BOOK REVIEWS

BIOMEMBRANES

CELL MEMBRANES: BIOCHEMISTRY, CELL BIOLOGY AND PATHOLOGY

G. WEISSMANN and R. CLAIBORNE, EDS.

H.P. Publishing Co., Inc., New York, N.Y., 1975, pp 283, ISBN 0–913800–06–6, $17. 95.

If in 1953 the paper of Watson and Crick in Nature on the structure of DNA marks the birth of molecular biology, then surely in 1972 the paper of S. J. Singer and G.L. Nicolson on the fluid mosaic model of cell membrane must herald in a period of membrane molecular biology. For "suddenly it is all membrane," so states the first sentence in the foreword of this beautifully illustrated (by Bunji Tagawa of Scientific American fame) and expertly written book on animal cell membrane.

The central theme of "Cell Membranes: Biochemistry, Cell Biology and Pathology" is the Singer-Nicolson paradigm of a biological membrane: a shallow oily sea of lipid in which float buoys of protein, singly or in patches, some with antennae of carbohydrate to probe for the cell environment. This enticingly simple picture has found access into such popular magazines as the National Geographic, which recently ran an article on the "New Biology" in which the Singer-Nicolson membrane model was featured. How this concept approximates the real world is expanded in twenty-six individual articles contributed by such membranologists as D. Chapman, P. Cautrecasas, J.A. Lucy, E. Racker and S.J. Singer.

The book is divided into three sections. The first deals with the structure and physical properties of natural and artificial membranes, including topics on lipid dynamics, orientation of membrane protein and cell fusion. In the second section are found sixteen chapters on the structure and physiology of various membranous organelles, including plasma membrane, endoplasmic reticulum and mitochondrial membrane. The emphasis is to offer a structural basis for such phenomena as intracellular communication, ionic transport, hormonal response and organelle biogenesis. Not all articles go beyond describing electron micrograph features, but the chapters by G.D. Pappas, W.R. Loewenstein and E. Racker on cell function, cellular communication and inner mitochondrial membrane, respectively, manage to bring ideas contained in the first section to bear upon their particular problems. The book closes with six chapters on selected areas of pathology where modern membrane research has already provided a molecular understanding to such human disease as gout and erythrocyte disorders.

To students and researchers of membrane biology, this collection of essays will help ont only to crystallize their current notions but to bring into highlight those

areas where information is presently lacking or the nature of problems poorly posed. For teachers of biological sciences, the book should prove a blessing in their efforts to provide students with an up-to-date view of a topic that touches many aspects of life. Since the format of this book has been designed expressly for rapid absorption of knowledge, a casual reader is warned to distinguish carefully between illustrations of accepted, experimentally proven, models and those of a more speculative nature.

Prapon Wilairat

ORCHIDOLOGY

BEAUTIFUL THAI ORCHID SPECIES

HARUYUKI KAMEMOTO and RAPEE SAGARIK

The Orchid Society of Thailand, 1975, 186 pp.

This is an excellent book dealing with native orchid species of Thailand. It is very useful for orchid collectors, advanced amateurs and serious breeders. Both Professor Kamemoto and Prefessor Sagarik have been orchidologists of international renown since the early 1950's.

The book covers the major genera which are of horticultural value. The genera are arranged in alphabetical order for convenience. Each species is described in detail and then its history is given plus information on breeding—all of which is useful to the serious student of orchid breeding. The local names of the plant may have been omitted deliberately, but this policy is not one which I personally would recommend.

The second part deals with orchid collecting trips to seven localities around the country. The authors give such a vivid account of their experience in collecting orchids so well that the reader feels encouraged to collect them himself. The information given consists not only of valuable tips to newcomers but also serves as a record of the habitats in which orchids thrive. Unfortunately, some of these areas may be disturbed or may even vanish due to future encroachments of urbanisation and agriculture.

The last part of the book consists of a list of the chromosome numbers of 93 species, a wealth of color photographs illustrating species described in the first part and some black and white photographs of orchid habitats and the experiences of the authors while searching for orchids. The color photographs furnished here are very useful for identifying species, and the overall color reproduction is bright and clear. The reproduction of the black and white photographs, on the other hand, is disappointing due to excessive contrast.

Setting aside these minor blemishes the volume is well conceived and well written. It fills a real gap in orchid botanical literature by dint of being botanically correct and because of its horticultural value.

Thavorn Vajarabhaya