

combined attention of these specialists that will ultimately meet Prosser's challenge to understand the diversity of present-day organisms on the basis of their evolutionary past.

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Cytochrome P-450

Cytochrome P-450. Structure, Mechanism, and Biochemistry. PAUL R. ORTIZ DE MONTELLANO, Ed. Plenum, New York, 1986. x, 556 pp., illus. \$69.50.

The last few years have seen an explosion of knowledge of cytochrome P-450 enzymes, such that need has developed for a comprehensive and contemporary treatise on these fascinating proteins. This volume fills the need superbly.

The initial chapter, by McMurry and Groves, provides a succinct but complete review of the chemistry and spectroscopy of the numerous synthetic models for P-450. Next Marnett, Weller, and Battista compare the peroxidase activity of hemoproteins and cytochrome P-450 and Miwa and Lu discuss the topology of the mammalian cytochrome P-450 active site. Then Peterson and Prough examine the electron transfer proteins that are physiological partners of cytochrome P-450, Ingelman-Sundberg describes the relations between these proteins and phospholipid membranes, and Black and Coon extensively compare the primary structures of the numerous P-450 isozymes.

Ortiz de Montellano gives a particularly cogent discussion of oxygen activation and transfer, which is the central function of cytochrome P-450, and joins with Reich to examine the inhibition of cytochrome P-450 enzymes, with special emphasis on the extraordinary mechanism-based inhibitors that Ortiz de Montellano's laboratory has developed. In the next three chapters supramolecular processes are discussed—the induction of hepatic P-450 isozymes by Eisen, regulation of synthesis and activity of P-450 enzymes in physiological pathways by Waterman, John, and Simpson, and P-450 enzymes in sterol biosynthesis and metabolism by Jefcoate.

The last two chapters emphasize the extensive physical studies that have been performed on bacterial P-450. Sligar and Murray give a scholarly account of the physics and chemistry of cytochrome P-450_{cam} and other bacterial P-450 enzymes. Poulos then provides excellent stereoscopic graphics of

the recently published crystal structure of P-450_{cam}, including a color plate of the full structure in front and side views. In addition, Poulos reconciles the observed structure with known spectroscopic and mechanistic information.

The emphasis of this book, reflecting the interests of the editor, is strongly, but not overwhelmingly, on the chemical and physical aspects of the oxygen activation process. Not the least of its many strengths is the recentness of the references, which include many from 1985 and even some from 1986. Full titles of all cited papers are included. There are also many useful direct comparisons of the P-450 enzymes to synthetic chemical models, peroxidases, and the bleomycins. Among material not available elsewhere are Poulos's structural illustrations, a very practical appendix by Waxman serving as an atlas of the confusing landscape of closely related mammalian P-450 isozymes, a useful compilation of the properties of 52 P-450 enzymes from 13 species by Black and Coon, and an expanded thermodynamic theory of redox and spin states by Sligar and Murray. Most topics are given well-balanced treatment, although several authors have followed the natural tendency to cite their own work heavily. One lack is an account of the elegant molecular biology that has been conducted on the gene structures of the mammalian P-450 isozyme families. Overall, though, this book is highly successful in its purpose, and I can heartily recommend it to students and experts alike.

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Books Received

The American College and the Culture of Aspiration, 1915–1940. David O. Levine. Cornell University Press, Ithaca, NY, 1986. 283 pp. \$29.95.

Among Predators and Prey. Hugo van Lawick. Sierra Club Books, San Francisco, 1986 (distributor, Random House, New York). 224 pp., illus. \$35.

Amorphous Metals and Semiconductors. P. Haasen and R. I. Jaffee, Eds. Pergamon, New York, 1986. xii, 471 pp., illus. \$95. Acta-Scripta Metallurgica Proceedings Series, 3. From a workshop, Coronado, CA, May 1985.

Antimutagenesis and Anticarcinogenesis Mechanisms. Delbert M. Shankel *et al.*, Eds. Plenum, New York, 1986. xii, 605 pp., illus. \$89.50. Basic Life Sciences, vol. 39. From a conference, Lawrence, KS, Oct. 1985.

Biotechnology for the Mining, Metal-Refining, and Fossil Fuel Processing Industries. Henry L. Ehrlich and David S. Holmes, Eds. Interscience (Wiley), New York, 1986. vi, 386 pp., illus. Paper, \$69.95. Biotechnology and Bioengineering Symposium, no. 16. From a workshop, Troy, NY, May 1985.

Cell Movement and Cell Behaviour. J. M. Lackie, Allen and Unwin, Winchester, MA, 1986. xvi, 316 pp., illus. \$45; paper, \$19.95.

