

tages are known, and the problem is to determine which are most important and how they balance against the known disadvantages of sex. A section on the relative virtues of diploidy and polyploidy fails to mention the increased genetic load of detrimental mutations with increasing ploidy. Fortunately many of these errors or omissions have no apparent relevance to the main themes of the book.

Phylogenetic analyses of gene sequences played an essential role in establishing the symbiotic origin of organelles and continue to be the principal tool for tracing the history of both prokaryotic and eukaryotic cells. The authors recognize this and repeatedly mention ribosomal RNA gene sequences, but do not tell the reader how they are used. An appendix listing criteria for establishing the symbiotic origin of an organelle omits phylogenetic analysis of organelle genes. The entire book contains only four phylogenetic trees of gene sequences, with no explanation of how they were made. One tree is unrooted, but the authors do not explain why it looks different from the others. The difficult problem of determining whether the closest relatives of eukaryotes are eubacteria or archaeobacteria is precisely a problem of rooting. The sources of error in the construction of trees and in the use of molecular clocks are discussed, but the numerous validations of these procedures are not. Consequently the naïve reader will not understand, and may even distrust, one of the most important sources of information about evolutionary history. In fact readers ought to distrust the "phylogeny" in figure 8.6, because it attempts the logically impossible task of combining a phylogeny of the genes coding for five different molecules, three classes of organelles, mitosis, and meiosis.

Though this book provides an interesting overview of a fascinating and important evolutionary problem, readers should beware of using it as a source of definitive information.

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Books Received

Accidental Archaeologist. Memoirs of Jesse D. Jennings. University of Utah Press, Salt Lake City, 1994. xxii, 307 pp., illus. \$29.95.

Acta Numerica 1994. A. Iserles, Ed. Cambridge University Press, New York, 1994. vi, 572 pp., illus. \$49.95.

Actin. Biophysics, Biochemistry, and Cell Biology. James E. Estes and Paul J. Higgins, Eds. Plenum, New York, 1994. x, 236 pp., illus. \$79.50. Advances in Experimental Medicine and Biology, vol. 358. From a conference, Troy, NY, Aug. 1992.

Band Theory of Solids. An Introduction from the

Point of View of Symmetry. Simon L. Altmann. Clarendon (Oxford University Press), New York, 1994. xiv, 286 pp., illus. Paper, \$29.95. Reprint, 1991 ed.

Bang. The Evolving Cosmos. Richard Fuller, Ed. University Press of America, Lanham, MD, 1994. x, 159 pp., illus. \$45; paper, \$18.50. From a conference, St. Peter, MN, Oct. 1991.

Biochemistry and Physiology of the Neutrophil. Steven W. Edwards. Cambridge University Press, New York, 1994. xviii, 299 pp., illus. \$54.95.

Cellular and Molecular Mechanisms Underlying Higher Neural Functions. A. I. Selverston and P. Ascher, Eds. Wiley, New York, 1994. xvi, 328 pp., illus. \$150. Life Sciences Research Report LS 54. From a workshop, Berlin, Feb.-March 1993.

Chaos in Wonderland. Visual Adventures in a Fractal World. Clifford A. Pickover. St. Martin's, New York, 1994. xvi, 303 pp., illus. \$29.95.

Cheetahs of the Serengeti Plains. Group Living in an Asocial Species. T. M. Caro. University of Chicago Press, Chicago, 1994. xxii, 478 pp., illus. \$70 or £55.95; paper, \$26.95 or £21.50. Wildlife Behavior and Ecology.

DNA-Based Markers in Plants. Ronald L. Phillips and Indira K. Vasil, Eds. Kluwer, Norwell, MA, 1994. x, 384 pp., illus. \$177 or £120 or Dfl.300. Advances in Cellular and Molecular Biology of Plants, vol. 1.

DNA Damage. Effects on DNA Structure and Protein Recognition. Susan S. Wallace, Bennett Van Houten, and Yoke Wah Kow, Eds. New York Academy of Sciences, New York, 1994. x, 381 pp., illus. Paper, \$105. Annals of the New York Academy of Sciences, vol. 726. From a conference, Burlington, VT, July-Aug. 1993.

