

Recent Reviews. 52

compiled by compiled by Veronica M. Cornel

Department of Chemistry, Reedley College, 22288 Hogan Ave, Reedley, California 93654

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 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 latter part of the 1998 literature. Previous installment: *J. Org. Chem.* **1999**, *64*(1), 316–26.

These Recent Review articles are now also available in a database form on the ACS Organic Division WWW site <http://www.chem.unt.edu/acs/>.

Supporting Information Available: A file containing this Recent Reviews compilation in Microsoft Word and rtf format. This material is available free of charge via the Internet at <http://pubs.acs.org>.

Regularly Issued Journals and Series Volumes

Accounts of Chemical Research

1. Gruebele, M.; Sabelko, J.; Ballew, R.; Ervin, J. Laser Temperature Jump Induced Protein Refolding. **1998**, *31*(11), 699–707.
2. Dyer, R. B.; Gai, F.; Woodruff, W. H.; Gilmanishin, R.; Callender, R. H. Infrared Studies of Fast Events in Protein Folding. **1998**, *31*(11), 709–16.
3. Oliveberg, M. Alternative Explanations for “Multi-state” Kinetics in Protein Folding: Transient Aggregation and Changing Transition-State Ensembles. **1998**, *31*(11), 765–72.
4. Menger, F. M.; Angelova, M. I. Giant Vesicles: Imitating the Cytological Processes of Cell Membranes. **1998**, *31*(12), 789–97.
5. Hartwig, J. F. Carbon–Heteroatom Bond-Forming Reductive Eliminations of Amines, Ethers, and Sulfides. **1998**, *31*(12), 852–60.
6. O’Brien, D. F.; Armitage, B.; Benedicto, A.; Bennett, D. E.; Lamparski, H. G.; Lee, Y.-S.; Srisiri, W.; Sisson, T. M. Polymerization of Preformed Self-Organized Assemblies. **1998**, *31*(12), 861–8.

Angewandte Chemie, International Edition in English

7. Corey, E. J.; Helal, C. J. Reduction of Carbonyl Compounds with Chiral Oxazaborolidine Catalysts: A New Paradigm for Enantioselective Catalysis and a Powerful New Synthetic Method. **1998**, *37*(15), 1987–2012.
8. Nicolaou, K. C.; Roschangar, F.; Vourloumis, D. Chemical Biology of Epothilones. **1998**, *37*(15), 2015–45.
9. Hartwig, J. F. Transition Metal Catalyzed Synthesis

of Arylamines and Aryl Ethers from Aryl Halides and Triflates: Scope and Mechanism. **1998**, *37*(15), 2047–67.

10. Bewley, C. A.; Faulkner, D. J. Lithistid Sponges: Star Performers or Hosts to the Stars. **1998**, *37*(16), 2163–78.
11. Stahl, S. S.; Labinger, J. A.; Bercaw, J. E. Homogeneous Oxidation of Alkanes by Electrophilic Late Transition Metals. **1998**, *37*(16), 2181–92.
12. Boyer, P. D. Energy, Life, and ATP Nobel Lecture. **1998**, *37*(17), 2297–307.
13. Walker, J. E. ATP Synthesis by Rotary Catalysis Nobel Lecture. **1998**, *37*(17), 2309–19.
14. Homann, K. H. Fullerenes and Soot Formation—New Pathways to Large Particles in Flames. **1998**, *37*(18), 2435–51.
15. Renaud, P.; Gerster, M. Use of Lewis Acids in Free Radical Reactions. **1998**, *37*(19), 2563–79.
16. Lucet, D.; LeGall, T.; Mioskowski, C. The Chemistry of Vicinal Diamines. **1998**, *37*(19), 2581–627.
17. Uhlmann, E.; Peyman, A.; Breipohl, G.; Will, D. W. PNA: Synthetic Polyamide Nucleic Acids with Unusual Binding Properties. **1998**, *37*(20), 2797–823.
18. Girard, C.; Kagan, H. B. Nonlinear Effects in Asymmetric Synthesis and Stereoselective Reactions: Ten Years of Investigation. **1998**, *37*(21), 2923–59.
19. Seeman, N. C. Nucleic Acid Nanostructures and Topology. **1998**, *37*(23), 3220–38.
20. Carpenter, B. K. Dynamic Behavior of Organic Reactive Intermediates. **1998**, *37*(24), 3341–50.
21. Liu, D. R.; Schultz, P. G. Generating New Molecular Function: A Lesson from Nature. **1999**, *38*(1–2), 36–54.

- 22.** Ying, J. Y.; Mehnert, C. P.; Wong, M. S. Synthesis and Applications of Supramolecular-Templated Mesoporous Materials. **1999**, *38*(1–2), 56–77.
- 23.** Papageorgiou, V. P.; Assimopoulou, A. N.; Couadous, E. A.; Hepworth, D.; Nicolaou, K. C. The Chemistry and Biology of Alkannin, Shikonin, and Related Naphthazarin Natural Products. **1999**, *38*(3), 270–301.
- 24.** Britovsek, G. J. P.; Gibson, V. C.; Wass, D. F. The Search for New-Generation Olefin Polymerization Catalysts: Life beyond Metallocenes. **1999**, *38*(4), 428–47.
- 25.** Boger, D. L.; Cai, H. Bleomycin: Synthetic and Mechanistic Studies. **1999**, *38*(4), 448–76.

