

maining evolutionary mysteries." The work ends with appendixes listing species of uncertain affinity, a bibliography of some 900 entries, and taxonomic and subject indexes. The illustrations include line drawings and electron micrographs.

Katherine Livingston

The Biological Chemistry of Magnesium. J. A. COWAN, Ed. VCH, New York, 1995. xvi, 254 pp., illus. \$59.95.

Though magnesium ion is the fourth most abundant cation in cellular organisms, its biological chemistry has until recently been "viewed in terms that are simplistic" or even considered "just plain boring," according to the editor of this volume. The book is an attempt to demonstrate the importance of the problems to be addressed and the advances that have been spurred in the past few years by the "pivotal role" of magnesium in nucleic acid biochemistry. Cowan begins by offering an overview of the abundances of and forms taken by magnesium in the natural environment and in living organisms, its physicochemical properties, its biochemical roles, thermodynamic considerations, and the difficulties that the "general spectroscopic silence" it shares with other alkali and alkaline earth metals present for researchers. Methodological matters are more extensively dealt with in the next two chapters, in which T. Drakenberg reviews direct and indirect physical methods for studying Mg^{2+} biochemistry, considering detection, equilibria, kinetics, and data treatment, and A. Tevelev and Cowan discuss metal substitution as a probe. In chapter 4, D. Porschke, noting that Mg^{2+} is required for most biological processes involving polynucleotides, discusses the binding of the ion to single-stranded polynucleotides, to single-stranded oligonucleotides, and to the transfer RNA anticodon loop and describes the general dynamics of ion (Na^+) binding to double-helical DNA, which is not yet directly analyzable for Mg^{2+} . In a chapter that begins with the statement "RNA science inevitably becomes magnesium science," D. Smith gives an account of Mg^{2+} as the catalytic center of RNA enzymes. There follow two chapters in which C. B. Black and Cowan together discuss magnesium-dependent enzymes in nucleic acid biochemistry and in general metabolism. Cowan then discusses the binding of the ion to phosphates and sugars, various families of antibiotics, ionophores, and nucleic acids, and R. L. Smith and M. E. Maguire, considering Mg^{2+} transport systems from a molecular genetic point of view, report on their laboratory's recent work with *Salmonella typhimurium* and *Esch-*

erichia coli. In a final chapter A. Romani and A. Scarpa discuss regulation of cytosolic Mg^{2+} in the heart. Each chapter has its own reference list, and there is a subject index for the volume as a whole.

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Books Received

Adaptation and Natural Selection in Caves. The Evolution of *Gammarus minus*. David C. Culver, Thomas S. Kane, and Daniel W. Fong. Harvard University Press, Cambridge, MA, 1995. xii, 223 pp., illus. \$39.95.

America's Struggle Against Poverty, 1900-1994. James T. Patterson. Harvard University Press, Cambridge, MA, 1995. xiv, 309 pp. Paper, \$16.95. New edition of *America's Struggle Against Poverty, 1900-1985* (1986).

The Biblical Flood. A Case Study of the Church's Response to Extrabiblical Evidence. Davis A. Young. Eerdmans, Grand Rapids, MI, and Paternoster Press, Carlisle, Cumbria, UK, 1995. xiv, 327 pp. Paper, \$19.99.

Cell Culture Engineering IV. Improvements of Human Health. Barry C. Buckland *et al.*, Eds. Kluwer, Norwell, MA, 1995. viii, 376 pp., illus. \$182.50 or £117 or Dfl. 285. Current Applications of Cell Culture Engineering, vol. 1. Reprinted from *Cytotechnology*, vol. 15 (1994).

Chaos and Determinism. Turbulence as a Paradigm for Complex Systems Converging toward Final States. Alexandre Favre *et al.* Johns Hopkins University Press, Baltimore, MD, 1995. xxviii, 177 pp., illus. \$45; paper, \$19.95. Translated from the French edition (Paris, 1988) by Bertram Eugene Schwarzbach.

Democratic Dilemmas in the Age of Ecology. Trees and Toxics in the American West. Daniel Press. Duke University Press, Durham, NC, 1994. viii, 168 pp. \$34.95; paper, \$15.95.

Ecological Disaster. Cleaning Up the Hidden Legacy of the Soviet Regime. Murray Feshbach. Twentieth Century Fund, New York, NY, 1995. x, 157 pp., illus. Paper, \$9.95. Twentieth Century Fund Report.

The Fibromyalgia Syndrome. Current Research and Future Directions in Epidemiology, Pathogenesis, and Treatment. Stanley R. Pillemer, Ed. Haworth Medical, Binghamton, NY, 1995. xx, 184 pp., illus. \$29.95. Reprinted from the *Journal of Musculoskeletal Pain*, vol. 2, no. 3 (1994). From a conference, Washington, DC, May 1993.

Galaxies and Other Deep-Sky Objects. Gary Mechlner. Knopf, New York, 1995. 192 pp., illus. Paper, \$7.99 or \$C10.95. National Audubon Society Pocket Guide.

Haldane's Daedalus Revisited. Krishna R. Dronamraju, Ed. Oxford University Press, New York, 1995. xvi, 147 pp. \$29.95.

Introduction to the Physics of Electrons in Solids. Brian K. Tanner. Cambridge University Press, New York, 1995. xviii, 246 pp., illus. Paper, \$24.95.

Ion Chromatography. Joachim Weiss. 2nd ed. VCH, New York, 1995. xii, 465 pp., illus. \$95.

