, 32(3), 206–10.

52. Valeur, B.; Bardez, E. Cations in Control. **1995**, 32(3), 216–20.

53. Murphy, D. J. New Oils for Old. **1995**, 32(4), 300–2.

54. Ring, S. G. Stiff Tests for Designer Starches. **1995**, 32(4), 303–7.

55. Shorter, J. A Quarrel Between Two Chemists. **1995**, 32(4), 310–2.

56. Siegel, J. S.; Seiders, T. J. From Bowls to Saddles. **1995**, 32(4), 313–6.

57. Clough, J. M.; Godfrey, C. R. A. Growing Hopes. **1995**, 32(6), 466–9.

CHEMTECH

58. Waymouth, R. M.; Knight, K. S. Constructing Cyclics from Simple Olefins. New Catalytic Reactions Using Soluble Zirconium Complexes form Carbon–Magnesium And Carbon–Carbon Bonds. Mechanistic Understanding allows for Control of Chemo- and Stereoselectivity. **1995**, 25(4), 15–21.

59. Tundo, P.; Selva, M. Simplify Gas–Liquid Phase Transfer Catalysis. **1995**, 25(5), 31–5.

60. Zentel, R.; Brehmer, M. Create Ferroelectric Liquid Crystal Elastomers. **1995**, 25(5), 41–8.

61. Shani, A. The Struggles of Jojoba. **1995**, 25(5), 49–54.

62. Pidgeon, C. Ong, S. Predicting Drug–Membrane Interactions. **1995**, 25(6), 38–48.

Contemporary Organic Synthesis

63. Shipman, M. Aromatic Heterocycles as Intermediates in Natural Product Synthesis. **1995**, 2(1), 1–17.

64. Casson, S.; Kocienski, P. The Hydrometallation, Carbometallation, and Metallometallation of Heteroalkynes. **1995**, 2(1), 19–34.

65. Oxford, A. W. Serotonin, Sumatriptan, and the Management of Migraine. **1995**, 2(1), 35–41.

66. Blagg, J. Stoichiometric Organotransition Metal Complexes in Organic Synthesis. **1995**, 2(1), 43–64.

67. Frost, C. G.; Williams, J. M. J. Catalytic Applications of Transition Metals in Organic Synthesis. **1995**, 2(2), 65–83.

68. Spargo, P. L. Organic Halides. **1995**, 2(2), 85–105.

69. Harrison, T.; Laduwahetty, T. Carboxylic Acids and Esters. **1995**, 2(2), 107–19.

70. Prakash, O.; Saini, N.; Tanwar, M. P.; Moriarty, M. Hypervalent Iodine in Organic Synthesis: α -Functionalization of Carbonyl Compounds. **1995**, *2*(2), 121–31.

Coordination Chemistry Reviews

71. Guerriero, P.; Tamburini, S.; Vigato, P. A. From Mononuclear to Polynuclear Macrocyclic or Macroacyclic Complexes. **1995**, *139*, 17–243.

72. Mizobe, Y.; Ishii, Y.; Hidai, M. Synthesis and Reactivities of Diazoalkane Complexes. **1995**, *139*, 281–311.

73. Rawson, J. M.; Winpenny, R. E. P. The Coordination Chemistry of 2-Pyridone and its Derivatives. **1995**, *139*, 313–74.

74. Mitewa, M. Coordination Properties of the Bioligands Creatinine and Creatine in Various Reaction Media. **1995**, *140*, 1–25.

75. Pandey, K. K. Reactivities of Carbonyl Sulfide (COS), Carbon-Disulfide (CS₂) and Carbon-Dioxide (CO₂) with Transition-Metal Complexes. **1995**, *140*, 37–114.

76. Kabesova, M.; Boca, R.; Melnik, M.; Valigura, D.; Dunajurco, M. Bonding Properties of Thiocyanate Groups in Copper(II) and Copper(I) Complexes. **1995**, *140*, 115–35.

77. Brand, H.; Arnold, J. Recent Developments in the Chemistry of Early Transition-Metal Porphyrin Compounds. **1995**, *140*, 137–68.

78. Zakrzewski, J.; Giannotti, C. Axial Coordination of Azaferrocene to Transition-Metal Macrocyclic Complexes—Photoactivation of the Macrocyclic. **1995**, *140*, 169–87.

79. Katsuki, T. Catalytic Asymmetric Oxidations Using Optically-active (Salen) Manganese(III) Complexes as Catalysts. **1995**, *140*, 189–214

80. Kilimann, U.; Edelman, F. T. Lanthanides and Actinides—Annual Survey Covering the Year 1992. **1995**, *141*, 1–61.

81. Richmond, M. G. Annual Survey of Ruthenium and Osmium for the Year 1993. **1995**, *141*, 63–152.

82. Hegedus, L. S. Transition-metals in Organic Synthesis—Annual Survey Covering the year 1993. **1995**, *141*, 153–369.

83. Ungvary, F. Transition-metals in Organic Synthesis—Hydroformylation, Reduction, and Oxidation—Annual Survey Covering the Year 1993. **1995**, *141*, 371–493.

Heterocycles

84. Rodina, L. L.; Ryzhakov, A. V. Charge Transfer Complexes in the Chemistry of Aromatic N-Oxides. **1995**, *40*(2), 1035–53.

85. Iddon, B. Synthesis and Reactions of Lithiated Monocyclic Azoles Containing Two or More Hetero-atoms. Part V. Isothiazoles and Thiazoles. **1995**, *41*(3), 533–93.

Journal of Heterocyclic Chemistry

86. Sheremetev, A. B. Chemistry of Furazans Fused to 5-Membered Rings. **1995**, *32*(2), 371–85.

Natural Product Reports

87. Harper, D. B.; O'Hagan, D. The Fluorinated Natural Products. **1994**, *11*(2), 123–34.

88. Hughes, A. B.; Rudge, A. J. Deoxynojirimycin: Synthesis and Biological Activity. **1994**, *11*(2), 135–62.

89. Michael, J. P. Quinoline, Quinazoline, and Acridone Alkaloids. **1994**, *11*(2), 163–72.

90. Dewick, P. M. The Biosynthesis of Shikimate Metabolites. **1994**, *11*(2), 173–204.

91. Nomura, T.; Hano, Y. Isoprenoid-Substituted Phenolic Compounds of Moraceous Plants. **1994**, *11*(2), 205–18.

92. Parmar, V. S.; Tyagi, O. D.; Malhotra, A.; Singh, S. K.; Bisht, K. S.; Jain, R. Novel Constituents of *Uvaria* Species. **1994**, *11*(2), 219–24.