Chemical Reviews

- 26.** Avalos, M.; Babiano, R.; Cintas, P.; Jimenez, J. L.; Palacios, J. C.; Barron, L. D. Absolute Asymmetric Synthesis under Physical Fields: Facts and Fictions. **1998**, *98*(7), 2391–404.
- 27.** Martin, N.; Sanchez, L.; Illescas, B.; Perez, I. C_{60} -Based Electroactive Organofullerenes. **1998**, *98*(7), 2527–47.
- 28.** Naota, T.; Takaya, H.; Murahashi, S.-I. Ruthenium-Catalyzed Reactions for Organic Synthesis. **1998**, *98*(7), 2599–660.
- 29.** Bruce, M. I. Transition Metal Complexes Containing Allenylidene, Cumulenylidene, and Related Ligands. **1998**, *98*(8), 2797–858.
- 30.** Kozubek, A.; Tyman, J. H. P. Resorcinolic Lipids, the Natural Non-Isoprenoid Phenolic Amphiphiles and Their Biological Activity. **1999**, *99*(1), 1–25.
- 31.** Filippini, M.-H.; Rodriguez, J. Synthesis of Functionalized Bicyclo[3.2.1]octanes and Their Multiple Uses in Organic Chemistry. **1999**, *99*(1), 27–76.
- 32.** Jessop, P. G.; Ikariya, T.; Noyori, R. Homogeneous Catalysis in Supercritical Fluids. **1999**, *99*(2), 475–93.
- 33.** Savage, P. E. Organic Chemical Reactions in Supercritical Water. **1999**, *99*(2), 603–21.

Chemistry and Industry

- 34.** Quy, A. Saving our Polyesterdays: Historical Plastics Conservation. **1998**, *(15)*, 599–603.
- 35.** Zimmerman, N.; Moore, J.; Zimmerman, S. Polymer Chemistry Comes Full Circle. **1998**, *(15)*, 604–10.
- 36.** Wess, L. Biotechnology: A Hive of Bio Industry. **1998**, *(16)*, 638–9.
- 37.** Beaumier, P. L.; Breitz, H. B. Designer Labels in Cancer Treatment. **1998**, *(18)*, 734–7.
- 38.** Pandey, R. K.; Herman, C. K. Shedding Some Light on Tumors. **1998**, *(18)*, 739–43.
- 39.** Tapolczay, D. J.; Kobylecki, R. J.; Payne, L. J.; Hall, B. Extracting Order from Chaos. **1998**, *(19)*, 772–5.
- 40.** Asaro, M. F.; Wilson, R. B., Jr. The Screen Test. **1998**, *(19)*, 777–80.
- 41.** Persidis, A. A Business to Bank On. **1998**, *(19)*, 782–4.
- 42.** Brown, R. D.; Newsam, J. M. The Importance of Model Behavior. **1998**, *(19)*, 785–8.
- 43.** Jandeleit, B.; Weinberg, W. H. Putting Catalysis on the Fast Track. **1998**, *(19)*, 795–8.
- 44.** Mattson, M. P. Answering the Old Age Question. **1998**, *(20)*, 843–8.
- 45.** Carlin, J. Waste Not Want Not? **1998**, *(22)*, 922–5.

- 46.** Houghton, P. J. Roots of Remedies: Plants, People and Pharmaceuticals. **1999**, *(1)*, 15–9.

- 47.** Jaspars, M. Testing the Waters. **1999**, *(2)*, 51–5.
- 48.** Buchholz, F. L. Absorbing Work for Smart Polymers. **1999**, *(2)*, 56–7, 61–3.

Chemistry in Britain

- 49.** Milgrom, L.; MacRobert, S. Light Years Ahead. **1998**, *34*(5), 45–50.
- 50.** Lee, M. Polymers and Processes. **1998**, *34*(9), 22–5.
- 51.** Stevenson, R. Gold Standard for Drugs. **1998**, *34*(9), 31–5.
- 52.** Hart, T. Rapid Responses. **1998**, *34*(10), 47–9.

Chemical Society Reviews

- 53.** Kobayashi, S. New Methodologies for the Synthesis of Compound Libraries. **1999**, *28*(1), 1–15.
- 54.** Bickelhaupt, F. Travelling the Organometallic Road: a Wittig Student's Journey from Lithium to Magnesium and Beyond. **1999**, *28*(1), 17–23.
- 55.** Roberts, B. P. Polarity-Reversal Catalysis of Hydrogen-Atom Abstraction Reactions: Concepts and Applications in Organic Chemistry. **1999**, *28*(1), 25–35.
- 56.** Ito, H.; Taguchi, T. Asymmetric Claisen Rearrangement. **1999**, *28*(1), 43–50.
- 57.** Bolm, C.; Muniz, K. Planar Chiral Arene Chromium(0) Complexes: Potential Ligands for Asymmetric Catalysis. **1999**, *28*(1), 51–9.
- 58.** Knapp, S. The Tethered Nitrogen in Natural Products Synthesis. **1999**, *28*(1), 61–72.

CHEMTECH

- 59.** Wulff, G. Fitting Molecules into Polymeric Receptors. **1998**, *28*(11), 19–26.
- 60.** Huffman, G. P.; Shah, N. Can Waste Plastics and Tires be Recycled Economically? **1998**, *28*(12), 34–43.
- 61.** Lu, G. Q.; Wang, S. Ni-Based Catalysts for Carbon Dioxide Reforming of Methane. **1999**, *29*(1), 37–43.

Coordination Chemistry Reviews

- 62.** Collin, J.; Giuseppone, N.; Van de Weghe, P. Lanthanide Iodides, A New Family of Efficient Lewis Acids Catalysts. **1998**, *178–9*(1), 117–44.
- 63.** Touchard, D.; Dixneuf, P. H. A New Class of Carbon-Rich Organometallics. The C-3, C-4 and C-5 Metallacumulenes Ru:(C)nCR₂. **1998**, *178–9*(1), 405–25.
- 64.** Hlatky, G. G. Metallocene Catalysts for Olefin Polymerization. Annual Review for 1996. **1999**, *181*(1), 243–96.

