

Acetylcholine and other Hormones (J. Lindstrom, Vol. 3) and Endocytosis (T. P. Stossel, Vol. 4). There is also an emphasis on cellular compatibility and incompatibility in the treatments of Incompatibility in Flowering Plants (D. Lewis, Vol. 2), Mating-type Interactions in Microorganisms (M. Crandall, Vol. 2) and Virus Receptors (A. Meager and R. C. Hughes, Vol. 4).

By contrast, there are only three articles the primary emphasis of which is on receptors for hormones or neurotransmitters: Catecholamine Receptors (A. Levitski, Vol. 2), Acetylcholine Receptors (M. E. and A. T. Eldefrawi, Vol. 4) and Hormone Action at the Plasma Membrane: Biophysical Approaches (M. Sonenberg and A. S. Schneider, Vol. 4), with additional material in the Lindstrom article.

So far, the only general treatment of polypeptide hormones is in the Sonenberg and Schneider contribution. This is a curious chapter which attempts, I think unsuccessfully, to unify all aspects of hormone action into a single 'integrated model'. Some correction of the bias against hormones may come with forthcoming chapters on Relationships in the Structure and Function of Receptors for Glycoprotein Hormones, Bacterial Toxins and Interferon (L. Kohn, Vol. 5) and Cyclic Nucleotides (J. Fain, Vol. 6).

Chapters which may be regarded as background include a description of antibody structure and specificity which forms much of Givol's article (Vol. 2), Erythrocyte Proteins (H. Furthmayr, Vol. 3) and Specificity of Membrane Transport (M. Silverman, Vol. 3). In the future, we are promised Stereoselective Molecular Recognition in Biology (R. A. Lehman, Vol. 5), Fluorescence and NMR Studies of Membranes (A. G. Lee, Vol. 5) and Reconstitution of Biological Membranes (G. Eytan and B. Kanner, Vol. 6).

Atmospheric physics and chemistry

Energy and the Atmosphere: A Physical-Chemical Approach. By Ian M. Campbell. Pp. 398. (Wiley: Chichester, Sussex, New York and Sydney, 1977.) Hardback £14.50, \$31; paperback £5.95, \$12.50.

THIS book is concerned with two topics, the chemistry of energy generation and chemical processes in the atmosphere. The first three chapters serve as an introduction to the gross structure of the atmosphere, especially to the way in which solar radiation is modified on its passage through the atmosphere to the Earth's surface. The next three chapters deal with the photosynthetic origin of fuels, combustion, and briefly the thermodynamics of heat engines and fuel cells.

The remaining articles are a good introductory discussion entitled Cell Surface Receptors: A Biological Perspective (M. F. Greaves, Vol. 1) and two topics announced for Vol. 6: Rhodopsin: A Light-sensitive Glycoprotein (P. O'Brien) and Hepatic Degradation of Circulatory Glycoproteins (G. Ashwell). Referring back to the areas which the editors recognised as within the scope of the series, it becomes obvious that nothing has yet been seen of cell-cell interactions in morphogenesis and in tissue differentiation.

In general, the contributions to the series are of high quality. Most of the authors have managed to make them comprehensible to a general audience, but in a few cases the uninitiated may be bamboozled by barrages of unexplained technical terms (for example, ectoperitrophic, metacyclic, proventricular, schizont and anamnestic all come within a few pages in Brown's article). It is a pity that the editors did not tidy up the inelegant writing which occasionally mars most contributions, and that few chapters seem to have been carefully proof-read. This untidiness is accentuated by a unjustified style of typesetting. These volumes have no indexes, but a cumulative index is promised for Volume 6. Although this may be appropriate for libraries (until someone steals Volume 6), it will give little comfort to the individual buyer who only wants part of the series.

In summary, therefore, this is a good series which can help to provide the 'broader education' needed by workers in the multidisciplinary world of cellular recognition. With some further work on the editorial and production side, future volumes might cause this verdict to be modified to excellent. **Bob Michell**

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The last four chapters, which make up over half the book, deal with various topics in atmospheric chemistry.

In chapter 7 a summary is given of the major chemical cycles of the atmosphere, namely the hydrogen, carbon, oxygen, nitrogen and sulphur cycles. Only a brief mention is made of the problem of increasing atmospheric CO₂ and its possible effect on climate through the enhanced greenhouse effect. The reader is left with little feel for the present state of knowledge of the likely rate of CO₂ increase as the consumption of fossil fuels increases; problems such as the exchange of CO₂ with the oceans is only dealt with very cursorily. Considering the title of the book and the fact that the CO₂ problem is likely to feature in an important way in the energy debate of the next decade or two, a much more detailed account of this problem would have been appropriate.

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Chapter 8 describes in detail the photochemistry of the polluted troposphere and introduces in a useful way for the uninformed reader the elements of photochemical theory. Chapters 9-11 deal with the chemistry of the stratosphere and mesosphere, and especially highlight the possibility of changes in the ozone concentration arising from the effects of supersonic transports and the release of chlorofluorocarbons. Considering the very rapid developments in this field these chapters are well up to date.

The early chapters of the book must be read with caution; they are unfortunately marred by a number of misleading statements. For instance, on p 16 the dominant role of collisions in establishing local equilibrium between the radiation and thermal field in most of the atmosphere is ignored; on p 44 the CO₂ 15 μm band is stated to be invariably in local thermodynamic equilibrium; and on p 21 the important absorption by water vapour in the Earth's atmosphere is ignored.

The chapters on atmospheric chemistry are the most useful parts of the book; they are particularly appropriate for students and research workers in the field of atmospheric pollution. Furthermore, the book is moderately priced and well produced. **J.T. Houghton**

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