93. Grayson, D. H. Monoterpenoids. **1994**, *11*(2), 225–48.

94. Dowd, P.; Hershline, R.; Ham, S. W.; Naganathan, S. Mechanism of Action of Vitamin K. **1994**, *11*(3), 251–64.

95. Hanson, J. R.; Diterpenoids. **1994**, *11*(3), 265–78.

96. Abe, I.; Tomesch, J. C.; Wattanasin, S.; Prestwich, G. D. Inhibition of Squalene Biosynthesis and Metabolism. **1994**, *11*(3), 279–302.

97. Banthorpe, D. V. Secondary Metabolism in Plant Tissue Culture. **1994**, *11*(3), 303–28.

98. Lewis, J. R. Amaryllidaceae and *Sceletium* Alkaloids. **1994**, *11*(3), 329–32.

99. Botting, N. P. Isotope Effects in the Elucidation of Enzyme Mechanisms. **1994**, *11*(4), 337–54.

100. Lewis, J. R. Muscarine, Oxazole, Imidazole, Thiazole, and Peptide Alkaloids, and Other Miscellaneous Alkaloids. **1994**, *11*(4), 395–418.

101. Cerny, V. Steroids: Reactions and Partial Syntheses. **1994**, *11*(4), 419–42.

102. Fodor, G.; Dharanipragada, R. Tropane Alkaloids. **1994**, *11*(4), 443–50.

103. Bevan, C. D.; Marshall, P. S. The Use of Supercritical Fluids in the Isolation of Natural Products. **1994**, *11*(5), 451–66.

104. Connolly, J. D.; Hill, R. A.; Ngadjui, B. T. Triterpenoids. **1994**, *11*(5), 467–92.

105. Saxton, J. E. Recent Progress in the Chemistry of Indole Alkaloids and Mould Metabolites. **1994**, *11*(5), 493–532.

106. Fraga, B. M. Natural Sesquiterpenoids. **1994**, *11*(5), 533–54.

107. Bentley, K. W. β -Phenylethylamines and the Isoquinoline Alkaloids. **1994**, *11*(5), 555–76.

108. Plunkett, A. O. Pyrrole, Pyrrolidine, Pyridine, Piperidine and Azepine Alkaloids. **1994**, *11*(6), 581–90.

109. Jiménez, C.; Riguera, R. Phenylethanoid Glycosides in Plants: Structure and Biological Activity. **1994**, *11*(6), 591–606.

110. Zeelan, F. J. Steroid Total Synthesis. **1994**, *11*(6), 607–12.

111. Robins, D. J. Pyrrolizidine Alkaloids. **1994**, *11*(6), 613–20.

112. Clissold, D.; Thickitt, C. Recent Eicosanoid Chemistry. **1994**, *11*(6), 621–38.

113. Michael, J. P. Indolizidine and Quinolizidine Alkaloids. **1994**, *11*(6), 639–58.

114. O'Hagan, D. The Biosynthesis of Fatty Acid and Polyketide Metabolites. **1995**, *12*(1), 1–32.

115. Baldwin, M. A. Modern Mass Spectrometry in Bioorganic Analysis. **1995**, *12*(1), 33–44.

116. Itoh, S.; Oshiro, Y. The Chemistry of Heterocyclic *o*-Quinone Cofactors. **1995**, *12*(1), 45–54.

117. Herbert, R. B. The Biosynthesis of Plant Alkaloids and Nitrogenous Microbial Metabolites. **1995**, *12*(1), 55–68.

118. Keserü, G. M.; Nógradí, M. The Chemistry of Macrocyclic Bis(bibenzyls). **1995**, *12*(1), 69–76.

119. Michael, J. P. Quinoline, Quinazoline, and Acridone Alkaloids. **1995**, *12*(1), 77–90.

120. Dewick, P. M. The Biosynthesis of Shikamate Metabolites. **1995**, *12*(2), 93–100.

121. Lewis, J. R. Muscarine, Oxazole, Imidazole, Thiazole, and Peptide Alkaloids, and Other Miscellaneous Alkaloids. **1995**, *12*(2), 135–64.

122. Dutton, C. J.; Banks, B. J.; Cooper, C. B. Polyether Ionophores. **1995**, *12*(2), 165–82.

123. Ward, R. S. Lignans, Neolignans, and Related Compounds. **1995**, *12*(2), 183–206.

124. Hanson, J. R. Diterpenoids. **1995**, *12*(2), 207–18.

Organic Preparations and Procedures International

125. Rossi, R.; Carpita, A.; Bellina, F. Palladium- and/or Copper-Mediated Cross-Coupling Reactions Between 1-Alkynes and Vinyl, Aryl, 1-Alkynyl, 1,2-Propadienyl, Propargyl and Allylic Halides or Related Compounds. A Review. **1995**, *27*(2), 127–60.

126. Cho, B. P. Recent Progress in the Synthesis of Nitropolyarenes. A Review. **1995**, *27*(3), 243–72.

127. Gouliarov, A. H.; Mønster, J. B.; Vedsø, M.; Senning, A. Synthetic and Analytical Aspects of the Chemistry of Piracetam-type Substituted Pyrrolidines. A Review. **1995**, *27*(3), 273–304.

128. Lowe, C.; Vederas, J. C. Naturally Occurring β -Lactones: Occurrence, Syntheses and Properties. A Review. **1995**, *27*(3), 305–46.

129. Nájera, C.; Yus, M. Acyl Main Group Metal and Metalloid Derivatives in Organic Synthesis. A Review. **1995**, *27*(4), 383–456.

Pure and Applied Chemistry

130. Bunton, C. A. C. K. Ingold: A Chemical Revolutionary. **1995**, *67*(5), 667–72.

131. Maia, A. Anion Activation by Quaternary Onium Salts and Polyether Ligands in Homogeneous and Heterogeneous Systems. **1995**, *67*(5), 697–702.

132. Marquet, J.; Casado, F.; Cervera, M.; Espin, M.; Gallardo, I.; Mir, M.; Niat, M. Reductively Activated 'Polar' Nucleophilic Aromatic Substitution. A New Mechanism in Aromatic Chemistry? **1995**, *67*(5), 703–10.