Journal of Heterocyclic Chemistry

- 65.** Kappe, T. Synthesis and Chemistry of Pyridazines Functionalized in Position 3 and 5 with Heteroatoms. **1998**, *35*(5), 1111–22.

Natural Product Reports

- 66.** Beale, M. H.; Ward, J. L. Jasmonates: Key Players in the Plant Defense. **1998**, *15*(6), 533–48.
- 67.** Robins, R. J. The Application of Root Cultures to Problems of Biological Chemistry. **1998**, *15*(6), 549–70.

- 68.** Michael, J. P. Indolizidine and Quinolizidine Alkaloids. **1998**, *15*(6), 571–94.
- 69.** Michael, J. P. Quinoline, Quinazoline and Acridone Alkaloids. **1998**, *15*(6), 595–606.
- 70.** Lie K. J.; Marcel, S. F.; Pasha, M. K. Fatty Acids, Fatty Acid Analogues and Their Derivatives. **1998**, *15*(6), 607–29.
- 71.** Harborne, J. B.; Williams, C. A. Anthocyanins and Other Flavonoids. **1998**, *15*(6), 631–52.
- 72.** Brown, G. D. The Biosynthesis of Steroids and Triterpenoids. **1998**, *15*(6), 653–96.
- 73.** Fraga, B. M. Natural Sesquiterpenoids. **1999**, *16*(1), 21–38.
- 74.** Hick, A. J.; Luszniak, M. C.; Pickett, J. A. Volatile Isoprenoids that Control Insect Behavior and Development. **1999**, *16*(1), 39–54.
- 75.** Ann Casteel, D. A. Peroxy Natural Products. **1999**, *16*(1), 55–73.
- 76.** Ward, R. S. Lignans, Neolignans and Related Compounds. **1999**, *16*(1), 75–96.
- 77.** Dewick, P. M. The Biosynthesis of C₅–C₂₅ Terpenoid Compounds. **1999**, *16*(1), 97–130.

Organic Preparations and Procedures International

- 78.** Corbett, J. W. Recent Progress in Solid-Phase Heterocycle Syntheses. A Review. **1998**, *30*(5), 489–550.
- 79.** Clennan, E. L.; Stensaas, K. L. Recent Progress in the Synthesis, Properties and Reactions of Trisulfanes and Their Oxides. **1998**, *30*(5), 551–600.
- 80.** Akai, S.; Kita, Y. Recent Progress in the Synthesis of p-Quinones and p-Dihydroquinones Through Oxidation of Phenol Derivatives. A Review. **1998**, *30*(6), 603–29.
- 81.** Pozdnev, V. F. Activation of Carboxylic Acids by Pyrocarbonates. Scope and Limitations. A Review. **1998**, *30*(6), 631–55.
- 82.** Vlad, P. F.; Krimer, M. Z. Substituted Glutaconic Acids and Their Esters in Organic Synthesis. A Review. **1998**, *30*(6), 657–97.

Research on Chemical Intermediates

- 83.** Pardasani, R. T.; Pardasani, P.; Muktawat, S.; Ghosh, R.; Mukherjee, T. Photocyclization of Aroyl-1,4-quinones as Precursors for Anthracyclones and Heteroanthracyclones. **1998**, *24*(9), 973–8.

Russian Chemical Reviews

- 84.** Konstantinovich, K. N. Catalytic Antibodies: Possible Applications in Organic Synthesis. **1998**, *67*(12), 1099–132.
- 85.** Avgustovich, S. M.-G. 2,3,4,5-Tetrahydropyridine (1-Piperideine) and Its Derivatives. Synthesis and Chemical Properties. **1998**, *67*(12), 1133–63.
- 86.** Yakovlevna, M. L.; Nikolaevich, K. V. Interaction of Hydrocarbons with Partial Oxidation Catalysts. **1998**, *67*(12), 1175–85.
- 87.** Nikolaevna, K. L.; Yuvenal'evich, A. M. Cambridge Structural Database as a Research Tool in Essential Principles of Organic Molecular Crystal Packing Investigations. **1999**, *68*(1), 3–22.
- 88.** Valentinovich, K. D.; Nikolaevna, L. R. Donor-Acceptor Complexes and Radical-Ion Salts Based on Fullerenes. **1999**, *68*(1), 23–44.

- 89.** Petrovich, L. V. The Recyclisation Reactions of Carbo- and Heterocycles with Malononitrile and Its Derivatives Participation. **1999**, *68*(1), 46–60.

- 90.** Alexandrovich, T. V.; Gel'evich, K. N. Reductive Amination of Oxygen Containing Organic Compounds. **1999**, *68*(1), 61–78.

- 91.** Vasil'evich, T. B.; Baransky, V. A.; Eliseeva, G. D. Levulinic Acid in Organic Synthesis. **1999**, *68*(1), 79–93.

- 92.** Borisovich, S. A. The Chemistry of Furazans Fused with Six- and Seven-Membered Heterocycles with One Heteroatom. **1999**, *68*(2), 154–66.

- 93.** Yakovlevna, L. E.; Kibardin, A. M. Reactions of Halophosphines with Conjugated Heterodienes. **1999**, *68*(2), 167–83.

Science

- 94.** Braun, P.; Shanklin, J.; Whittle, E.; Somerville, C. Catalytic Plasticity of Fatty Acid Modification Enzymes Underlying Chemical Diversity of Plant Lipids. **1998**, *282*(5392), 1315–7.

