

Horns, Pronghorns, and Antlers. Evolution, Morphology, Physiology, and Social Significance. GEORGE A. BUBENIK and ANTHONY B. BUBENIK, Eds. Springer-Verlag, New York, 1990. xii, 562 pp., illus. \$89.

Horns, Pronghorns, and Antlers is, the editors note, a "rather unique" project, bringing together scientists in fields ranging from taxonomy to neuroendocrinology to deal with the subject of "cranial appendages." The volume opens with a set of six papers under the heading Evolution and Morphology. Anthony Bubenik leads off with a 110-page overview chapter in which he distinguishes between "horns" that are a product of skin and those that are protuberances of bone, reviews terminology for and taxonomy based on such structures, and discusses evolutionary and ontogenetic explanations for them. There follow another comparative and evolutionary discussion by C. M. Janis, focusing on the relation of reproduction and digestion in their evolution, and phylogenetic and morphological accounts of the Muntiacidae (muntjac and tufted deer) by C. P. Groves and P. Grubb, the Cervidae of Southeast Asia by Grubb, and the Bovidae of Africa by A. W. Gentry, along with a chapter by C. S. Churcher on the distinctive "cranial ornaments" known as ossicones in the Giraffoidea. The remainder of the book—Physiology, Genetics, and Behavior—is given over to more specialized papers. After an account (by B. E. O'Gara) of the pronghorn deer that appears to be more appropriate to the earlier section of the book, a dozen papers take up such topics as the neuroendocrine regulation of the antler cycle, the development of antlers as an example of metamorphosis, experimental induction of antler growth and regeneration, the relation between reproductive and antler cycles, nutritional requirements for antler growth, the relation of social dominance, hormonal changes, and antler development, and genetic variability in antler development. The volume ends with a combined reference list and indexes of fossil and extant pecora and "general terms."—K.L.

Reprints of Books Previously Reviewed

Australian Science in the Making. R. W. Home, Ed. Cambridge University Press, New York, 1990. Paper, \$29.95. *Reviewed* 242, 118 (1988).

First the Seed. Jack Ralph Kloppenburg. Cambridge University Press, New York, 1990. Paper, \$14.95. *Reviewed* 243, 412 (1989).

Indian Clothing Before Cortés. Patricia Rieff Anawalt. University of Oklahoma Press, Norman, OK, 1990. *Reviewed* 216, 870 (1982).

Pacific Visions. Michael L. Smith. Yale University Press, New Haven, CT, 1990. Paper, \$12.95. *Reviewed* 241, 731 (1988).

Books Received

Alternative Life-History Styles of Fishes. Michael N. Bruton, Ed. Kluwer, Boston, 1990. iv, 327 pp., illus. \$165. Developments in Environmental Biology of Fishes, 10. From a conference, Grahamstown, South Africa, June 1987. Reprinted from *Environmental Biology of Fishes* 28 (1-4), 1990, with indexes added.

Analysis of Geological Structures. N. J. Price and J. W. Cosgrove. Cambridge University Press, New York, 1990. xiv, 502 pp., illus. \$125; paper, \$49.50.

Analysis of Growth and Development of Xanthium. Roman Maksymowich, with James O. Brooks and Frank B. Salisbury. Cambridge University Press, New York, 1990. xii, 220 pp., illus. \$64.50. Developmental and Cell Biology series.

The Analytical and Topological Theory of Semigroups. Trends and Developments. Karl Heinrich Hofmann, Jimmie D. Lawson, and John S. Pyn, Eds. De Gruyter, New York, 1990. xii, 398 pp., illus. \$74.95. De Gruyter Expositions in Mathematics, 1. From a conference, Oberwolfach, F.R.G.

Analytical Microbiology and Methods. Chromatography and Mass Spectrometry. Alvin Fox *et al.*, Eds. viii, 280 pp., illus. \$69.50. From a symposium, Columbia, SC, June 1987.

The Appalachian-Ouachita Orogen in the United States. Robert D. Hatcher, Jr., William A. Thomas, and George W. Viele, Eds. Geological Society of America, Boulder, CO, 1989. xiv, 767 pp., illus., + plates in slipcase. \$75. Decade of North American Geology Project series, vol. F-2.

The Art of Tracking. The Origin of Science. Louis Liebenberg. Philip, Claremont, South Africa, 1990. x, 176 pp., illus. R49.95.