133. Page, M. I.; Laws, A. P.; Slater, M. J.; Stone, J. R. Reactivity of β -Lactams and Phosphoramidates and Reactions with β -Lactamase. **1995**, *67*(5), 711–8.

134. Perrin, C. L. Reverse Anomeric Effect and Steric Hindrance to Solvation of Ionic Groups. **1995**, *67*(5), 719–28.

135. Arnett, E. M.; Flowers, R. T., II; Ludwig, R. T.; Meekhof, A.; Walek, S. Thermodynamics for C–H Bond-Breaking of Some Amphihydric Compounds by Transfer of Protons, Hydride Ions, H-atoms and Electrons. **1995**, *67*(5), 729–34.

136. Moss, R. A. Dynamics of Intramolecular Carbenic Rearrangements. **1995**, *67*(5), 741–8.

137. Wentrup, C.; Kappe, C. O.; Wong, M. W. The Use of 1,2-shifts in Carbenes and Nitrenes in the Generation of Novel Heterocumulenes. **1995**, *67*(5), 749–54.

138. Schleyer, P. v. R.; Maerker, C. Exact Structures of Carbocations Established by Combined Computational and Experimental Methods. **1995**, *67*(5), 755–60.

139. Vančik, H. Matrix Isolation and Vibrational Spectroscopy of Carbocations. **1995**, *67*(5), 761–8.

140. Siehl, H.-U. NMR Spectroscopic and Computational Investigations of σ -Interactions in Carbocations: The β -Silyl Effect in Vinyl Cations. **1995**, *67*(5), 769–76.

141. Allen, A. D.; Liu, R.; Ma, J.; McAllister, M. A.; Tidwell, T. T.; Zhao, D.-c. Silylated Bisketenes: Accessible and Reactive Organic Intermediates. **1995**, *67*(5), 777–82.

142. Ando, W. Highly Reactive Small and Medium Carbocyclic Silanes and Germanes. **1995**, *67*(5), 805–10.

143. Curci, R.; Dinoi, A.; Rubino, M. F. Dioxirane Oxidations: Taming the Reactivity–Selectivity Principle. **1995**, *67*(5), 811–22.

144. Shorter, J. The Centenary of the Birth of Louis Hammett. **1995**, *67*(5), 835–40.

145. Koskinen, A. M. P. Asymmetry: To Make a Distinction. **1995**, *67*(7), 1031–6.

146. Costamagne, J.; Canales, J.; Vargas, J.; Ferraudi, G. Electrochemical Reduction of Carbon Dioxide by Hexa-Azamacrocyclic Complexes. **1995**, *67*(7), 1045–52.

147. Danil de Namor, A. F.; Cardenas Garcia, J. D.; Bullock, J. I.; Synthesis and Thermodynamic Characterisation of Cobalt(II), Nickel(II) and Copper(II) Complexes of Ethylenediamine-*N,N,N',N'*-Tetraacetanilide. **1995**, *67*(7), 1053–8.

148. Vincenti, M.; Minero, C.; Pelizzetti, E.; Secchi, A.; Dalcanale, E. Host–guest Chemistry in the Gas Phase and at the Gas–Solid Interface: Fundamental Aspects and Practical Applications. **1995**, *67*(7), 1075–84.

Recueil des Travaux Chimiques des Pays-Bas

149. Hulst, R.; Kellogg, R. M.; Feringa, B. L. New Methodologies for Enantiomeric-excess (*ee*) Determination Based on Phosphorus NMR. **1995**, *114*(4/5), 115–38.

150. Wubbolts, M. G.; Noordman, R.; van Beilen, J. B.; Witholt, B. Enantioselective Oxidation by Non-Heme Iron Mono-oxygenases from *Pseudomonas*. **1995**, *114*(4/5), 139–44.

Research on Chemical Intermediates

151. Pollington, S. D.; Ioffe, M. S.; Westergaard, M.; Wan, J. K. S. A High-Power X-Band Pulsed Microwave-Induced Catalytic Decomposition of Methane with Integral Acoustic Measurements. **1995**, *21*(2), 59–68.

152. Kato, H.; Nakashima, M.; Mori, Y.; Mori, T.; Hattori, T.; Murakami, Y. Promotion Effect of Metal-Oxides on C–O Bond-Dissociation in CO Hydrogenation over Rh/SiO₂ Catalyst—Possible Role of Partially Reduced-State Cations. **1995**, *21*(2), 115–26.

153. Niwa, M.; Endo, M.; Murakami, Y. Enhancement of the Shape-Selectivity in Alkylation of Methyl-naphthalene over the ZSM-5 Modified by Chemical-Vapor-Deposition of Si(OCH₃)₄. **1995**, *21*(2), 127–35.

154. Inagaki, S.; Fukushima, Y.; Miyata, M. Inclusion Polymerization of Isoprene in the Channels of Sepiolite. **1995**, *21*(2), 167–80.

155. Tagawa, T.; Nomura, N.; Shimakage, M.; Goto, S. Effects of Supports on Copper Catalysts for Methanol Synthesis from CO₂ + H₂. **1995**, *21*(3–5), 193–202.

156. Pan, G. Y.; Chen, C. L.; Gratzl, J. S.; Chang, H. M. Model-Compound Studies on the Cleavage of Glycosidic Bonds by Ozone in Aqueous-Solution. **1995**, *21*(3-5), 205-22.

157. Argyropoulos, D. S.; Heitner, C.; Schmidt, J. A. Observation of Quinonoid Groups During the Light-Induced Yellowing of Softwood Mechanical Pulp. **1995**, *21*(3-5), 263-74.

158. Billa, E.; Monties, B. Molecular Variability of Lignin Fractions Isolated from Wheat-Straw. **1995**, *21*(3-5), 303-11.

159. Ede, R. M.; Kilpelainen, I. Homo-Nuclear and Hetero-Nuclear 2D NMR Techniques Unambiguous Structural Probes for Noncyclic Benzyl Aryl Ethers in Soluble Lignin Samples. **1995**, *21*(3-5), 313-28.

160. Wong, D. F.; Leary, G.; Arct, G. The Role of Stilbenes in Bleaching and Color Stability of Mechanical Pulps. 1. The Reaction of Lignin Model Stilbenes with Alkali and Oxygen. **1995**, *21*(3-5), 329-42.