- 95.** Harbury, P. B.; Plecs, J. J.; Tidor, B.; Alber, T.; Kimt, P. S. High-Resolution Protein Design with Backbone Freedom. **1998**, *282*(5393), 1462–7.

- 96.** Huang, H.; Chopra, R.; Verdine, G. L.; Harrison, S. C. Structure of a Covalently Trapped Catalytic Complex of HIV-1 Reverse Transcriptase: Implications for Drug Resistance. **1998**, *282*(5394), 1669–75.

- 97.** Akagi, K.; Piao, G.; Kaneko, S.; Sakamaki, K.; Shirakawa, H.; Kyotani, M. Helical Polyacetylene Synthesized with a Chiral Nematic Reaction Field. **1998**, *282*(5394), 1683–6.

- 98.** Lu, H. P.; Xun, L.; Xie, X. S. Single-Molecule Enzymic Dynamics. **1998**, *282*(5395), 1877–82.

- 99.** Kondru, R. K.; Wipf, P.; Beratan, D. N. Atomic Contributions to the Optical Rotation Angle as a Quantitative Probe of Molecular Chirality. **1998**, *282*(5397), 2247–50.

- 100.** Carlezon, W. A., Jr.; Thome, J.; Olson, V. G.; Lane-Ladd, S. B.; Brodkin, E. S.; Hiroi, N.; Duman, R. S.; Neve, R. L.; Nestler, E. J. Regulation of Cocaine Reward by CREB. **1998**, *282*(5397), 2272–5.

- 101.** Harada, A.; Kataoka, K. Chain Length Recognition: Core–Shell Supramolecular Assembly from Oppositely Charged Block Copolymers. **1999**, *283*(5398), 65–7.

- 102.** Ganser, B. K.; Li, S.; Klishko, V. Y.; Finch, J. T. Assembly and Analysis of Conical Models for the HIV-1 Core. **1999**, *283*(5398), 80–3.

- 103.** Jenekhe, S. A.; Chen, X. L. Self-Assembly of Ordered Microporous Materials from Rod-Coil Block Copolymers. **1999**, *283*(5400), 372–5.

- 104.** Kelley, S. O.; Barton, J. K. Electron Transfer Between Bases in Double Helical DNA. **1999**, *283*(5400), 375–81.

- 105.** Zubarev, E. R.; Pralle, M. U.; Li, L.; Stupp, S. I. Conversion of Supramolecular Clusters to Macromolecular Objects. **1999**, *283*(5401), 523–6.

- 106.** Sirota, E. B.; Herhold, A. B. Transient Phase-Induced Nucleation. **1999**, *283*(5401), 529–32.

Synlett

- 107.** Ohno, M.; Yamamoto, Y.; Eguchi, S. Highly Selective Synthesis of Polyfunctionalized Carbo- and

Heterocycles Based on Ring Expansion of Squaric Acid Derivatives. **1998**, (11), 1167–74.

108. Grimme, W.; Bertsch, A.; Flock, H.; Noack, T.; Krauthaeuser, S. Bridged Medium Rings with Hyperstable Double Bonds. *Syntheses and Reactions*. **1998**, (11), 1175–81.

109. Burrell, A. K.; Officer, D. L. Functionalizing Porphyrins via Wittig Reactions. A Building Block Approach. **1998**, (12), 1297–307.

110. Jun, C.-H.; Hong, J.-B.; Lee, D.-Y. Chelation-Assisted Hydroacetylation. **1999**, (1), 1–12.

111. Iwasawa, N. Cobalt Carbonyl Induced Transformations of Alkynyl- and Propadienylcyclopropanes. **1999**, (1), 13–24.

Synthesis—Stuttgart

112. Chanon, M.; Barone, R.; Baralotto, C.; Julliard, M.; Hendrickson, J. B. Information Theory Description of Synthetic Strategies in the Polyquinane Series. The Holosynthon Concept. **1998**, (11), 1559–83.

113. Dondoni, A. The Thiazole Aldehyde Synthesis. **1998**, (12), 1681–706.

114. Wessjohann, L. A.; Scheid, G. Recent Advances in Chromium(II)- and Chromium(III)-Mediated Organic Synthesis. **1999**, (1), 1–36.

Tetrahedron

115. Iseki, K. Catalytic Asymmetric Synthesis of Chiral Fluoroorganic Compounds. **1998**, 54(46), 13887–914.

116. Iorga, B.; Eymery, F.; Mouries, V.; Savignac, P. Phosphorylated Aldehydes: Preparations and Synthetic Uses. **1998**, 54(49), 14637–77.

117. Wirth, T. Chiral Selenium Compounds in Organic Synthesis. **1999**, 55(1), 1–28.

Topics in Current Chemistry

118. Sritana-Anant, Y.; Seiders, T. J.; Siegel, J. S. Design of Novel Aromatics Using the Loschmidt Replacement on Graphs. **1998**, 196, 1–43.

119. Hagen, S.; Hopf, H. Modern Routes to Extended Aromatic Compounds. **1998**, 196, 45–89.

120. Konig, B. Carbon Rich Cyclophanes with Unusual Properties—An Update. **1998**, 196, 91–136.

121. Haag, R.; De Meijere, A. Unsaturated Oligoquinanes and Related Systems. **1998**, 196, 137–65.

122. Kuck, D. The Centropolyindanes and Related Centro-Fused Polycyclic Organic Compounds. Polycycles Between Neopentane $C(CH_3)_4$ and the Carbon Nucleus $C(CC_3)_4$. **1998**, 196, 167–220.