Cellulose. Structure, Modification and Hydrolysis. Raymond A. Young and Roger M. Rowell, Eds. Wiley-Interscience, New York, 1986. xx, 379 pp., illus. \$64.50.

Drug Receptors and Dynamic Processes in Cells. Jens S. Schou, Arne Geisler, and Svend Norn, Eds. Munksgaard, Copenhagen, 1986 (U.S. distributor, Raven, New York). 416 pp., illus. \$68.50. Alfred Benzon Symposium, 22 (Copenhagen, June 1985).

The Effects of Arts, Trades, and Professions on Health and Longevity. Charles Turner Thackrah. With an introductory essay by A. Meiklejohn. Science History Publications (Watson), Canton, MA, 1985. xvi, 217 pp., illus. \$15. Resources in Medical History.

Elder Ducks in Canada. Austin Reed, Ed. Canadian Wildlife Service, Ste-Foy, Quebec, 1986 (available from Printing and Publishing, Supply and Services Canada, Ottawa). vi, 177 pp., illus. Paper, \$23.40. Canadian Wildlife Service Report Series, no. 47. Text in English and French.

Human Growth Hormone. Salvatore Raiti and Robert A. Tolman, Eds. Plenum Medical, New York, 1986. xiv, 662 pp., illus. \$89.50.

The Human Oncogenic Viruses. Molecular Analysis and Diagnosis. Albert A. Luderer and Howard H. Weetall, Eds. Humana, Clifton, NJ, 1986. xvi, 281 pp., illus. \$59.50. The Oncogenes.

Hydrogen in Disordered and Amorphous Solids. Gust Bambakidis and Robert C. Bowman, Jr., Eds. Plenum, New York, 1986. x, 428 pp., illus. \$69.50. NATO Advanced Science Institutes Series B, vol. 136. From an institute, Rhodes, Greece, Sept. 1985.

Immune Regulation. Marc Feldman and N. A. Mitchison, Eds. Humana, Clifton, NJ, 1985. xvi, 391 pp., illus. \$64.50. Experimental Biology and Medicine. Based on a conference, Cambridge, UK, 1984.

Logic of Discovery and Logic of Discourse. Jaakko Hintikka and Fernand Vandamme, Eds. Plenum, New York, and Communication and Cognition, Ghent, 1985. xvi, 271 pp., illus. \$42.50. Based on a conference.

Low Tech Education in a High Tech World. Corporations and Classrooms in the New Information Society. Elizabeth L. Useem. Free Press (Macmillan), New York, and Collier Macmillan, London, 1986. x, 278 pp., illus. \$19.95; to AAAS members, \$15.95. AAAS Issues in Science and Technology Series.

Magmas and Magmatic Rocks. An Introduction to Igneous Petrology. Eric A. K. Middlemost. Longman, New York, and Wiley, New York, 1985. x, 266 pp., illus. Paper, \$39.95.

Mammalian Proteases. A Glossary and Bibliography. Vol. 2, Exopeptidases. J. Ken McDonald and Alan J. Barrett. Academic Press, Orlando, FL, 1986. xvi, 357 pp., illus. \$34.

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Mass Spectroscopy. H. E. Duckworth, R. C. Barber, and V. S. Venkatasubramanian, 2nd ed. Cambridge University Press, New York, 1986. xiv, 337 pp., illus. \$69.50. Cambridge Monographs on Physics.

Materials Degradation Caused by Acid Rain. Robert Baboian, Ed. American Chemical Society, Washington, DC, 1986. xiv, 447 pp., illus. \$79.95. ACS Symposium Series, 318. Based on a symposium, Arlington, VA, June 1985.

Natural Energy and Vernacular Architecture. Principles and Examples with Reference to Hot Arid Climates. Hassan Fathy. Walter Shearer and Abd-elrahman Ahmed Sultan, Eds. Published for the United Nations University by the University of Chicago Press, Chicago, 1986. xxiv, 172 pp., illus. \$25; paper, \$10.95.

Natural History of the Major Histocompatibility Complex. Jan Klein. Wiley-Interscience, New York, 1986. xxii, 775 pp., illus. + plates. \$95.

The Neural Basis of Motor Control. Vernon B. Brooks. Oxford University Press, New York, 1986. xiv, 330 pp., illus. \$45; paper, \$27.95.

Neuroendocrine Molecular Biology. G. Fink, A. J. Harmar, and Kenneth W. McKerns, Eds. Plenum, New York, 1986. xii, 498 pp., illus. \$79.50. Biochemical Endocrinology. From a symposium, Edinburgh, Sept. 1985.

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(Continued on page 886)