161. Westermark, U.; Samuelsson, B.; Lundquist, K. Homolytic Cleavage of the β -Ether Bond in Phenolic β -O-4 Structures in Wood Lignin and in Guaiacylglycerol- β -Guaiacyl Ether. **1995**, *21*(3-5), 343-52.

162. Argyropoulos, D. S. P-31 NMR in Wood Chemistry—A Review of Recent Progress. **1995**, *21*(3-5), 373-95.

163. Lapiere, C.; Pollet, B.; Rolando, C. New Insights into the Molecular Architecture of Hardwood Lignins by Chemical Degradative Methods. **1995**, *21*(3-5), 397-412.

164. Shevchenko, S. M.; Elder, T. J.; Semenov, S. G.; Zarubin, M. Y. Conformational Effects on the Electronic Structure and Chemical Reactivity of Lignin Model *p*-Quinone Methides and Benzyl Cations. **1995**, *21*(3-5), 413-23.

165. Gellerstedt, G.; Lindfors, E. L.; Pettersson, M.; Robert, D. Reactions of Lignin in Chlorine Dioxide Bleaching of Kraft Pulps. **1995**, *21*(3-5), 441-56.

166. Renaud, J.; Scaiano, J. C. Chain Mechanisms for the Dehydrobromination of Ring-substituted α -Bromoacetophenones in Alcohols. **1995**, *21*(3-5), 457-65.

167. Barclay, L. C. R.; Dakin, K. A.; Khor, J. A. Y. The Autoxidation of Thiol Amino-acids and Ascorbate and their Cooperative Effects as Antioxidants with Trolox in Micelles and Lipid Bilayers. **1995**, *21*(3-5), 467-88.

168. Garver, T. M.; Maa K. J.; Xu, E. C.; Holah, D. G. Size-exclusion Chromatography of the Soluble Lignin Products from Hydrogen-Peroxide Brightening of Mechanical Pulps. **1995**, *21*(3-5), 503-19.

169. Abbot, J. Reactions of Ortho-Quinones and the Model Compound 4-*t*-Butyl-1,2-Benzoquinone in Alkaline Peroxide. **1995**, *21*(3-5), 535-62.

Science

170. Kaerre, K. Express Yourself or Die: Peptides, MCH Molecules, and NK Cells. **1995**, *267*, 978-9.

171. Babbitt, P. C.; Mrachko, G. T.; Hasson, M. S.; Huisman, G. W.; Kolter, R.; Ringe, D.; Petsko, G. A.; Kenyon, G. L.; Gerlt, J. A. A Functionally Diverse Enzyme Superfamily that Abstracts the α -Protons of Carboxylic Acids. **1995**, *267*, 1159-61.

172. Bushman, F. Targeting Retroviral Integration. **1995**, *267*, 1443-4.

173. Wolynes, P. G.; Onuchic, J. N.; Thirumalai, D. Navigating the Folding Routes. **1995**, *267*, 1619-20.

174. Strukelj, M.; Papadimitrakopoulos, F.; Miller, T. M.; Rothberg, L. J. Design and Application of Electron-Transporting Organic Molecules. **1995**, *267*, 1969-72.

175. Casey, P. J. Protein Lipidation in Cell Signaling. **1995**, *268*, 221-5.

176. Artavanis-Tsakonas, S.; Matsuno, K.; Fortini, M. E. Notch Signaling. **1995**, *268*, 225-32.

177. Clark, E. A.; Brugge, J. S. Integrins and Signal Transduction Pathways: The Road Taken. **1995**, *268*, 233-9.

178. Ghosh, A.; Greenberg, M. E. Calcium Signaling in Neurons: Molecular Mechanisms and Cellular Consequences. **1995**, *268*, 239-47.

179. Mochly-Rosen, D. Localization of Protein Kinases by Anchoring Proteins: A Theme in Signal Transduction. **1995**, *268*, 247-51.

180. Taniguchi, T. Cytokine Signaling through Non-receptor Protein Tyrosine Kinases. **1995**, *268*, 251-5.

181. DeFranco, A. L.; Law, D. A. Tyrosine Phosphatases and the Antibody Response. **1995**, *268*, 263-4.

Synlett

182. van der Baan, J. L.; van der Heide, T. A. J.; van der Louw, J.; Klumpp, G. W. Preparation of Carbocyclic and Heterocyclic Compounds by the use of Allylzinc and an Allylpalladium in Tandem. **1995**, (1), 1-12.

183. Hill, C. L.; Introduction of Functionality into Unactivated Carbon-Hydrogen Bonds. Catalytic Generation and Nonconventional Utilization of Organic Radicals. **1995**, (2), 127-32.

184. Waldmann, H. Amino Acid Esters: Versatile Chiral Auxiliary Groups for the Asymmetric Synthesis of Nitrogen Heterocycles. **1995**, (2), 133-41.

185. Kumar, P.; Kumar, R.; Pandey, B. Oxidative Organic Transformations Catalyzed by Titanium- and Vanadium-Silicate Molecular Sieves. **1995**, (4), 289-98.

186. Hanzawa, Y.; Ito, H.; Taguchi, T. Formation of Carbon-Carbon Bonds Using Zirconocene-Butene Complex (Cp_2Zr) as a Synthetic Tool. **1995**, (4), 299-305.

Synthesis-Stuttgart

187. Borzilleri, R. M.; Weinreb, S. M. Imino Ene Reactions in Organic Synthesis. **1995**, (4), 347-60.

188. Bansal, R. K.; Karaghiosoff, K.; Gandhi, N.; Schmidpeter, A. 2-Substituted Cycloiminium Salts in Azaphosphole Synthesis. **1995**, (4), 361-9.

189. Jones, G. B.; Chapman, B. J. π Stacking Effects in Asymmetric Synthesis. **1995**, (5), 475-97.

190. Casiraghi, G.; Rasso, G. Furan, Pyrrole-, and Thiophene-Based Siloxydienes for Syntheses of Densely Functionalized Homochiral Compounds. **1995**, (6), 607-26.

Tetrahedron

191. Sherman, J. C. Carceplexes and Hemicarceplexes: Molecular Encapsulation—From Hours to Forever. **1995**, *51*(12), 3395-422.