123. Caira, M. R. Crystalline Polymorphism of Organic Compounds. **1998**, 198, 163–208.

Contributed Volumes

Advances in Metal-Organic Chemistry. Volume 6.

Liebeskind, L. S., Ed. JAI: Greenwich, CT, 1998.

124. Echavarren, A. M.; Castaño, A. Oxa- and Aza-metallacycles of Nickel: Fundamental Aspects and Synthetic Applications.

125. Lautens, M.; Tam, W. Transition-Metal-Catalyzed Cycloaddition Reactions of Bicyclo[2.2.1]hepta-2,5-dienes (Norbornadienes).

126. Spencer, J.; Pfeffer, M. State-of-the-Art in Selective Hetero- and Carbocyclic Synthesis Mediated by Cyclometalated Complexes.

127. Liu, R.-S. Synthetic Application of Cyclopentadi-

enyl Molybdenum(II) and Tungsten (II)-Allyl and Diene Compounds in Organic Synthesis.

128. Miyaura, N. Synthesis of Biaryls via the Cross-Coupling Reaction of Arylboronic Acids.

Progress in Heterocyclic Chemistry. Volume 10.

Gribble, G. W., Gilchrist, T. L., Eds. Elsevier: Oxford, U.K., 1997.

129. Montforts, F.-P.; Glasenapp-Breiling, M. The Synthesis of Chlorins, Bacteriochlorins, Isobacteriochlorins and Higher Reduced Porphyrins.

130. Collier, S. J.; Storr, R. C. Heterocyclic *ortho*-Quinodimethanes.

Monographs

131. Agrofoglio, L.; Challand, R. Acyclic, Carbocyclic and L-Nucleosides. Blackie: London, U.K., 1998.

132. Alfassi, Z. B. The Chemistry of N-Centered Radicals. Wiley: New York, 1998.

133. Atta-ur, R.; Basha, A. Indole Alkaloids. Harwood: Amsterdam, Netherlands, 1997.

134. Barton, D. H. R., Nakanishi, K., Eds. Comprehensive Natural Products Chemistry. 9 Volumes. Elsevier: Oxford, U.K., 1998.

135. Beebe, K. R.; Pell, R. J.; Seasholtz, M. B. Chemometrics: A Practical Guide. Wiley: New York, 1998.

136. Beller, M.; Bolm, C. Transition Metals for Organic Synthesis: Building Blocks and Fine Chemicals, Volume 2. Wiley-VCH: Weinheim, Germany, 1998.

137. Bentley, K. W. Isoquinoline Alkaloids. Harwood: Amsterdam, The Netherlands, 1998.

138. Braun, T., Schubert, A., Schubert, G., Vasvari, L., Eds. Fullerene Research 1994–1996. World Science: Singapore, 1998.

139. Brooks, G. T., Roberts, T., Eds. Pesticide Chemistry and Bioscience: The Food-Environment Challenge. Royal Society of Chemistry: Cambridge, U.K., 1999.

140. Crews, P.; Rodriguez, J.; Jaspers, M. Organic Structure Analysis. Oxford University Press: New York, 1998.

141. Davies, G.; Ghahbour, E. A. Humic Substances. Structure, Properties and Uses. The Royal Society of Chemistry: Cambridge, U.K., 1998.

