

Biomechanics in Evolution. J. M. V. RAYNER and R. J. WOOTTON, Eds. Cambridge University Press, New York, 1992. xiv, 273 pp., illus. \$69.96. Society for Experimental Biology Seminar Series, 36. Based on a seminar, Manchester, U.K., Jan. 1987.

"One of the first questions asked by the discoverer of a new fossil is how the organism in question worked," note Rayner and Wootton. This collection considers such questions as they can be addressed in terms of mechanics and the related constraints on adaptation. After an introductory chapter by George Lauder discussing how biomechanical and historical analysis can be "mutually illuminating," the volume contains 12 papers concerned with various biomechanical problems as solved by various groups of organisms. In the one paper devoted to plants, Vincent and Jeronimidis present a model for the design of turgor systems. Considering animals largely from the head end, Norman and Weishampel discuss feeding adaptations (jaws and teeth) in herbivorous dinosaurs and Kitchener analyzes the structural mechanics of horns and antlers as minimum-weight structures optimized for fighting. The remaining papers all deal with modes of locomotion. Three focus on invertebrate groups—Briggs *et al.* on walking and swimming in fossil arthropods, Chamberlain on the jet-propulsion system of cephalopods as compared to the body/fin undulation system of fish, and Wootton and Ellington on the origin of insect flight. Turning to fish, Bunker and the late Kenneth Machin (to whom the volume is dedicated) offer a hydrodynamic "case study," with "unfettered speculation," of the cephalaspids of the Devonian. Also concerned with hydrodynamics is a paper by Riess and Frey examining the evolutionary progression from rowing

(propulsion by accelerating water backwards) to "underwater flight" (propulsion by means of "lift" vortices) in tetrapods, with special reference to turtles and plesiosaurs. Flight in the more common sense of the term is addressed by Padian, who stresses the importance of a phylogenetic perspective for understanding the appearance of flight in pterosaurs, and by Rayner, who examines the gliding and cursorial models for *Archaeopteryx* and offers a compromise. Equids are represented in a paper by Thomason devoted to limb specializations, and Alexander brings the volume to a close with a brief consideration of human bipedalism focused on mechanical aspects rather than possible phylogeny. According to the editors the contributions have been updated "when necessary" from the symposium at which they were originally presented. A subject index is appended.

Katherine Livingston

Books Received

Bright Air, Brilliant Fire. On the Matter of the Mind. Gerald M. Edelman. Basic Books, New York, 1992. xvi, 280 pp., illus. \$25.

Bubbles, Voids, and Bumps in Time. The New Cosmology. James Cornell, Ed. Cambridge University Press, New York, 1992. xiv, 190 pp., illus. \$27.95; paper, \$15.95. Reprint, 1989 ed.

Burning Bush. A Fire History of Australia. Stephen J. Pyne. Holt, New York, 1992. xx, 520 pp. + plates. Paper, \$15.95. Reprint, 1991 ed.

The Butterflies of Kenya. And Their Natural History. Torben B. Larsen. Oxford University Press, New York, 1992. xxii, 490 pp. + plates. \$195.

Continuity or Replacement. Controversies in *Homo sapiens* Evolution. Günter Brauer and Fred H. Smith, Eds. Balkema, Brookfield, VT, 1992. xii, 315 pp., illus. \$150. From a symposium, Zagreb, July 1988.

Controversy. Politics of Technical Decisions. Dorothy Nelkin, Ed. 3rd ed. Sage, Newbury Park, CA, 1992. xxvi, 258 pp. \$42.95; paper, \$21.95. Sage Focus Editions, 8.

Cooperation and Prosocial Behavior. Robert A. Hinde and Jo Groebel, Eds. Cambridge University Press, New York, 1992. xvi, 365 pp. \$75; paper, \$29.95.

The Correspondence of Charles Darwin. Vol. 7, 1858–1859. Supplement to the Correspondence 1821–1857. Cambridge University Press, New York, 1992. xxxviii, 671 pp., illus., + plates. \$59.95.

Cross-Cultural Psychology. Research and Applications. John W. Berry *et al.* Cambridge University Press, New York, 1992. xiv, 459 pp., illus. \$70; paper, \$34.95.

Microscopic Aspects on Nonlinearity in Condensed Matter. A. R. Bishop, V. L. Pokrovsky, and V. Tognetti, Eds. Plenum, New York, 1991. xii, 361 pp., illus. \$95. NATO Advanced Science Institute Series B, vol. 264. From a workshop, Florence, Italy, June 1990.

Mm (Much Ado About Nothing). A. G. Davis Philip *et al.* Davis, Schenectady, NY, 1991. viii, 166 pp., illus. \$27. Series on Fractals, vol. 1.

Problems and Methods in Longitudinal Research. Stability and Change. David Magnusson *et al.*, Eds. Cambridge University Press, New York, 1992. xvi, 351 pp., illus. \$100. European Network on Longitudinal Studies on Individual Development, 5.

Proceedings of the Second International Congress of Dipterology. L'udovít Weismann, Ivan Országh, and Adrian C. Pont, Eds. SPB Academic, The Hague, 1991. 367 pp., illus. \$82. From a congress, Bratislava, Czechoslovakia, Aug. 1990.

Prostaglandins, Leukotrienes, Lipoxins, and PAF. Mechanism of Action, Molecular Biology, and Clinical Applications. J. Martyn Bailey, Ed. Plenum, New York, 1991. xii, 461 pp., illus. \$110. George Washington University Medical Center Department of Biochemistry Annual Spring Symposia. From a symposium, Washington, DC, May 1991.