192. Shiori, T.; Hamada, Y.; Matsuura, F. Total Synthesis of Phytosiderophores. **1995**, *51*(14), 3939-58.

193. Negishi, E.-I. Recent Advances in the Chemistry of Zirconocene and Related Compounds. **1995**, *51*(15), 4255-570.

194. Rodríguez, A. D. The Natural Products Chemistry of West Indian Gorgonian Octocorals. **1995**, *51*(16), 4571-618.

195. Mitchell, A. S.; Russell, R. A. Annulation Reactions with Stabilized Phthalide Anions. **1995**, *51*(18), 5207-36.

196. Weissenberg, M.; Levisalles, J. Reduction of 1-Oxo-Steroids. **1995**, *51*(20), 5711-42.

197. McKillop, A.; Sanderson, W. R. Sodium Perborate and Sodium Percarbonate: Cheap, Safe and Versatile Oxidising Agents for Organic Synthesis. **1995**, *51*(22), 6145-66.

Tetrahedron: Asymmetry

198. Fleet, G. W. J., Ed. Carbohydrates. **1994**, *5*(11), 2045-312.

199. Fleet, G. W. J., Ed. Carbohydrates-II. **1994**, *5*(12), 2313-632.

Topics in Current Chemistry

200. Hoggard, P. E. Sharp-Line Electronic-Spectra and Metal-Ligand Geometry. **1994**, *171*, 113-41.

201. Colombo, M. G.; Hauser, A.; Gudel, H. U. Competition Between Ligand Centered and Charge Transfer Lowest Excited-States in Bis-Cyclometalated Rh³⁺ and Ir³⁺ Complexes. **1994**, *171*, 143-71.

202. Wexler, D.; Zink, J. I.; Reber, C. Spectroscopic Manifestations of Potential Surface Coupling Along Normal Coordinates in Transition-Metal Complexes. **1994**, *171*, 173-203.

203. Tobe, Y. Strained *N*-Cyclophanes. **1994**, *172*, 1-40.

204. Schulz, J.; Vogtle, F. Transition-Metal Complexes of (Strained) Cyclophanes. **1994**, *172*, 41-86.

205. Inokuma, S.; Sakai, S.; Nishimura, J. Synthesis and Ionophoric Properties of Crownphanes. **1994**, *172*, 87-118.

206. Vinod, T. K.; Hart, H. Cuppedophanes and Capedophanes. 119-78.

207. Schroder, A.; Mekelburger, H. B.; Vogtle, F. Belt-shaped, Ball-shaped, and Tube-shaped Molecules. **1994**, *172*, 179-201.

Monographs

208. Abel, E. W., Stone, F. G. A., Wilkinson, G., Eds. Comprehensive Organometallic Chemistry II: A Review of the Literature 1982-1994. Vol. 1-14. Elsevier Science Ltd.: New York, 1995.

209. Ansell M. F., Ed. Second Supplements to the 2nd Edition of Rodd's Chemistry of Carbon Compounds, Vol. 4. Heterocyclic Compounds. Elsevier: Amsterdam, The Netherlands, 1994.

210. Blackman, M. J. R. Environmentally Degradable Polymers. Patent Office: London, 1993.

211. Chupakhin, O. N.; Charushin, V. N.; van der Plas, H. C. Nucleophilic Aromatic Substitution of Hydrogen. Academic: San Diego, CA, 1994.

212. Cioslowski, J. Electronic Structure Calculations on Fullerenes and Their Derivatives. Oxford University Press: Oxford, UK, 1995.

213. Copeland, R. A. Methods for Protein Analysis. Chapman & Hall: London, 1994.

214. Coppola, G. M.; Schuster, H. F.; Eds. Isoquinolines, Pt. 3 (In: *Chem. Heterocycl. Compd.* **1995**, *38*). Wiley: New York, 1995.

215. Haslam, E. Shikimic Acid. Wiley: Chichester, UK, 1993.

216. Kosak, J. R.; Johnson, T. A. Catalysis of Organic Reactions. Marcel Dekker: New York, 1994.

217. Lide, D. R.; Milne, G. W. A. Names, Synonyms, and Structures of Organic Compounds: A CRC Reference Handbook. CRC: Boca Raton, FL, 1994.

218. Litwack, G., Ed. Vitamins and Hormones. Vol. 48. Academic Press: San Diego, CA, 1994.

219. Litwack, G., Ed. Vitamins and Hormones. Vol. 49. Steroids. Academic Press: San Diego, CA, 1994.

220. Nakajima, T.; Ed. Fluorine-Carbon and Fluoride-Carbon Materials: Chemistry, Physics, and Applications; Dekker: New York, 1995.

221. Patterson, H. B. W., Ed. Hydrogenation of Fats and Oils: Theory and Practice. AOCS: Champaign, IL, 1994.

222. Quin, L. D., Verkade, J. G., Eds. Phosphorus-31 NMR Spectral Properties in Compound Characterization and Structural Analysis. VCH: New York, 1994.

223. Rahman, A.-u., Ed. Studies in Natural Products Chemistry, Vol. 15: Structure and Chemistry, Part C. Elsevier: Amsterdam, The Netherlands, 1995.

224. Rao, G. S. R. S., Ed. Special Issue on Organic Synthesis 1 (In: *J. Indian Inst. Sci.* **1994**, *74*(1)). Indian Institute of Science: Bangalore, India, 1994.

225. Rao, G. S. R. S., Ed. Special Issue on Organic Synthesis 2 (In: *J. Indian Inst. Sci.* **1994**, *74*(2)). Indian Institute of Science: Bangalore, India, 1994.

226. Rappoport, Z., Ed. The Chemistry of Enamines. Wiley: Chichester, UK, 1994.

227. Saxton, J. E., Ed. Monoterpenoid Indole Alkaloids, Supplement to Part 4. (In: *Chem. Heterocycl. Comp.* **1994**, *25*(Pt. 4, Suppl.)). Wiley: Chichester, UK, 1994.

228. Sheldon, R. A., Ed. Metalloporphyrins in Catalytic Oxidations. Marcel Dekker: New York, 1994.

229. Smith, M. B. Organic Synthesis. McGraw-Hill: New York, 1994.

230. Splitter, J. S., Tureček, F., Eds. Applications of Mass Spectrometry to Organic Stereochemistry (Series: Methods in Stereochemical Analysis) Weinheim/VCH Publishers: New York, 1994.