- 142.** Dean, J. R. Extraction Methods for Environmental Analysis. Wiley: Chichester, U.K., 1998.
- 143.** El Rassi, Z.; Giese, R. W., Eds. Selectivity and Optimization in Capillary Electrophoresis. Elsevier: Oxford, U.K., 1997.
- 144.** Erdik, E. Organozinc Reagents in Organic Synthesis. CRC Press: Boca Raton, FL, 1996.
- 145.** Farina, V.; Krishnamurthy, V.; Scott, W. J. The Stille Reaction. Wiley: New York, 1998.
- 146.** Fulop, F., Ed. Saturated Heterocycles and Beyond: Dedicated to Professor Gabor Bernath on the Occasion of His 65th Birthday. [In: *ACH—Models Chem.* **1998**; 135(4)]. Akad Kiado: Budapest, Hungary, 1998.
- 147.** Gibson, S. E. Transition Metals in Organic Synthesis: A Practical Approach. Oxford University Press: Oxford, U.K., 1997.
- 148.** Green, M., Ed. Organometallic Chemistry. Volume 27. Royal Society of Chemistry: Cambridge, U.K., 1999.
- 149.** Gy, P. Sampling for Analytical Purposes. Wiley: Chichester, U.K., 1998.
- 150.** Handley, A., Ed. Extraction Methods in Organic Analysis. CRC Press: Boca Raton, FL, 1998.
- 151.** Haslam, E. Practical Polyphenolics: From Structure to Molecular Recognition and Physiological Action. Cambridge University Press: Cambridge, U.K., 1998.
- 152.** Ho, T.-L., Ed. Organic Synthesis Under Extreme Conditions. World Science: Singapore, 1998.
- 153.** Holum, J. R. Fundamentals of General, Organic, and Biological Chemistry, 6th ed. John Wiley & Sons: New York, 1997.
- 154.** Howarth, J. Core Organic Chemistry. Wiley: New York, 1998.
- 155.** Hudlicky, T., Ed. Asymmetric Synthesis. [In: *Curr. Org. Chem.* **1998**; 2(3)]. Bentham Science Publishers: Hilversum, Netherlands, 1998.
- 156.** Hudlicky, T. Organic Synthesis: Theory and Applications. JAI Press: Stamford, Connecticut, 1998.
- 157.** Jinno, K., Ed. Separation of Fullerenes by Liquid Chromatography. Royal Society of Chemistry: Cambridge, U.K., 1999.
- 158.** Johnson, W. S. A Fifty-Year Love Affair with Organic Chemistry. American Chemical Society: Washington, D.C., 1998.
- 159.** Jones, W., Ed. Organic Molecular Solids. CRC Press: Boca Raton, FL, 1997.
- 160.** Karsa, D. R., Ed. New Products and Applications in Surfactant Technology. CRC: Boca Raton, FL, 1998.
- 161.** Katz, E.; Eksteen, R.; Schoenmakers, P.; Miller, N., Eds. Handbook of HPLC. [In: *Chromatogr. Sci. Ser.* **1998**; 78]. Marcel Dekker: New York, 1998.
- 162.** Laue, T.; Plagens, A. Named Organic Reactions. Wiley: New York, 1998.
- 163.** Lehman, J. W. Operational Organic Chemistry, 3rd ed. Prentice Hall: Englewood Cliffs, NJ, 1998.
- 164.** Lide, D. R., Jr., Ed. Handbook of Organic Solvents. CRC Press: Boca Raton, FL, 1995.
- 165.** Lunn, G.; Hellwig, L.; Cecchini, A. Handbook of Derivatization Reactions of HPLC. Wiley: New York, 1998.
- 166.** McMaster, M.; McMaster, C. GC/MS: A Practical User's Guide. Wiley-VCH: New York, 1998.
- 167.** Monk, M. S. The Viologens: Physicochemical Properties, Synthesis and Application of the Salts of 4,4'-Bipyridine. Wiley: New York, 1998.
- 168.** Niessen, W. M. A. Liquid Chromatography—Mass Spectrometry, 2nd ed., Revised and Expanded. [In: *Chromatogr. Sci. Ser.* **1999**; 79]. Dekker: New York, 1999.
- 169.** Nishio, M.; Hirota, M.; Umezawa, Y. CH π Interaction: Evidence, Nature, and Consequences. Wiley-VCH: New York, 1998.
- 170.** Olah, G. A.; Laali, K. K.; Wang, Q.; Prakash, S. Onium Ions. Wiley: New York, 1998.
- 171.** Olah, G. A.; Sommer, J., Eds. Superacid Catalysis. [In: *Top. Catal.* **1998**; 6(1–4)]. Baltzer: Bussum, Netherlands, 1998.
- 172.** Paquette, L. A., Ed. Organic Reactions, Volume 53. Wiley: New York, 1998.
- 173.** Procter, G. Stereoselectivity in Organic Synthesis. Oxford University Press: Oxford, U.K., 1998.
- 174.** Pybus, D. H.; Sell, C. S. The Chemistry of Fragrances. Royal Society of Chemistry: Cambridge, U.K., 1999.
- 175.** Rappoport, Z.; Stang, P. J., Eds. Dicoordinated Carbocations. Wiley: Chichester, U.K., 1997.
- 176.** Robyt, J. F. Essentials of Carbohydrate Chemistry. Springer: Berlin, Germany, 1998.
- 177.** Smith, R. M.; Hawthorne, S. B., Eds. Supercritical Fluids in Chromatography and Extraction. Elsevier: Oxford, U.K., 1997.
- 178.** Snyder, C. H. The Extraordinary Chemistry of Ordinary Things, 3rd ed. John Wiley: New York, 1997.
- 179.** Staab, H. A.; Bauer, H.; Schneider, K. M. Azolides in Organic Synthesis and Biochemistry. Wiley: New York, 1998.
- 180.** Stevens, M. P. Polymer Chemistry. An Introduction. Oxford University Press: New York, 1999.
- 181.** Trombini, C.; Di Furia, F.; Riccio, R.; Cozzi, F.; Casiraghi, G., Eds. Seminars in Organic Synthesis, Volume 7. Italian Chemical Society, Rome, Italy, 1997.
- 182.** Wasserman, H. H.; Wong, C.-H. Tetrahedron Prize for Creativity in Organic Chemistry. [In: *Bioorg. Med. Chem.* **1998**; 6(8)]. Elsevier: Oxford, U.K., 1998.
- 183.** Wilson, S.; Czarnik, A. W. Combinatorial Chemistry: Synthesis and Application. Wiley: New York, 1997.
- 184.** Zirngibl, L. Azoles—Antifungal Active Substances—Syntheses and Uses. Wiley: New York, 1998.