The Ecology of Aggression. Arnold P. Goldstein. Plenum, New York, 1994. xii, 196 pp. \$34.50. Plenum Series in Social/Clinical Psychology.

Electromagnetic Response of Material Media. Yu. A. Il'inskiĭ and L. V. Keldysh. Plenum, New York, 1994. xvi, 316 pp. \$49.50. Translated from the Russian by Vitaly Kisin.

Electrooptics. Phenomena, Materials and Applications. Fernando Agulló-López, José Manuel Cabrera, and Fernando Agulló-Rueda. Academic Press, San Diego, CA, 1994. xii, 345 pp., illus. \$65.00.

Fragmented Energy Release in Sun and Stars. The Interface Between MHD and Plasma Physics. G. H. J. van den Oord. Kluwer, Norwell, MA, 1994. xviii, 378 pp., illus. \$217 or £148.50 or Dfl.380. From a workshop, Utrecht, Netherlands, Oct. 1993. Reprinted from *Space Science Reviews*, vol. 68, nos. 1-4 (1994).

Frontiers of Polymers and Advanced Materials. Paras N. Prasad, Ed. Plenum, New York, 1994. xiv, 719 pp., illus. \$149.50. From a conference, Jakarta, Indonesia, Jan. 1993.

Genetic Programming II. Automatic Discovery of Reusable Programs. John R. Koza. MIT Press, Cambridge, MA, 1994. xxii, 746 pp., illus. \$45. Complex Adaptive Systems.

Geocubic Cosmology. Tom Gilmore. T. Byron G. Publishing, Angels Camp, CA, 1993 (distributor, Samuel Weiser). iv, 140 pp. Paper, \$12.95.

Handbook of Categorical Algebra. Vol. 1, Basic Category Theory. Francis Borceux. Cambridge University Press, New York, 1994. xvi, 345 pp., illus. \$69.95. Encyclopedia of Mathematics and Its Applications, vol. 50.

The Handbook of Economic Sociology. Neil J. Smelser and Richard Swedberg, Eds. Princeton University Press, Princeton, NJ, and Russell Sage Foundation, New York, 1994. x, 835 pp. \$95 or £65.

Handbook of Growth Factors. Enrique Pimentel. CRC Press, Boca Raton, FL, 1994. 3 vols. Vol. 1, General Basic Aspects. xii, 370 pp. Vol. 2, Peptide Growth Factors. xiv, 362 pp. Vol. 3, Hematopoietic Growth Factors and Cytokines. xiv, 370 pp. Each vol. \$85.

Interacting Electrons and Quantum Magnetism. Assa Auerbach. Springer-Verlag, New York, 1994. xiv, 255 pp., illus. \$39.95. Graduate Texts in Contemporary Physics.

International Waters of the Middle East. From Euphrates-Tigris to Nile. Asit K. Biswas, Ed. Oxford University Press, New York, 1994. xviii, 221 pp., illus. \$19.95. Water Resources Management Series, vol. 2. From a forum, Cairo, Feb. 1993.

The Interpretation of Quantum Mechanics. Roland Omnès. Princeton University Press, Princeton, NJ, 1994. xvi, 550 pp., illus. \$95 or £80; paper, \$39.50 or £29.50. Princeton Series in Physics.

Long-Term Potentiation. Vol. 2. Michel Baudry and Joel L. Davis, Eds. MIT Press, Cambridge, MA, 1994. xiv, 409 pp., illus. \$85. Based on a meeting, Gif-sur-Yvette, France, 1992.

Lymphocyte Activation. L. E. Samuelson, Ed. Karger, Farmington, CT, 1994. xii, 219 pp, illus. \$168 or DM251 or Sfr210. Chemical Immunology, vol. 59.

Making a Medical Living. Doctors and Patients in the English Market for Medicine, 1720-1911. Anne Digby. Cambridge University Press, New York, 1994. xx, 348 pp., illus. \$64.95. Cambridge Series in Population, Economy and Society in Past Time, vol. 24.

Making Monsters. False Memories, Psychotherapy, and Sexual Hysteria. Richard Ofshe and Ethan Watters. Scribner's, New York, 1994. xii, 340 pp. \$23.

