paradox tacitly describes the specific and dynamic pathways along which plasma membranes must be moved in cells, and several studies on the nature and regulation of this complex system have been assembled and summarized in this volume, which contains papers and discussions from a symposium on membrane recycling held at the Ciba Foundation in London in January 1982.

As is the case with nearly all of the editions in this series, this volume is interesting and well edited. Following a concise overview by the symposium chairman, George Palade, there are several papers and accompanying discussions on the uptake phase of plasma membrane traffic, including a paper by Goldstein, Anderson, and Brown, who were among the first to describe the process of receptor-mediated endocytosis in a mammalian cell system. Also included among these papers are contributions by Helenius and Marsh and by Mellman who describe "endosomes," the vesicular compartment which mediates the redistribution of endocytosed ligands internalized from the cell surface. The basis for the activity of these transient vesicles has more recently been described in detail (see, for example, Stone, et al: J Biol Chem 258: 4059–4062, 1983, or Galloway, et al: Proc Natl Acad Sci USA 80: 3334–3338, 1983).

The specificity of internal membrane recycling is further explored in several well-written reports, including those by Rothman and by Farquhar, on the movement of vesicles and vesicle-associated proteins in the Golgi apparatus, and in another by Kornfeld and co-workers on the biochemical signals which may direct these specific traffic patterns in eukaryotic cells. Also of note among these is a contribution by Pearse, in which she describes her elegant work on the role of clathrin in coated vesicle formation. As with all of the reports included in this symposium, the accompanying discussion is probing and factual—and yet quite readable. The last point reflects well on the editorial efforts of David Evered and Geralyn Collins, and makes this volume a potentially valuable addition to the personal libraries of any cell biologist, biochemist, or physiologist with even a passing interest in membrane biology.

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Brush Border Membranes. Ciba Foundation Symposium 95. London, Pitman Books, Ltd., 1983. 340 pp. No price.

The brush border, an apical specialization of the plasma membrane of several epithelial cells, is the target of this volume which clearly inquires at the subcellular and molecular levels. Of membranes studied, this amplified surface is indeed receiving much attention (probably exceeded only by erythrocyte membrane studies), and the field is moving quite rapidly. Although the volume was published quickly (covering a Ciba Symposium of June 1982), the field has continued to move steadily in the interim.

This volume reports significantly on three areas, the first of which concerns enzymes in the membrane that face the lumen and are anchored in membrane lipids by a small portion of their polypeptide chains. These include endopeptidases, aminopeptidases, glutamyltransferase, and sucrase-isomaltase in situ. Biosynthesis and transport, the life cycle of a variety of enzymes, and, finally, the use of monoclonal antibodies in the study of structure and function are also discussed. As in other Ciba volumes, there is a printed open (but edited) discussion at the end of each chapter, and at the termination of each area there is a general discussion chapter. These are worthwhile and create interest for the reader.
The important second part of the book, which is more cellular, concerns the cytoplasmic cytoskeleton and its potential relationship to the membrane. These subjects include the molecular architecture of the microvillus cytoskeleton, that of the placental microvilli, that of the brush border and its relationship to contractility, the involvement of membrane glycoproteins to attachment of microfilaments of microvilli, and finally the structural and functional relationship between the cytoskeleton and the membrane of the intestinal border.

The final aspect of the book begins curiously with a chapter on Na⁺K⁺ATPase (a much-worked-on and reviewed basolateral enzyme) and then gets down to business on the immunoglobulin G Fc receptors of neonatal rat intestinal brush borders, the immunoglobulin G receptors, and co-transport systems in the membrane of the placenta. The book lacks material on the mode of assembly and processing of the brush border proteins, including their related DNA sequences, as well as the processes of endocytosis and membrane recycling which are among the areas of popular current research.

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MOLECULAR AND CELLULAR MECHANISMS OF MUTAGENESIS. Edited by J.F. Lemontt and W.M. Generoso. New York, Plenum Publishing Corporation, 1982. 387 pp. $52.50.

This volume is a collection of papers from a symposium held in April 1981, at Gatlinburg, Tennessee, under the sponsorship of Oak Ridge National Laboratory. The symposium is divided into six sections: “Cellular Responses”; “Mutagenesis at Specific Sites”; “Mutators, Antimutators, and DNA Replication Errors”; “Transposable Elements”; “Chromosomal and Nonchromosomal DNA”; and “Mutagenesis: Future Directions.” The participants include many of the currently active workers in the field.

As is usual in published symposia, the quality and usefulness of the papers is quite variable. About a third of the papers include new data and are focused on a specific topic. The remainder includes several comprehensive and current reviews, which should be of use to students and non-specialists, as well as a few clearly perfunctory contributions. While most of the discussion centers on procaryotic organisms, fungi and mammalian cells are each represented by two articles.

This book is successful in its basic goal as a symposium publication, to present current progress reports from the research groups represented.

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INTRODUCTION TO PHYSIOLOGICAL PSYCHOLOGY. 2nd Edition. By Charles F. Levinthal. Englewood Cliffs, NJ, Prentice-Hall, Inc., 1983. 515 pp. $25.95.

There are a number of obstacles to be overcome in any attempt to present the explosion of new information in the field of physiological psychology in a form comprehensible to newcomers. The major difficulty in this task is to find an acceptable