Index

- Acridone alkaloids, 69
 Acylmetal hydrides, 110
 Aldehydes, from thiazoles, 113
 phosphorylated, 116
 Alicyclics, functionalized pyridazines, 65
 oligoquinanes, 121
 Alkaloids, acridone, 69
 book, 134
 indole, book, 133
 indolizidine, 68
 isoquinoline, book, 137
 quinazoline, 69
 quinoline, 69
 quinolizidine, 68
 Alkanes, oxidation, 11
 supercooled, 106
 Alkenes, polymerization, 24
 Alkylphenol ethoxylates, book, 160
 Alkynylcyclopropanes, 111
 Allenylidene, transition metal complex, 29
 Alycyclics, with hyperstable double bonds, 108
 Amination, 9
 reductive, 90
 Amines, reductive elimination, 5
 Amino group, tethered nitrogen, 58
 Amino acids, natural, book, 134
 Aminocyclitols, natural, 58
 Aminosugars, natural, 58
 Amphiphiles, 22
 natural, recorcinol lipids, 30
 Analysis, environmental, book, 142
 extraction, book, 150
 sampling, book, 149
 structure, book, 140
 Anthocyanins, 71
 Anthracyclones, preparation, 83
 Anti-Alzheimer's agents, 44
 Antiarthritis agents, 44
 Antifungal agents, book, 184
 natural, 10
 Antisense agents, 17
 Antitumor agents, 8, 10, 25, 37–8, 44
 photosensitizing, 49
 Apomyoglobin, conformation helix, 2
 Aroma chemistry, book, 174
 Aromatics, biaryls, polycyclic, 119
 design, 118
 polycyclic, 119, 122
 Aroyl-1,4-quinones, photocyclization, 83
 Aryl ethers, preparation, 9
 Arylamines, preparation, 9
 Arylations, 9
 Arylboronic acids, cross-coupling, book, 128
 Asymmetric amplification, 18
 Asymmetric catalysis, 18
 Asymmetric synthesis, 18
 book, 155
 with physical fields, 26
 ATP, bioenergetics, 12
 preparation, 13
 Autocatalysis, 18
 Azepine, furazan derivatives, 92
 Azoles, book, 184
 Azolides, in synthesis, book, 179
 Benzoyl-1,4-benzoquinones, photocyclization, 83
 Biaryls, from arylboronic acids, book, 128
 Bicyclics, unsaturated, preparation, 108
 Bicyclo[3.2.1]octanes, 31
 Biocatalysts, antibodies, 84
 book, 181
 Biochemistry, introductory, book, 153
 Biological chemistry, book, 153, 178
 Bioorganic chemistry, book, 182
 naphthazarins, 23
 Biosynthesis, book, 134
 Biotechnology, 36
 Bipyridine, 4,4'-, book, 167
 Bleomycin, 25
 Bridged hydrocarbons, unsaturated, preparation, 108
 Cambridge structural database, 87
 Capillary electrophoresis, book, 143
 Carbene complexes, 29
 Carbocations, dicoordinated, book, 175
 intermediates, book, 175
 Carbohydrates, book, 176
 from thiazole aldehydes, 113
 natural, book, 134
 Carbonyls, reaction with chiral oxazaborolidine, 7
 Carboxylic acids, activation, 81
 reaction with pyrocarbonates, 81
 Cardiovascular disease agents, 44
 Catalysis, polarity-reversal, 55
 superacids, book, 171
 Catenanes, 19
 Centropolyindanes, 122
 Chelates, 15
 Chemometrics, book, 135
 Chirality, with physical fields, 26
 Chromatography, liquid, fullerenes, book, 157
 supercritical fluids, book, 177
 Claisen Rearrangement, asymmetric, 56
 Clinical trials, 51
 Cocaine, transcription regulator, 100
 Combinatorial catalysis, 43
 Combinatorial chemistry, 21, 39–42,
 52–3
 book, 183
 Combinatorial libraries, 53
 Compost, chemistry, book, 141
 Computational chemistry, 20
 Crystal structures, organic, 87
 Crystallization, 123
 Crystals, organic, book, 159
 Cumulenylidene, transition metal complex, 29
 Cyclic compounds, oligoquinanes, 121
 Cycloaddition, with norbornadienes, book, 125
 book, 181
 Cyclopentadienyl molybdenum compounds, book, 127
 Cyclopentadienyl tungsten compounds, book, 127
 Cyclopentenedione preparation, 107
 Cyclophanes, carbon rich, 120
 Cyclopropanes, derivatives, 111
 Diamines, vicinal, 16
 Diels–Alder reactions, book, 181
 Dihydroquinones, *p*-, 80
 Dimetallatriptycenes, 54
 Diradicals, 20
 DNA recognition, 17
 DNA, bases, electron transfer, 104
 Drug design, 42–3, 52
 screening, 40
 Enzymes, single molecule, 98
 Epothilones, 8
 Epoxidation, asymmetric, book, 181
 Ethers, reductive elimination, 5
 Fatty acids, 70
 natural, book, 134
 plant, modification, 94
 Flavonoids, 71
 Fragrances, book, 174
 Fullerenes, 14
 amine complexes, 88
 book, 138
 complexes, 88
 electrochemistry, 27
 liquid chromatography, book, 157
 metallocene complex, 88
 metalloporphyrin complex, 88
 separation, book, 157
 tetrathiafulvalene complex, 88
 Fulvic acid, book, 141
 Furanone preparation, by squarate ring expansion, 107
 Furazans, derivatives, 92
 General, book, 153–4
 demonstrations, book, 178
 laboratory book, 163
 Glutaconic acids, 82
 Glutaconic esters, 82
 Glycosides, from thiazole aldehydes, 113
 Grignard reagents, 54
 Heteroanthracyclones, preparation, 83
 Heterocycles, phosphorus-containing, 93
 saturated, book, 146
 solid-phase preparation, 78
 synthesis, with cyclometals, book, 126
 Heterogeneous catalysis, 22
 HIV virus, structure, 102
 HIV-1 Reverse transcriptase, resistance, 96
 Homogeneous catalysis, in supercritical fluids, 32
 Host–guest complexes, 59
 HPLC, derivatization, book, 165
 handbook, 161
 Humic acid, alkylation, book, 141
 Humic substances, book, 141
 Hydrocyclation, chelation-assisted, 110
 Hydrogen abstraction, 55
 Immunoradiotherapy, 37
 Indole alkaloids, book, 133
 Indolizidine alkaloids, 68
 Intermediates, 20
 Intermolecular forces, book, 169
 Introductory chemistry, book, 178
 Isoprenoids, 74
 book, 134
 Isoquinoline alkaloids, book, 137
 Jasmonates, 66
 Ketones, enantioselective reduction, book, 172
 Levulinic acid, 91
 Lewis acid catalysts, lanthanide iodides, 62
 Lewis acids, 15
 Lignans, 76
 Lipids, resorcinolic, 30
 Liquid crystals, book, 159
 Malononitrile, recyclisation reactions, 89
 Mass spectrometry, book, 140
 GC, book, 166
 LC, book, 168
 Materials science, 21