Asbestos. Medical and Legal Aspects. Barry I. Castleman. 3rd ed. Prentice Hall, Englewood Cliffs, NJ, 1990. xxii, 776 pp., illus. \$85.

Astrodynamics 1989. Catherine L. Thornton *et al.*, Eds. Published for the American Astronautical Society by Univelt, San Diego, CA, 1990. 2 parts. Ivi, 1437 pp., illus. \$200; paper, \$170. Advances in the Astronautical Sciences, vol. 71. From a conference, Stowe, VT, Aug. 1989.

Atlas of Ozone Spectral Parameters From Microwave to Medium Infrared. Jean-Marie Flaud *et al.* Academic Press, San Diego, CA, 1990. viii, 599 pp., illus. \$89.50.

Atomic Spectroscopy. James W. Robinson. Dekker, New York, 1990. viii, 299 pp., illus. \$99.75.

The Bacteria. A Treatise on Structure and Function. Vol. 12, Bacterial Energetics. Terry Ann Krulwich, Ed. Academic Press, San Diego, CA, 1990. xii, 569 pp., illus. \$110.

Behavioral Aspects of AIDS. David G. Ostrow, Ed. Plenum, New York, 1990. xviii, 414 pp., illus. \$55.

Behavioural Ecology of the Galah. *Eolophus roseicapillus*. In the Wheatbelt of Western Australia. Ian Rowley. Beatty, Chipping Norton, Australia, 1990. xii, 188 pp., illus. \$39.60.

Biological Oxidation Systems. Vol. 1. C. Channa Reddy, Gordon A. Hamilton, and K. M. Madyastha, Eds. Academic Press, San Diego, CA, 1990. xxii, 546 pp., illus. \$80. From a symposium, Bangalore, India, Oct. 1989.

Biopharmaceutics and Clinical Pharmacokinetics. Milo Gibaldi. 4th ed. Lea and Febiger, Philadelphia, 1991. x, 406 pp., illus. \$35.

Biotechnology and Food Process Engineering. Henry G. Schwartzberg and M. A. Rao, Eds. Dekker, New York, 1990. viii, 493 pp., illus. \$69.75. Basic Symposium series. From a symposium, Chicago, IL, June 1989.

Biotechnology and Food Safety. Dennis Westhoff *et al.*, Eds. Butterworth-Heinemann, Boston, 1990. xiv, 381 pp., illus. \$65. From a symposium.

Bryant's Law and Other Broadides. Recent Controversial Writings of John Bryant. Illustrated by Lenora and John Bryant. Socratic Press, St. Petersburg Beach, FL, 1990. viii, variously paged. Paper, \$19.95.

Carotenoids. Chemistry and Biology. Norman I. Krinsky, Micheline M. Mathews-Roth, and Richard F. Taylor, Eds. Plenum, New York, 1990. x, 382 pp., illus. \$85. From a symposium, Boston, July 1987.

The Changing Atmosphere. A Global Challenge. John Firor. Yale University Press, New Haven, CT, 1990. xiv, 145 pp., illus. \$19.95.

Chemical Kinetics. The Study of Reaction Rates in Solution. Kenneth A. Connors. VCH, New York, 1990. xiv, 480 pp., illus. \$95; paper, \$49.50.

Chemical Physics of Liquids. N. H. March. Gordon and Breach, New York, 1990. xii, 326 pp., illus.

\$145. Contemporary Topics in Pure and Applied Condensed Matter Science, vol. 1.

Circulating Regulatory Factors and Neuroendocrine Function. John C. Porter and Daniela Ježová, Eds. Plenum, New York, 1990. xx, 487 pp., illus. \$105. Advances in Experimental Medicine and Biology, vol. 274. From a symposium, Smolenice Castle, Czechoslovakia, June 1989.

Colliding Galaxies. The Universe in Turmoil. Barry Parker. Drawings by Lori Scofield. Plenum, New York, 1990. x, 298 pp., illus. \$23.95.

Colloidal Dispersions. W. B. Russel, D. A. Saville, and W. R. Schowalter. Cambridge University Press, New York, 1990. xviii, 525 pp., illus. \$99.50. Cambridge Monographs on Mechanics and Applied Mathematics.