231. Subramanian, G., Ed. A Practical Approach to Chiral Separations by Liquid Chromatography. VCH: Weinheim, Germany, 1994.

232. Thatcher, G. R. J., Ed. The Anomeric Effect and Associated Stereoelectronic Effects. American Chemical Society: Washington DC, 1993.

233. Thompson, C. M. Dianion Chemistry. CRC: Boca Raton, FL, 1994.

234. Tidwell, T. T. Ketenes. Wiley: New York, 1995.

235. Togni, A., Hayashi, T., Eds. Ferrocenes: Homogeneous Catalysis, Organic Synthesis, Materials Science. VCH: Weinheim, Germany, 1995.

236. Trost, B., Ed. Stereocontrolled Organic Synthesis. Blackwell Science: Oxford, 1994.

Index

- Acetogenins, natural source, 194
 Acridone alkaloids, 89, 119
 Actinides, carbonate complexes, 25
 macrocyclic ligand complexes, 27
 Acyl metal reagents, 129
 Alkaloids, 100, 121
 acridone, 89, 119
 amaryllidaceae and *sceletium*, 98
 azepine, 108
 diterpenoids, 95, 124
 from *Uvaria*, 92
 indole, 105
 indolizidine, 113
 isoquinoline, 107
 monoterpenoids, 93
 natural sources, 21
 piperidine, 108
 plant, biosynthesis, 117
 polyhydroxylated, synthesis, 190
 pyridine, 108
 pyrrole, 108
 pyrrolidine, 108
 pyrrolizidine, 111
 quinazoline, 89, 119
 quinoline, 89, 119
 quinolizidine, 113
 sesquiterpenoids, 106
 triterpenoids, 104
 tropane, 102
 Alkane hydroxylase, 150
 Alkanes, activation, 183
 bridgehead, 33
 Alkenes, polymerization, *ansa*-metal-
 locene catalysis, 19
 Alkoxides, hydrido, 36
 Alkyl halides, 68
 Alkynes, cross-coupling with halides, 125
 Alkynyl halides, 68
 Allylpalladium, 182
 Allylzinc, 182
Amaryllidaceae and *Sceletium*, 98
 Amino acid esters, 184
 Amino acids, iron chelators, 192
 antioxidants, 167
 chiral, synthesis, 190
 thiol, autoxidation, 167
 α -Amino β -lactones, 128
 Amphihydric compounds, 135
 Androgen receptors, book, 218
 Anomeric effect, book, 232
 reversal, 134
 Antibiotics, bleomycins, 13
 Antibody response, 181
 Anticancer antibiotics, enediynes, 13
 Anticoagulants, 15
 Antiprogestins, 41
 Arachidonic acid, 112
 Arenes, nucleophilic H substitution, book,
 211
 Aromatic substitution, polar, reductively
 activated, 132
 Aromatics, *N*-oxides, 84
 Aromatization, of C6 hydrocarbons, 23
 Aryl halides, 68
 Asymmetric dihydroxylation, 225
 Azacrown ethers, chiral, synthesis, 145
 Azaferrocene, 78
 Azaphospholes, synthesis, 188
 Azasugars, synthesis, 190
 Azepine alkaloids, 108
 Benzimidazoles, book, 209
 Benzoxepinenones, synthesis, 225
 Benzyl alcohols, from toluene deriva-
 tives, 150
 Biaryl halides, synthesis, book, 216
 Biocatalysis, 22, 150
 Bioligands, creatine and creatinine, 74
 Biomimetics, 39
 carbohydrates, 88
 of photosynthesis, 14
 Biosynthesis, of fatty acids, 114
 of plant alkaloids, 117
 of shikamate metabolites, 120
 polyketide metabolites, 114
 polyketides, 44
 shikimate metabolites, 90
 starch, 54
 Bis(bibenzyls), 118
 Bisketenes, 6
 silylated, 141
 Bleomycins, antibiotics, 13
 Bridgehead olefins, 33
 α -Bromoacetophenones, photodecompo-
 sition, 166
 Calcium signaling, 178
 Calixarenes, 12
 Carbenic rearrangements, intramolecu-
 lar, 136
 Carbocations, 138–140
 Carbocycles, synthesis, 182, 199
 Carbohydrates, 198
 conformations, 199
 from siloxy dienes, 190
 Carbometalation, of heteroalkynes, 64
 Carbon dioxide, coordination chemistry,
 75
 hydrogenation, 26
 Carbon disulfide, coordination chemis-
 try, 75
 Carbon monoxide, activation, 37
 hydrogenation, 152
 Carbonyl sulfide, coordination chemis-
 try, 75
 Carboranes, 7
 Carboxylic acids, 69
 proton abstraction, 171
 Carboxylic esters, 69
 Cascade reactions, 45
 Catalysis, asymmetric, book, 236
 ligand-accelerated, 18
 clays, book, 216
 CFC alternatives, book, 216
 Chelates, degradation, 24
 Chelators, iron, 192
 Chiral pharmacology, 43
 Cholesterol, regulation, 4
 Chromatography, enantioselective, 1
 Circulenes, structure, 56
 Creatine, bioligands, 74
 Creatinine, bioligands, 74
 Crownophanes, 205
 Cryptands, synthesis, 145
 Cyclizations, 5-(3.4)ene, 225
 Cycloadditions, 1,3-dipolar, 184
 Cyclobutabenzofuranones, ring opening,
 225
 Cyclodextrins, 198
 Cycloiminium salts, 2-substituted, 188
 Cyclomannins, 198
 Cyclophanes, cappedophanes, 206
 crownophanes, 205
 cuppedophanes, 206
 strained, 203–204
 Cylindracines, natural sources, 21
 Cytokine signaling, 180
 Deoxynojirimycin, synthesis, 88
 Dianions, book, 233
 Diaryl ketones, via carbonylative cou-
 pling, 37
 Diazoalkane complexes, 72
 Diels–Alder reaction, aromatic hetero-
 cycles, 63
 -aza, 184
 -carbo, 184
 Dienes, cyclization, 58
 Dimethyl carbonate, methylation, 59
 Dioxirane, oxidation, 143
 Dispiroketal, in synthesis, 199
 Diterpenes, taxane, synthesis, 224
 Diterpenoids, 95, 124
 natural source, 194
 totarol, 20
 DNA cleavage, by chemical nucleases, 13
 Domino reactions, 45
 Drugs, membrane interaction, 62
 Eicosanoids, 112
 Ene reactions, imine, 187
 Ene diynes, anticancer antibiotics, 13
 Enolates, oxidation, 79
 Enzymes, mechanisms, 99
 pseudosymmetric, 3
 synthetic, 39
 Epoxidation, enantioselective, 224
 with organomanganese, 79
 Epoxyalkanes, 150
 Fats, hydrogenation, book, 221
 Fatty acids, biosynthesis, 114
 Ferrocenes, book, 235
 Fischer Carbene Complexes, 82
 Fischer–Tropsch catalysts, 152
 Fluoroacetone, natural product, 87
 Fluorocarbons, book, 220
 Fullerenes, electronic structure, book,
 212
 silicon derivatives, 142
 structure, 56
 substituted, 8
 Fungicides, 57
 Furazans, fused, 86
 Furoquinoline alkaloids, 89
 Galactonate dehydratase, 171
 Galactopyranoside, protection, 199
 Galactosides, 198
 Gene therapy, 172
 Germanium, silicon derivatives, 142
 Germylenes, reaction with alkenes, 142
 Glucopyranosides, protection, 199
 Glucose, in synthesis, 51
 Glycosides, cleavage, 156
 Hammett, L. N., physical organic reac-
 tions, 144
 Heteroalkynes, carbometalation, 64
 hydrometalation, 64
 Heteroaromatics, nuclear substitution,
 84
 nucleophilic H substitution, book,
 211
 Heteroarylacetylenes, from vinylidenes,
 137
 Heterocumulenes, synthesis, 137
 Heterocycles, aromatics, in syntheses, 63
 five-membered, book, 209
 furazans, 86
 nitrogen-containing, 100, 119, 121,
 184
 quinones, 116
 sulfur-containing, 100, 121
 Heterocycles, synthesis, 182, 188