Medicinal chemistry, book, 134
 Mesopores, catalysis, 22
 Metallacumulenes, 63
 Metallocene catalysts, 50, 64
 Metallocenes, 24
 Methane, reforming, 61
 Molecular chirality, quantitative probe, 99
 Molecular dynamics, 20
 Molecular modeling, 42
 Molecular recognition, 17
 Molecular sieves, 22
 Monosaccharide libraries, 53
 Natural products chemistry, book, 134
 Natural products, algae, 47
 aqueous, 47
 drugs, 46
 fungal, 47
 lithistid sponges, 10
 microbial, 47
 naphthazarins, 23
 nitrogen-containing, 58
 peroxy, 75
 plant, 66–7
 Norbornadienes, cycloaddition, book, 125
 Nuclear magnetic resonance, book, 140
 Nucleic acids, 21
 nanostructures, 19
 polyamide, 17
 Nucleosides, acyclic, book, 131
 carbocyclic, book, 131
 L-, book, 131
 Olefins, hydroacylation, 110
 polymerization, 24, 64
 Oligoquinanes, unsaturated, 121
 Onium ions, book, 170
 Organochromium complexes, 114
 asymmetric catalysis, 57
 Organofluorine, chiral, preparation, 115
 Organofullerenes, 27
 Organolanthanides, book, 148
 Organolithium compounds, 54
 Organomagnesium compounds, 54
 Organometallics, book, 148, 181
 difunctional, 54
 Organonickel complexes, book, 124
 Organozinc reagents, book, 144
 Oxidation, partial, catalysts, 86
 Perfume chemistry, book, 174
 Pesticides, book, 139
 Pharmacophores, 42
 Pheromones, book, 134
 Phosphorylations, 12

Photodynamic therapy, 49
 tumors, 38
 Physicochemical simulation, 42
 Piperideine, 85
 Plastics, recycling, 60
 Polyacetylene, helical, 97
 Polyamide nucleic acids, 17
 Polyamides, book, 180
 Polycycles, 14
 centropolyindanes, 122
 unsaturated, preparation, 108
 Polyesters, 34
 book, 180
 Polyethers, book, 180
 Polyethylene, 50
 Polyketides, book, 134
 Polymerization, general, book, 180
 of self-organized assemblies, 6
 Polymers, book, 159
 from supramolecules, 105
 fullerenes, 103
 heterocyclic, book, 180
 mesostructures, 103
 resin, book, 180
 rod-coil block copolymers, 103
 superadsorbant, 48
 supramolecular, 35, 101
 vinyl, book, 180
 Polymorphism, crystal, 123
 Polyolefins, 50
 Polyphenolics, book, 151
 Polypropylene, 50
 Porphyrins, bacteriochlorins, book, 129
 chlorins, book, 129
 functionalized, by Wittig reactions, 109
 isobacteriochlorins, book, 129
 natural, book, 134
 Propadienylcyclopropanes, 111
 Protease inhibitors, design, 52
 Protein folding, 2
 kinetics, 3
 transition state aggregation, 3
 Protein refolding, laser induction, 1
 Proteins, 21
 de novo design, 95
 Pseudopeptides, from thiazole aldehydes, 113
 Pyrans, furazan derivatives, 92
 Pyridazines, functionalized, 65
 Pyridines, furazan derivatived, 92
 Quinazoline alkaloids, 69
 Quinodimethanes, *o*-, book, 130
 Quinoline alkaloids, 69
 Quinolizidine alkaloids, 68
 Quinones, *p*-, 80
 Radical reactions, 15
 Radicals, N-centered, book, 132
 Receptors, polymeric, 59
 Recycling waste, 45
 Reductive eliminations, carbon–heteroatom, 5
 Resorcinol, lipids, 30
 Retro-Diels–Alder reaction, book, 172
 Ruthenium catalysts, 28
 Selenium, chiral, catalysts, 117
 Sesquiterpenoids, natural, 73
 Solid-phase synthesis, heterocycles, 78
 Solvents, organic, book, 164
 supercritical fluids, 32–3
 Spectroscopy, book, 140
 Squareare ring expansion, 107
 Stereoselectivity, book, 173
 Steroids, biosynthesis, 72
 Stille reaction, book, 145
 Structure–activity relationship, 52
 Sulfides, reductive elimination, 5
 Superacids, book, 171
 Supercritical fluids, 20
 Superoxide dismutase, 44
 Surfactants, book, 160
 Synthesis, book, 156, 158
 extreme conditions, book, 152
 in supercritical water, 33
 named reactions, book, 162
 stereoselective, book, 181
 Synthons, amino group, 58
 holosynthon theory, 112
 Terpenes, C₅–C₂₅, 77
 polyquinane, preparation, 112
 Tetrahydropyridine, 85
 Thin films, book, 159
 Thiopyrans, furazan derivatives, 92
 Tires, recycling, 60
 Transition metals, organic synthesis, book, 136, 147
 Trisulfane oxides, 79
 Trisulfanes, 79
 Triterpenoids, biosynthesis, 72
 Tumors, photodynamic therapy, 38
 Ulosonic acids, preparation, 113
 Vesicles, biomimetics, 4
 Viologens, book, 167
 X-ray diffraction, polymorphic crystals, 123

JO994985I