portant organism in urinary tract infections and burn cases that has become the subject of intense study in recent years. B. W. Holloway, who has worked with this difficult and ubiquitous organism for many years, has contributed an excellent paper summarizing his studies on both the chromosomal genetics and the plasmid biology of *P. aeruginosa*. This group of papers provides a useful survey of research on this organism. Other matters treated are drug resistance in *Salmonella* species isolated from humans and animals and R plasmids in *Serratia marcescens* and *Vibrio cholerae*.

The final section of the book is devoted to biochemical studies on a number of antibiotics in current use. These papers contain information on how R plasmid–specified enzymes act upon the antibiotics to bring about drug resistance and descriptions of new antibiotics that can in some instances evade such plasmid-mediated resistance mechanisms.

All in all, this is one of the most valuable books of its kind this reviewer has encountered. The papers are generally brief and to the point, and they touch on most of the important areas in this fast-moving field. The book is highly recommended for a wide spectrum of investigators, from microbiologists and epidemiologists to geneticists and molecular biologists. The one disturbing note, however, is its price.

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Membrane Systems

Molecular Aspects of Membrane Phenomena. Papers from a symposium, Seattle, Nov. 1974. H. E. KABACK, H. NEURATH, G. K. RADDA, R. SCHWYZER, and W. R. WILEY, Eds. Springer-Verlag, New York, 1975. xiv, 338 pp., illus. $27.50.

This collection of papers documents both technical and conceptual advances in the study of three key membrane phenomena: dynamics, recognition, and energy coupling. The presentations are on the whole lucid and well referenced, and they include ample descriptions of techniques and experimental data that will be welcomed by the specialist. There is also sufficient background to provide perspective for the nonspecialist. A broad spectrum of membrane systems, including bacterial membranes, mitochondria, chloroplasts, and plasma membranes of lymphocytes, fibroblasts, and *Neurospora*, as well as artificial membranes, are dealt with. The contributions are logically assembled, and this gives the collection a unity that makes for satisfying reading and study.

The section on dynamic properties stresses new experimental approaches for examining molecular interactions in membranes. Philip Siekevitz in his introduction to the book provides a rationale for this concern by referring to an interplay of diversified forces acting on the membrane and raising a number of probing questions regarding the implications of this interplay for membrane structure and molecular organization. Techniques that have allowed measurements of phospholipid mobility and asymmetry in the plane of the membrane, order-disorder lipid transitions, and nearest-neighbor analysis of membrane components are described. The time dimension of membrane dynamics is portrayed in a paper by Fritz Melchers describing how synthesis, turnover, and surface representation of the immunoglobulin molecules on B lymphocyte subpopulations can be used to characterize different stages in their differentiation.

In the section dealing with recognition the controversial question of whether protease-mediated cell surface alterations, measured by lectin-induced agglutinability of the cells, initiates cell division and allows escape from density-dependent growth control is discussed. In addition, the role of membranes in transducing molecular information, such as that encoded in acetylcholine and polypeptide hormones, into physiological responses is elaborated. Of particular interest is the contribution by Robert Schwyzer, in which consideration is given to the mechanisms underlying recognition and triggering of membrane-bound receptors.

The final section, dealing with energy coupling, is remarkable in the extent to which it signifies a rallying of support for Peter Mitchell's chemosmotic theory. It was proposed as early as 1961 that there is adenosine triphosphate–dependent H^+ transport and H^+-dependent cotransport of substrates in mitochondria. Evidence presented in this volume supports this hypothesis for mitochondria and indicates that at least facsimiles of the same process also operate in chloroplasts, bacterial membranes, and the plasma membrane of *Neurospora crassa*. There is little doubt that Mitchell's theory has been both guide and goad over the years, but the presentations in this volume suggest that chemosmotic thinking has emerged as a rational framework for the interpretation of many of the current data on bioenergetics.

The conference was well attended, and the issues under consideration were timely, relevant, and in some cases controversial. It is therefore unfortunate that at least highlights of the informal discussions have not been included in the published proceedings.

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Books Received

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Cellular Mechanisms Modulating Gonadal Action. R. L. Singhal and J. A. Thomas, Eds. University Park Press, Baltimore, 1976. viii, 472 pp., illus. $34.50. Advances in Sex Hormone Research, vol. 2.

Chemical Transmission in the Mammalian Central Nervous System. Charles H. Hockman and Detlef Bieger, Eds. University Park Press, Baltimore, 1976. xii, 442 pp., illus. $34.50.

Cholinesterases and Cholinergic Receptors. Proceedings of a meeting, Split, Yugoslavia, Apr. 1975. Else Reiner, Mira Škrinjarić-Špoljar, and Vera Simeon, Eds. Croatica Chemica Acta, Zagreb, Yugoslavia, 1975. vi + pp. 163–506, illus. Paper, $12. Reprinted from *Croatia Chemica Acta*, vol. 47, no. 3.

Clinical Neuropharmacology. Vol. 1. Harold L. Klawans, Ed. Raven, New York, 1976. xii, 226 pp., illus. $18.50.

Combined Effects of Radioactive, Chemical and Thermal Releases to the Environment. Proceedings of a symposium, Stockholm, June 1975. International Atomic Energy Agency, Vienna, 1975 (U.S. distributor, Unipub, New York). x, 360 pp., illus. Paper, $21. Proceedings Series.

Communications Channels. Characterization and Behavior. Bernard Goldberg, Ed. IEEE Press, New York, 1976 (distributor, Wiley, New York). viii, 762 pp., illus. Cloth, $22.95; paper, $11.95. IEEE Selected Reprint Series.

Cosmic Humanism and World Unity. Oliver L. Reiser. Interface (Gordon and Breach), New York, 1975. xii, 274 pp., illus. $14.50. World Institute Creative Findings, vol. 2.

Earliest Man and Environments in the Lake Rudolf Basin. Stratigraphy, Paleoecology, and Evolution. Proceedings of a symposium, Nairobi, Sept. 1973. Yves Coppens, F. Clark Howell, Glynn Ll. Isaac, and Richard E. F. Leakey, Eds. University of Chicago Press, Chicago, 1976. xxii, 616 pp., illus. Cloth, $17.50; paper, $8.50. Prehistoric Archeology and Ecology.

Early Identification of Hearing Loss. Proceedings of a conference, Halifax, Nova Scotia, Canada, Sept. 1974. George T. Mencher, Ed. Karger, Basel, 1976. xii, 208 pp., illus. Paper, $20.

Effects and Dose-Response Relationships of Toxic Metals. Proceedings of a meeting, To-