Normal Forms and Bifurcation of Planar Vector Fields. Shui-Nee Chow, Chengzhi Li, and Duo Wang. Cambridge University Press, New York, 1994. viii, 472 pp., illus. \$69.95.

Nutritional Needs of Athletes. Fred Brouns. Wiley, New York, 1993. xii, 162 pp., illus. \$32.95.

The Oosterschelde Estuary (The Netherlands). A Case-Study of a Changing Ecosystem. P. H. Nienhuis and A. C. Smaal, Eds. Kluwer, Norwell, MA, 1994. xxiv, 597 pp., illus. \$280 or £190 or Dfl.475. Developments in Hydrobiology, vol. 97. Reprinted from *Hydrobiologia*, vols. 282/283 (1994).

Orchid Biology. Reviews and Perspectives. Vol. 7. Joseph Arditti, Ed. Wiley, New York, 1994. xviii, 610 pp., illus. \$115.

Organosilicon Chemistry. From Molecules to Materials. Norbert Auner and Johann Weiss, Eds. VCH, New York, 1994. xxii, 349 pp., illus. \$85. From a conference, Munich, 1992.

The Perfect Machine. Building the Palomar Telescope. Ronald Florence. HarperCollins, New York, 1994. x, 451 pp. + plates. \$27.50.

Protecting Groups. Philip J. Kocienski, Thieme, Stuttgart, 1994. xvi, 260 pp., illus. DM 118 or ÖS 921 or SFr 120; paper, DM 60 or ÖS 468 or SFr 61.80. Thieme Foundations of Organic Chemistry Series.

Psyche and Eros. Mind and Gender in the Life Course. Gisela Labouvie-Vief. Cambridge University Press, New York, 1994. x, 333 pp. \$59.95; paper, \$18.95.

Quantum Field Theory. Lowell S. Brown. Cambridge University Press, New York, 1994. xiv, 542 pp., illus. Paper, \$39.95. Reprint, 1992 ed.

Resonance Energy Transfer. Theory and Data. B. Wieb Van Der Meer, George Coker III, and S.-Y. Simon Chen. VCH, New York, 1994. x, 177 pp., illus. \$95.

Retinoids. From Basic Science to Clinical Applications. M. A. Livrea and G. Vidali, Eds. Birkhäuser Boston, Cambridge, MA, 1994. Springer-Verlag, New York. x, 396 pp., illus. \$98. Molecular and Cell Biology Updates.

Six Roads from Newton. Great Discoveries in Physics. Edward Speyer. Wiley, New York, 1994. xii, 196 pp., illus. \$19.95.

The Social Animal. 7th ed. Elliot Aronson. Freeman, New York, 1994. xx, 515 pp., illus. \$32.95; paper, \$24.95.

STS Education. International Perspectives on Reform. Joan Solomon and Glen Aikenhead, Eds. Teachers College Press, New York, 1994. xii, 260 pp. \$46; paper, \$21.95. Ways of Knowing in Science Series. Based on a symposium, Oxford, U. K., 1990.

A Toddler's Life. Becoming a Person. Marilyn Shatz. Oxford University Press, New York, 1994. xvi, 221 pp., illus. \$35.

Urolithiasis 2. Rosemary Ryall *et al.*, Eds. Plenum, New York, 1994. xxx, 696 pp., illus. \$159.50. From a symposium, Cairns, Australia, Aug. 1992.

UV and X-Ray Spectroscopy of Astrophysical and Laboratory Plasmas. Eric H. Silver and Steven M. Kahn, Eds. Cambridge University Press, New York, 1994. xviii, 610 pp., illus. \$79.95. From a colloquium, Berkeley, CA, Feb. 1992.

A Weberian Theory of Human Society. Structure and Evolution. Walter L. Wallace. Rutgers University Press, New Brunswick, NJ, 1994. xiv, 324 pp. \$59.00. Arnold and Caroline Rose Monograph Series of the American Sociological Association.

Wild Forests. Conservation Biology and Public Policy. William S. Alverson, Walter Kuhlmann, and Donald M. Waller. Island Press, Washington, DC, 1994. xxiv, 300 pp., illus. \$49.95; paper, \$29.95.