Colorado Flora. Eastern Slope. William A. Weber. University Press of Colorado, Niwot, CO 1990. xxviii, 396 pp., illus., + plates. \$32.50; paper, \$19.95.

The Coming Quake. Science and Trembling on the California Earthquake Frontier. T. A. Heppenheimer. Paragon, New York, 1990. xviii, 290 pp., illus. Paper, \$12.95. Reprint, 1988 ed.

Computational Vision. Harry Wechsler. Academic Press, San Diego, 1990. xviii, 558 pp., illus. \$64.50. Computer Science and Scientific Computing.

Delinquency Careers in Two Birth Cohorts. Paul E. Tracy, Marvin E. Wolfgang, and Robert M. Figlio. Plenum, New York, 1990. x, 308 pp., illus. \$35. Plenum Series in Crime and Justice.

Dependence with Complete Connections and Its Applications. Marius Iosifescu and Serban Grigorescu. Cambridge University Press, New York, 1990. xiv, 304 pp. \$69.50. Cambridge Tracts in Mathematics, 96. Translated with revisions from the Romanian edition (1982).

The Diencephalon and Sleep. Mauro Mancia and Gabriella Marini, Eds. Raven, New York, 1990. xvi, 402 pp., illus. \$60. From a symposium, Lago Maggiore, Italy, Sept. 1989.

Distributed Ada. Developments and Experiences. Judy M. Bishop, Ed. Cambridge University Press, New York, 1990. viii, 321 pp., illus. \$39.50. Ada Companion Series. From a symposium, Southampton, U.K., Dec. 1989.

Electronic Aspects of Organic Photochemistry. Josef Michl and Vlasta Bonacic-Koutecky. Wiley, New York, 1990. xvi, 475 pp., illus. \$64.95. A Wiley-Interscience Publication.

Electronic Materials Science. For Integrated Circuits in Si and GaAs. James W. Mayer and S. S. Lau. Macmillan, New York, 1990. xx, 476 pp., illus. \$58.

Electroweak Interactions. An Introduction to the Physics of Quarks and Leptons. Peter Renton. Cambridge University Press, New York, 1990. xiv, 596 pp., illus. \$110; paper, \$37.50.

Endocrine and Biochemical Development of the Fetus and Neonate. José M. Cuezva, Ana M. Pascual-Leone, and Mulchand S. Patel, Eds. Plenum, New York, 1990. x, 316 pp., illus. \$75. Reproductive Biology. From a meeting, Madrid, Spain, Dec. 1988.

Fluid Mechanics. Pijush K. Kundu. Academic Press, San Diego, CA, 1990. xxii, 638 pp., illus. \$55.

Fundamentals of Superconductivity. Vladimir Z. Kresin and Stuart A. Wolf. Plenum, New York, 1990. xii, 231 pp., illus. \$42.50.

G-Proteins and Signal Transduction. G. Milligan, M. J. O. Wakelam, and J. Kay, Eds. Biochemical Society, London, 1990. xiv, 171 pp., illus. \$65. Biochemical Society Symposium no. 56. From a symposium, London, Dec. 1989.

Geology of the Composite Avalon Terrane of Southern New England. Anthony D. Socci, James W. Skehan, and Geoffrey W. Smith, Eds. Geological Society of America, Boulder, CO, 1990. viii, 254 pp., illus. Paper, \$45. GSA Special Paper 245. From a symposium, Pittsburgh, PA, March 1987.

Global Environmental Issues. A Climatological Approach. David D. Kemp. Routledge, New York, 1990. xvi, 220 pp., illus. \$57.50; paper, \$15.95.

Health Psychology. Processes and Applications. Anabel K. Broome, Ed. Chapman and Hall, New York, 1990. xvi, 498 pp., illus. Paper, \$55.

The Human Core. The Intrapyschic Base of Behavior. Leo Rangell. International Universities Press, Madison, CT, 1990. 2 vols. Vol. 1, Action within a Structural View. x + pp. 1-468, illus. \$60. Vol. 2, From Anxiety to Integrity. xii + pp. 473-959, illus. \$60.

Humic Substances in Soil and Crop Science. Selected Readings. P. MacCarthy *et al.*, Eds. American Society of Agronomy, Madison, WI, 1990. xviii, 281 pp., illus. \$30. From a symposium, Chicago, IL, Dec. 1985.