PSA 1990. Vol. 2. Arthur Fine, Micky Forbes, and Linda Wessels, Eds. Philosophy of Science Association, East Lansing, MI, 1992. xx, 575 pp., illus. \$25. From a meeting, Minneapolis, Oct. 1990.

The Self-Knower. A Hero Under Control. Robert A. Wicklund and Martina Eckert. Plenum, New York, 1992. xiv, 166 pp. \$29.50. Series in Social/Clinical Psychology.

Sensors. Technology, Systems and Applications. K. T. V. Grattan, Ed. Hilger, Philadelphia, 1991 (U.S. distributor, American Institute of Physics, New York). xiv, 559 pp., illus. \$110. Series on Sensors.

Serological Cancer Markers. Steward Sell, Ed. Humana, Clifton, NJ, 1992. xvi, 536 pp., illus. \$99. Contemporary Biomedicine.

Sigmund Freud as a Consultant. Recollections of a Pioneer in Psychoanalysis. Edoardo Weiss. Transaction Publishers, New Brunswick, NJ, 1992. xx, 82 pp., illus. \$21.95. History of Ideas series.

Signaling Mechanisms in Secretory and Immune Cells. J. R. Martinez, B. S. Edwards, and J. C. Seagrave, Eds. San Francisco Press, San Francisco, 1991. x, 133 pp., illus. \$15. From a conference, Albuquerque, NM, Sept. 1990.

A Space for Science. The Development of the Scientific Community in Brazil. Simon Schwartzman. Pennsylvania State University Press, University Park, 1992. x, 286 pp. \$32.50. Revised translation of the Portuguese edition (1979).

Spectroscopy of Polymers. Jack L. Koenig. American Chemical Society, Washington, DC, 1991. xvi, 328 pp., illus. \$89.95; paper, \$49.95.

Stanislaw Leśniewski. Collected Works. Stanislaw J. Surma *et al.*, Eds. Polish Scientific, Warsaw, and Kluwer, Norwell, MA, 1992. 2 vols. xxii, 794 pp. \$274. Nijhoff International Philosophy Series, vol. 44. Translated from the Polish.

Statistical Methods for the Process Industries. William H. McNeese and Robert A. Klein. ASQC Quality Press, Milwaukee, and Dekker, New York, 1991. xvi, 512 pp., illus. Paper, \$55. Quality and Reliability, 28.

The Strategic Revolution. Thoughts for the Twenty-First Century. Neville Brown. Brassey's (Macmillan), New York, 1992. x, 248 pp. \$35.95.

Structure and Function of the Aspartic Proteinases. Genetics, Structures, and Mechanisms. Ben M. Dunn, Ed. Plenum, New York, 1991. xviii, 585 pp., illus. \$129.50. Advances in Experimental Medicine and Biology, vol. 306. From a conference, Sonoma County, CA, Sept. 1990.

Subcellular Biochemistry. Vol. 17, Plant Genetic Engineering. B. B. Biswas and J. R. Harris, Eds. Plenum, New York, 1991. xxii, 345 pp., illus. \$85.

Suprachiasmatic Nucleus. The Mind's Clock. David C. Klein, Robert Y. Moore, and Steven M. Reppert, Eds. Oxford University Press, New York, 1991. xvi, 467 pp., illus. \$85.

Surface Science of Catalysis. In Situ Probes and Reaction Kinetics. Daniel J. Dwyer and Friedrich M. Hoffmann, Eds. American Chemical Society, Washington, DC, 1992. xii, 364 pp., illus. \$59.95. ACS Symposium Series, 482. From a symposium, Atlanta, April 1991.

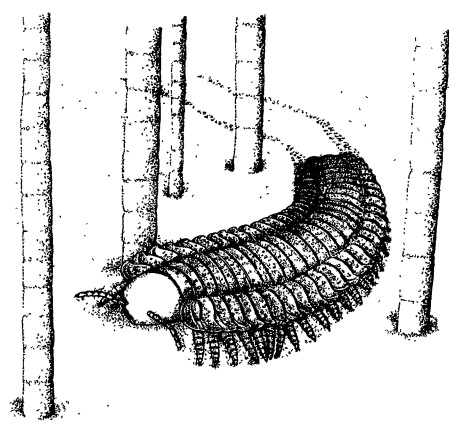
Systemic Autoimmunity. Pierluigi E. Bigazzi and Morris Reichlin, Eds. Dekker, New York, 1991. xii, 300 pp., illus. \$130. Immunology series, 54.

Systems Methodology for the Management Sciences. Michael C. Jackson. Plenum, New York, 1991. xiv, 298 pp., illus. \$49.50. Contemporary Systems Thinking.

Techniques in Protein Chemistry III. Ruth Hogue Angeletti, Ed. Academic Press, San Diego, CA, 1992. xviii, 544 pp., illus. \$90; spiral bound, \$45.

Theory and Research in Behavioral Pediatrics. Vol. 5. Hiram E. Fitzgerald, Barry M. Lester, and Michael W. Yogman, Eds. Plenum, New York, 1991. xvi, 228 pp., illus. \$59.50.

Thinking, Problem Solving, Cognition. Richard E. Mayer. 2nd ed. Freeman, New York, 1992. xii, 560 pp., illus. \$37.95; paper, \$22.95.



"The giant late Carboniferous myriapod *Arthropleura armata* making the New Brunswick trackway as it walked through a stand of calamites." [From Briggs *et al.*'s paper in *Biomechanics in Evolution*]