- Heterogeneous acid catalysis, book, 216
 Heterogeneous catalysis, 152–155, 185, 224
 basic catalysts, 28
 Hirudin mimetics, 15
 Homogeneous catalysis, 67
 asymmetric, book, 216
 chiral, book, 216
 ruthenium complex, 23
 Host–guest complexes, 148, 207
 carceplexes, 191
 Hydroboration, book, 229
 Hydroformylation, transition metals, 83
 Hydrogen cyanide, synthesis, book, 216
 Hydrogenation, catalytic, book, 216
 Hydrometalation, of heteroalkynes, 64
 2-Hydroxypyridone, coordination chemistry, 73
 Hydrozirconation, 66
 Hypervalent iodine compounds, 70
 Imidazole alkaloids, 100, 121
 Imidazoles, book, 209
 Imines, ene reactions, 187
 Indole alkaloids, 105
 Indolizidine alkaloids, 113
 Ingold, C. K., physical organic reactions, 130
 Insect pheromones, 29
 chiral, 224
 Insulin-like growth factors, book, 218
 Integrin, adhesion receptors, 177
 Isoprene, polymerization, 154
 Isoquinoline alkaloids, 107
 Isoquinolines, 1-substituted-1,2,3,4-tetrahydro-, 225
 book, 214
 Isothiazoles, lithiated, 85
 Isoxazoles, in syntheses, 63
 Isoxazolones, 225
 Ketenes, book, 234
 β -Keto Esters, 32
 Ketone alkylation, with manganese enolates, 66
 Ketones, α -functionalization, 70
 Lactam acetals, 224
 β -Lactamase enzymes, 133
 β -Lactams, reactivity, 133
 β -Lactones, natural, 128
 Lanthanides, macrocyclic ligand complexes, 27
 Ligands, macrocyclic, 27
 Lignans, 123
 Lignin, 157–158, 160, 163, 165, 168–169
 hydrolysis, 161
 P-31 NMR, 162
 Lipids, 42
 Liquid crystals, 47
 elastomers, 60
 Macrocyclic complexes, aza-ligands, 146
 Mannich reactions, 184
 Mannopyranosides, protection, 199
 Mass spectrometry, natural products, 115
 of stereoisomeric compounds, book, 230
 Metal hydrido alkoxides, 36
 Metalloenzyme mimicks, 52
 Metallometalation, of heteroalkynes, 64
 Methacrylate esters, synthesis, book, 216
 Methane, coupling, 151
 homologation, 30
 oxidation, 30
 oxidative coupling, 17
 Methanol, synthesis, 155
 Methylanthalene, alkylation, 153
 Mevalonate, 96
 Mold metabolites, 105
 Molecular recognition, 207
 ligand-SH3, 16
 Molecular sieves, titanium silicate, 225
 Mono-oxygenases, 150
 Monophosphate ester hydrolyses
 Monoterpenes, 92
 Monoterpenoids, 93
 Muramic acid analogues, 199
 Muscarine alkaloids, 100, 121
 Natural killer cells, 170
 Natural products, book, 223
 camphanes, 93
 cannabinoids, 93
 caranes, 93
 cyclopentanoid, 224
 dihydrochalcones, 92
 flavonoids, 91–92
 fluorinated, 87
 from octocorals, 194
 iridoids, 93
 isolation with supercritical fluids, 103
 isoprenoid phenolics, 91
 jojoba oil, 61
 lactones, 92
 marine, 35
 pinanes, 93
 plant tissue culture, 97
 Neolignans, 123
 Nitrogenous microbial metabolites, biosynthesis, 117
 Nitropolymers, synthesis, 126
 NMR spectroscopy, protein hydration, 2
 stereodynamic, 1
 noncyclic benzyl aryl ethers, 159
 P-31, book, 222
 phosphorus, 149
 Nomenclature, book, 217
 Nootropics, 127
 Oils, hydrogenation, book, 221
 Olefins, cyclization, 58
 Oleochemicals, 53
 Organic radicals, 183
 Organo-osmium complexes, 81
 Organoactinides, 80
 Organochromium complexes, 66, 200
 Organocobalt complexes, 66, 147
 Organogermanium reagents, 129
 Organogold complexes, 202
 Organohalogens, 50
 Organoiridium complexes, 201
 Organolanthanides, 80
 Organolithium reagents, 129
 Organomanganese complexes, 66, 79
 Organometallic chemistry, books, 208
 Organometallics, lanthanides, 11
 steric effects, 9
 stoichiometric organotransition metal complexes, 66
 Organoosmium complexes, 66
 Organopalladium compounds, 182
 Organoplatinum complexes, 202
 Organorhodium complexes, 201
 Organoruthenium complexes, 81
 Organoselenium reagents, 129
 Organosilicon, complexes, 10
 reagents, 129
 Organotellurium reagents, 129
 Organotin reagents, 129
 Organozinc compounds, 182
 Organozirconium complexes, 58, 66, 193
 Orton rearrangement, 55
 Osladin, synthesis, 224
 Oxazole alkaloids, 100, 121
 Oxazoles, in syntheses, 63
 Oxidation, catalysts, 185
 catalysts, book, 216
 sulfides, 79
 transition metals, 83
 Oxidizing agents, sodium perborate, 197
 sodium percarbonate, 197
 Oxidosqualene cyclase inhibitors, 96
 2-Oxo-1-pyrrolidine acetic acid derivatives, 127
 1-Oxo-steroids, reduction, 196
 Oxysterols, cholesterol regulation, 4
 Palladium-catalyzed coupling reactions, 125
 Peptide alkaloids, 100, 121
 Phase transfer catalysis, 59
 Phenols, isoprenoid, 91
 synthesis, book, 216
 Phenylethanoid glycosides, natural, 109
 β -Phenylethylamines, 107
 Phosphatase enzymes, 34
 Phosphoramidates, 133
 Phosphorus hydrazides, 38
 Phosphorus reagents, chiral, 149
 Photosynthesis, mechanism, 14
 Phthalide anions, 195
 Phytosiderophores, 192
 π stacking effects, 189
 Pictet–Spengler reaction, 184
 Piperidine alkaloids, 108
 Plant alkaloids, biosynthesis, 117
 Platinum blue complexes, 74
 Poly(aryl acrylates), 174
 Poly(aryl ethers), 174
 Polyarenes, mononitration, 126
 Polyether ionophores, 122
 Polyketide metabolites, biosynthesis, 114
 Polyketides, biosynthesis, 44
 Polymers, 48
 biodegradable, book, 210
 electron transport
 ferroelectric, 60
 liquid crystal, 60
 Polysaccharides, in detergents, 40
 Polyxometalates, 183
 Porphyrin quinones, in charge separation reactions, 14
 Porphyrins, early metal, 77
 Prostanoids, natural source, 194
 Protecting groups, book, 229
 Protein kinases, inhibitors, 179
 Proteins, analysis, book, 213
 hydration, NMR spectroscopy, 2
 folding, 173
 Pyrazoles, book, 209
 Pyridine alkaloids, 108
 Pyridines, in syntheses, 63
 Pyrrole alkaloids, 108
 Pyrroles, in syntheses, 63
 Pyrrolidine alkaloids, 108
 Pyrrolidines, piracetam analogues, 127
 Pyrrolizidine alkaloids, 111
 Pyrroloquinolinequinone, 116
 Quaternary onium salts, with polyether ligands, 131
 Quinazoline alkaloids, 89, 119
 Quinoline alkaloids, 89, 119
 Quinolizidine alkaloids, 113
 Quinone methides, reaction with nucleophiles, 164
 Quinoprotein cofactors, 116
 Racemases, mandelate, 3
 Racetams, 127
 Radicals, addition to carbonyls, 184
 Receptors, book, 218
 Reduction, transition metals, 83