Johnson and Volpe's Patterns and Experiments in Developmental Biology. Leland G. Johnson. 2nd ed. Brown, Dubuque, IA, 1995. x, 229 pp., illus. Spiral-bound, \$36.25.

Ketenes. Thomas T. Tidwell. Wiley, New York, 1995. xvi, 665 pp., illus. \$69.95.

Laboratory Studies of Vertebrate and Invertebrate Embryos. Guide and Atlas of Descriptive and Experimental Development. Gary C. Schoenwolf. 7th ed. Prentice Hall, Englewood Cliffs, NJ, 1995. xxvi, 306 pp., illus. Paper, \$37.

Mammals of the South-West Pacific and Moluccan Islands. Tim Flannery. Comstock (Cornell University Press), Ithaca, NY, 1995. 464 pp., illus. \$75.

The Many Faces of Science. An Introduction to Scientists, Values, and Society. Leslie Stevenson and Henry Byerly. Westview, Boulder, CO, 1995. xii, 257 pp. \$55; paper, \$18.95.

The Natural History of Alcoholism Revisited. George E. Vaillant. Harvard University Press, Cambridge, MA, 1995. xvi, 446 pp., illus. \$39.95; paper, \$16.95.

Expanded edition of *The Natural History of Alcoholism* (1983).

Ocean Environmental Management. A Primer on the Role of the Oceans and How to Maintain Their Contributions to Life on Earth. Ernst G. Frankel. Prentice Hall PTR, Englewood Cliffs, NJ, 1995. xvi, 381 pp., illus. \$60.

Physical Electrochemistry. Principles, Methods, and Applications. Israel Rubinstein, Ed. Dekker, New York, 1995. viii, 595 pp., illus. \$150. Monographs in Electroanalytical Chemistry and Electrochemistry.

Quantitative Sociodynamics. Stochastic Methods and Models of Social Interaction Processes. Dirk Helbing. Kluwer, Norwell, MA, 1995. xx, 335 pp., illus. \$130 or £84 or Dfl. 200. Theory and Decision Library, Series B, vol. 31.

Racism or Attitude? The Ongoing Struggle for Black Liberation and Self-Esteem. James L. Robinson. Insight (Plenum), New York, 1995. xiv, 269 pp. \$24.95.

Schizophrenia. An Integrated View. Rasmus Fog, Jes Gerlach, and Ralf Hemmingsen, Eds. Munksgaard, Copenhagen, 1995. 436 pp., illus. \$72 or £45 or DM 101 or DKK 400. Alfred Benson Symposium, 38. From a symposium, Copenhagen, Denmark, June 1994.

Statistical Methods for Engineers and Scientists. Robert M. Bethea, Benjamin S. Duran, and Thomas L. Bouillon. 3rd ed. Dekker, New York, 1995. xxii, 652 pp., illus. \$69.75. Statistics: Textbooks and Monographs, vol. 144.

Talking Their Way Into Science. Hearing Children's Questions and Theories, Responding with Curricula. Karen Gallas. Teachers College Press, New York, 1995. x, 116 pp., illus. Cloth, \$36; paper, \$16.95. Language and Literacy Series.

Technological Collaboration for Europe's Survival. The Information Technology Research Programmes of the 1980s. Vassiliki N. Koutrakou. Avebury, Aldershot, Hants, UK, 1995 (U.S. distributor, Ashgate, Brookfield, VT), xxii, 310 pp., illus. \$68.95.

The Trouble with Computers. Usefulness, Usability, and Productivity. Thomas K. Landauer. MIT Press, Cambridge, MA, 1995. xiv, 425 pp., illus. \$27.50.

Unified Symmetry. In the Small and in the Large. Behram N. Kursunoglu, Stephen Mintz, and Arnold Perlmutter, Eds. Plenum, New York, 1995. viii, 255 pp., illus. \$79.50. From a symposium, Coral Gables, FL, Jan. 1994.

Volcanoes of the World. A Regional Directory, Gazetteer, and Chronology of Volcanism During the Last 10,000 Years. Tome Simkin and Lee Siebert. 2nd ed. Geoscience, Phoenix, AZ, in association with the Smithsonian Institution, Global Volcanism Program, Washington, DC, 1994. xii, 349 pp., illus. \$25.

Voltammetric Methods in Brain Systems. Alan A. Boulton, Glen B. Baker, and Ralph N. Adams, Eds. Humana, Totowa, NJ, 1995. xvi, 349 pp., illus. \$99.50. Neurochemicals, 27.

The War Against Hepatitis B. A History of the International Task Force on Hepatitis B Immunization. William Muraskin. University of Pennsylvania Press, Philadelphia, 1995. iv, 248 pp., illus. \$29.95.

Publishers' Addresses

Below is information about how to direct orders for books reviewed in this issue. A fuller list of addresses of publishers represented in *Science* appears in the issue of 26 May 1995, page 1220.

Comstock Press. Order from Cornell University Press, P.O. Box 6525, Ithaca, NY 14851-6525. Phone: 800-666-2211 (outside NY state); 607-277-2211. Fax: 800-688-2877; 607-277-6292.

Plenum Publishing Corp., 233 Spring St., New York, NY 10013-1578. Phone: 800-221-9369; 212-620-8000. Fax: 212-463-0742.

University of Arizona Press, 1230 N. Park Ave., No. 102, Tucson, AZ 85719. Phone: 800-426-3797; 602-621-1441. Fax: 602-621-8899.

VCH Publications, Inc., 303 NW 12th Ave., Deerfield Beach, FL 33442-1788. Phone: 800-367-8249; 305-428-5566. Fax: 800-367-8247; 305-428-8201.