

sults of infrared absorption spectroscopy of the atmosphere. These kinds of observations are made most advantageously and sensitively by observing the sun tangentially through the atmosphere; in this way an absorption path of a few hundred kilometers can be achieved from a high-altitude platform such as a balloon or high-flying aircraft or spacecraft. This permits a most sensitive measurement of trace species. The measurements made by the high-resolution Fourier transform spectrometer ATMOS are taken to be exemplary of this type of observation. The authors present a well-thought-out discussion of a variety of methods used to determine the gas concentrations.

Smith *et al.* deal with the status of the molecular absorption database, which is almost universally required for any serious work in this field. For the serious atmospheric spectroscopist these tabulations provide indispensable knowledge of the state of the list and permit an estimate of the reliability of the simulations or whatever calculations are necessary for the design or analysis of experiments.

The next two chapters deal with esoteric aspects of atmospheric spectroscopy. Collisional line mixing affects the line-shape in narrow regions of the carbon dioxide spectrum and must be considered in the analysis of observations made there. The theory of this phenomenon is developed by Lévy *et al.*, and some laboratory and atmospheric applications are developed. Champion *et al.* discuss the spectra of spherical top molecules, of which is the greenhouse gas methane is an example. Being a spherical top molecule methane might be expected to have a vibration-rotation spectrum similar to that of a linear rotator, but with highly degenerate lines. The actuality is that the degeneracies are broken for spherical molecules and the resultant spectrum exhibits extreme complexity. Some of this complexity is revealed and explained in this chapter for both tetrahedral and octahedral molecules.

The final chapter makes fascinating reading but has little in common with the first ones. In it Winnewisser *et al.* describe the origins of the spectroscopy of interstellar molecules and the complexities of the observations and analyses, give an inventory of the molecules observed and some of the interesting places to look for them, and discuss the technologies for doing all that. Specific examples of 11 interstellar molecules are considered.

The book contains extensive references and is a good starting place for someone already somewhat familiar with molecular spectroscopy to learn about its use in remote sensing. With only the first three chapters dealing directly with general considerations regarding atmospheric spectra observations and analysis, and the remain-

ing three being specialized, the book does not, however, offer a rounded treatment of a common theme.

**Jack S. Margolis**  
*Jet Propulsion Laboratory,  
California Institute of Technology,  
Pasadena, CA 91109*

## Books Received

**All About Arthritis.** Past, Present, Future. Derrick Brewerton. Harvard University Press, Cambridge, MA, 1992. x, 317 pp., illus. \$24.95.

**Anatomy of Love.** The Natural History of Monogamy, Adultery, and Divorce. Helen E. Fisher. Norton, New York, 1992. 431 pp. \$22.95.

**Animal Models of Drug Addiction.** Alan A. Boulton, Glen B. Baker, and Peter H. Wu, Eds. Humana, Totowa, NJ, 1992. xxii, 436 pp., illus. \$99.50. Neuromethods, 24.

**Anti-Evolution.** A Reader's Guide to Writings Before and After Darwin. Tom McIver. Johns Hopkins University Press, Baltimore, MD, 1992. xvi, 385 pp. Paper, \$15.95. Reprint, 1988 ed.

**Cholera.** Dhiman Barua and William B. Greenough III, Eds. Plenum Medical, New York, 1992. xx, 372 pp., illus. \$59.50. Current Topics in Infectious Disease.

**Coastal Bottom Boundary Layers and Sediment Transport.** Peter Nielsen. World Scientific, River Edge, NJ, 1992. xvi, 324 pp., illus. \$56; paper, \$28. Advanced Series on Ocean Engineering, vol. 4.

**Codes of Evolution.** The Synaptic Language Revealing the Secrets of Matter, Life, and Thought. Rush W. Dozier, Jr. Crown, New York, 1992. x, 294 pp., illus. \$20.

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**Ethel Browning's Toxicity and Metabolism of Industrial Solvents.** Vol. 3, Alcohols and Esters. Ronald G. Thurman and Frederick C. Kauffman, Eds. 2nd ed. Elsevier, New York, 1992. xxxviii, 394 pp., illus. \$228.50.

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**From Personal Ads to Cloning Labs.** More Science Cartoons. Sidney Harris. Freeman, New York, 1992. Unpaged. Paper, \$10.95.

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tions, \$120. From a congress, Los Angeles, Aug. 1989.

**Indian Rock Art of the Columbia Plateau.** James D. Keyser. Douglas and McIntyre, Toronto, and University of Washington Press, Seattle, 1992. 139 pp., illus. \$35; paper, \$17.50.

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**New Worlds, New Technologies, New Issues.** Stephen H. Cutcliffe *et al.*, Eds. Associated University Presses, London, and Lehigh University Press, Bethlehem, PA, 1992 (distributor, Associated University Presses, Cranbury, NJ). 233 pp., illus. \$36.50. Research in Technology Studies, vol. 6.

**Organic Matter.** Productivity, Accumulation, and Preservation in Recent and Ancient Sediments. Jean K. Whelan and John W. Farrington, Eds. Columbia University Press, New York, 1992. xvi, 533 pp., illus. \$75. From a symposium, Nov. 1988.

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**Photochemical Vapor Deposition.** J. G. Eden. Wiley, New York, 1992. xiv, 193 pp., illus. \$54.95. Chemical Analysis, vol. 122.

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**Science with a Vengeance.** How the Military Created the US Space Sciences After World War II. David H. DeVorkin. Springer-Verlag, New York, 1992. xxii, 404 pp., illus. \$69.

**The Search for Bioactive Compounds from Microorganisms.** Satoshi Omura, Ed. Springer-Verlag, New York, 1992. xvi, 352 pp., illus. \$69. Brock/Springer Series in Contemporary Bioscience.

**Theories of Everything.** The Quest for Ultimate Explanation. John D. Barrow. Fawcett Columbine (Ballantine), New York, 1992. xvi, 302 pp., illus. Paper, \$12. Reprint, 1991 ed.

**Thrombin.** Structure and Function. Lawrence J. Berliner, Ed. Plenum, New York, 1992. xvi, 438 pp., illus. \$95.