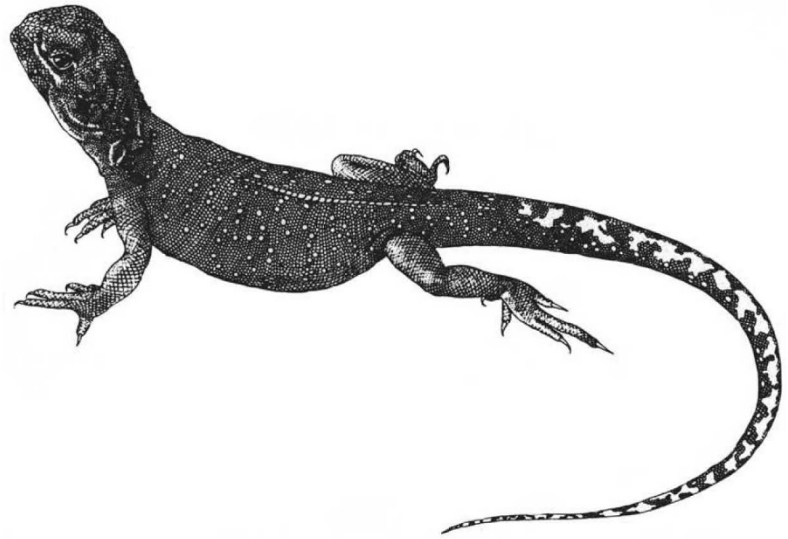


Dragon Lizard



The Dragon Lizards

(AGAMIDAE)

A representative of the Agamidae, from *Australian Lizards* by Robert Bustard, which is also illustrated with coloured plates (Collins, Sydney and London, 1972; £3.50).

evaluated opinions and ideas in the area of membrane-associated phenomena". The stimulus for this venture was a conference held at the Wistar Institute and this first issue of *Biomembranes* contains four comprehensive and authoritative reviews which are primarily intended for research workers in these and closely related fields. All four have excellent bibliographies up to 1969 or early 1970 and, if this standard is maintained, *Biomembranes* will be needed on many library shelves. M. R. J. Salton describes current research on bacterial membrane systems, concluding that they are multifunctional structures, although there is evidence that the various functions are distributed and organized in discrete regions. The anatomy and physicochemical properties of bacterial membranes are apparently indistinguishable from those of other cell membranes. The survey of the structure and function of sarcoplasmic reticulum membranes by A. Martonosi concentrates in particular on the biochemistry of Ca^{2+} transport and the role of the ATPase of the sarcoplasmic reticulum. The result is an interesting and closely-argued story. P. M. Kraemer begins his review of the complex carbohydrates of the cell periphery of animal cells with the admission that, whilst one presumes they have a functional role, not a single mammalian cellular complex carbohydrate structure has yet been clearly associated with a physiological cellular function. The problems are revealed in this detailed chapter and among the functions considered are roles in cell division, transport, antigens, receptors, cellular interactions and transformations in malignancy. I felt that both this chapter and the one by Martonosi would have been improved by a concluding section, clarifying the present position for people not intimately associated with the work. L. Warren and M. C. Glick in the final chapter of *Biomembranes* survey the methods available for the isolation of surface membranes from various animal cells, discussing the principles and emphasizing the difficulties, advantages and disadvantages involved in the various techniques. The identification of the sources of membrane vesicles by the use of membrane markers is discussed, but most of this chapter is devoted to techniques relevant for twelve different types of tissue. This is a most useful review for anyone beginning to isolate surface membranes or for workers changing to a new tissue.

Cell Membranes represents the first volume in a series in which the symposia at the annual meeting of the American Association of Pathologists and Bacteriologists are to be published; it consists of nine papers under the general title of biological and pathological aspects of cell membranes. A contro-

versy at the heart of the problems in current studies of cell membranes is the status of the "unit" membrane and the validity of the Danielli-Davson model. Three articles in *Cell Membranes* consider various aspects of this problem and in particular the value of evidence from electron microscopy. F. S. Sjöstrand summarizes the evidence for his model of the molecular structure of mitochondrial membranes, in which the enzyme molecules are arranged in multi-molecular aggregates. His thesis is based on the electron microscopic examination of thin sections produced by techniques which reduce the extensive changes of the native conformation of membrane proteins that are caused by conventional fixation and embedding techniques. D. F. Parsons also advocates new approaches to electron microscopy, including electron optical contrast methods and the use of differentially pumped specimen hydration chambers at extra high acceleration voltages. Benedetti and Delbauffe suggest in their review that the configuration of the liver plasma membrane results from the association of at least two main structural components; a triple-layered structure (the backbone) and small globular subunits either attached to the surfaces of the leaflet or spanning it. The chief role of Ca^{2+} is believed to be the maintenance of the triple-layered structure. Other topics covered in *Cell Membranes* include the microsomal drug-hydroxylating enzyme system of liver (Orrenius and Ernster), endocytosis and the fate of endocytized

molecules (Z. A. Cohn), the characterization of the principal glycoprotein of the human erythrocyte membrane (V. T. Marchesi), the infectious cycle of vaccinia (S. Dales) and mitochondrial biogenesis in rat liver cells and its experimental modification by thyroidectomy, riboflavin deficiency and metabolic inhibitors (D. G. Scarpelli *et al.*). A sequence of subcellular alterations following acute lethal injury is proposed by B. F. Trump *et al.*, who emphasize the importance of ion and water movements and of the structure and function of cell membranes; this is a useful survey of the work produced by this group. Some of the contributions to *Cell Membranes* are short and the book reflects the unevenness frequently found in published symposia. Nevertheless, experimental pathologists and research workers in membrane physiology will find items of interest.

C. J. DUNCAN

Nitrogen Fixation

Biological Fixation of Atmospheric Nitrogen. By E. N. Mishustin and V. K. Shil'nikova. Translated by Alan Crozy. Pp. ix+420. (Macmillan: London and Basingstoke, January 1972.) £4.95.

THIS is the English translation of a comprehensive work published in the USSR in 1968, bibliography ending in 1966. It is in some respects out of date, but mostly in biochemical aspects,