- Resorcarenes, 12
Retinoid receptors, book, 218
Retrosynthesis, book, 229
Retroviral integration, 172
RNA conformation, NMR analysis, 5
Salen complexes, 79
Saponins, synthesis, 224
 triterpenoids, 104
 Vitamin D, 101
Schiff bases, macrocyclic, 71
Self-assembled monolayers, 49
Sesquiterpenes, 92
Sesquiterpenoids, 106
 natural source, 194
Sex hormone receptors, book, 218
Shikamate metabolites, biosynthesis, 90, 120
Shikimic acid, book, 215
Signal transduction, 175-181
Siloxy dienes, in syntheses, 190
Silylenes, reaction with alkenes, 142
Sodium perborate, in oxidation reactions, 197
Sodium percarbonate, in oxidation reactions, 197
Sonogashira reaction, 125
Squalene epoxidase inhibitors, 96
Squalene synthetase inhibitors, 96
Starch, analysis, 199
Stereocontrol, book, 229
Stereoelectronic effects, book, 232
Steroids, partial synthesis, 101
 reactions, 101
 receptors, book, 219
 total synthesis, 110
Stilbenes, oxidative degradation, 160
Styrene epoxidation, 150
Sulfolenes, synthesis, 225
Sumatriptan, synthesis and pharmacology, 65
Supramolecular chemistry, 46, 207
Supramolecules, cation-controlled, 52
Synthesis, enantiomeric, 149
 enzymes, 39
 of steroids, partial, 101
 self-assembly, 46-49
 stereocontrolled, book, 236
 steroids, 110
 with glucose, 51
Taxane diterpenes, synthesis, 224
Taxol, 95
Terpenes, diterpenoids, 95, 124
 monoterpenes, 92
 sesquiterpenes, 92, 106
 triterpenoids, 104
 β -lactones, 128
Tetrahydrofuran lignans, synthesis, 224
Thiazole alkaloids, 100, 121
Thiazoles, in syntheses, 63
 lithiated, 85
Thiocyanate, copper complexes, 76
Thiophenes, in syntheses, 63
Thrombin inhibitors, 15
Titanium silicate, 185, 225
Totarol, 20
Transition metal catalysis, 67
Transition metal complexes, macrocyclic, 78
 stoichiometric, in syntheses, 66
Transition metals, organic reactions, 82-83
 porphyrin compounds, 77
Transmetalation, Schiff bases, 71
Triisopropylsilyl group, reactions, 31
Triisopropylsilylating agents, 31
Triterpenoids, 104
Tropane alkaloids, 102
Tryptophan tryptophylquinone, 116
Tyrosine kinases, 180
Tyrosine phosphatases, 181
Vanadium silicates, 185
Vinyl halides, 68
Vinylidenes, 1,2-hydrogen shift, 137
Vitamin D, molecular biology, book, 218
Vitamin K, 94
Xylene oxygenase, 150
Zirconocene compounds, 193
Zirconocene, allylic, synthesis, 186

JO9549075