REVIEWS AND NOTICES OF BOOKS

Cell Biology. By E. J. Ambrose and Dorothy, M. Easty. (The English Language Book Society and Nelson, London). 1973. Pp. 500. Price £ 1.35.

The field of cell biology encompasses many disciplines, ranging from genetics to biochemistry to biophysics. How much of this vast amount of information will be useful to a beginner in the field ? The author's task has been one of selection and compression to create an introductory textbook of cell biology which is sufficiently informative, but not cumbersome.

Chapter 1 in Part 1 is intended to provide a general introduction to students who have had no previous experience of biology. On the other hand, chapter 2 is intended as an introduction to those who have studied biology but will have little previous knowledge of the rather specialized type of chemistry which is needed to follow the recent developments in molecular biology and biochemistry. Both chapters include a summary of the practical methods used in cell biology, molecular biology and biochemistry which the student will encounter in practical courses.

Part 2 describes the structure and function of various cellular components which are found almost universally in micro-organisms, and in plant and in animal cells. The function of the cellular components in interphase cells is specially dealt with, since it is in the interphase nucleus that the genes of the chromosomes are actively engaged in the control of cellular synthesis.

Part 3 deals with the integrated function of growing cells, in the cell cycle, in mitosis, in the behaviour of germ line cells and the genetics of bacteria, and plant and animal cells.

In Part 4 attention turns to the dynamic function of whole cells, cytoplasmic and whole cell movements, cellular interactions, and differentiation in development. Developmental biology provides a link between cell biology and general biology, and an attempt has been made to show the relevance of a cellular approach in relation to courses in general biology. In Part 5 the authors consider the formation of biological structures from biochemical building units, and discuss the origin of the latter.

A few random comments are offered : the references at the end of each chapter appear to be both relevant and current. The illustrations and tables are of good quality and complement the text. In conclusion I would like to state that I enjoyed reading this book and believe that it is well designed to fit the needs of students entering the field of cell biology ; however, it is not intended as a reference book. In addition, the book should be of value to biologists and chemists who desire a concise, readable text of cell biology which includes many advances in molecular biology.

T. RAMAKRISHNAN.

Annual Review of Biochemistry (Vol. 43). Edited by E. E. Snell, P. D. Boyer, A. Meister and C. C. Richardson. (Annual Reviews, Inc., Palo Alto, California, U.S.A.), 1974. Pp. viii + 1085. Price : USA $ 16.00 ; Foreign : $ 16.50.

The major thurst of Life Sciences research is now towards interpreting biological phenomena in molecular terms ; a distinct shift from prokaryote to eukaryotic systems is also being observed. Accordingly, studies on nucleic acid replication, traslational and transcriptional controls and membrane structure have gained momentum.

The 1974 *Annual Reviews in Biochemistry* highlights these trends in modern biochemical research. The articles on eukaryotic messenger RNA (Brawerman) and the methods of gene isolation (Brown and Stern) stem from the findings of the presence of poly-A in messenger RNA and the development of a variety of techniques, including gene enrichment methods, for isolation of gene segments. Considerable amount of information on DNA replication in eukaryotic systems has been possible because of the studies with circular DNA (Kasamatsu and Vinograd). The article on animal RNA viruses ; genome structure and function (Shatkin), illustrates the diversity found among animal RNA viruses providing a catalog of model systems for investigators, interested in eukaryotic cells. The evaluation of the different methods for DNA sequencing (Salser) and the article on selectivity of gene transcription (Chamberlin) clearly emphasise the influence of gene structure on the primary process of transcription. An important method of translational control is achieved by protein turnover, highlighted in the article on intracellular protein degradation in mammalian and bacterial cells (Goldberg and Dice). The articles on biochemistry of bacterial cell envelopes (Braun and Hantke), bacterial transport (Boos), Synaptic macromolecules : Identification and metabolism (Barondes), membrane receptors (Cuatracasas), the sodium-potassium ATPase (Dahl and Hokin), the molecular organization of

membranes (Singer), the biosynthesis of mitochondrial proteins (Schatz and Mason) summarise in good detail the progress in membrane interaction and biochemistry. The reviews entitled metabolic transformation of fatty acids (Fulco), phosphoglyceride metabolism (Vanden Bosch), regulation of amino acid decarboxylation (Morris and Fillingame), peptide hormones (Tager and Steiner), biosynthesis of water-soluble vitamins (Plaut *et al.*), regulation of steroid biosynthesis (Dempsey), are highly informative and cover the ground of classical biochemistry.

It is heartening to read the reviews on the biochemistry of drug dependence (Takemori) and biochemistry of mammalian fertilization (McRorie and Williams), which emphasize that these problems of pharmacology and physiology can now be better understood in molecular terms. The other important reviews cover a range of subjects such as peptide synthesis, application of X-ray methods and electron microscopy to the study of macromolecular structure and interaction, collagen biosynthesis, mechanism of enzyme action, unusual polysaccharides and fungal sex-hormones.

The *Annual Reviews of Biochemistry* is always awaited eagerly by all students of Life Sciences. The 1974 Volume amply justifies this sentiment in terms of the quality and quantity of the scientific information.

G. PADMANABAN.
H. R. CAMA.

Human Physiology : The Mechanisms of Body Function (II Edition). By Arthur J. Vander, James, H. Sherman and Dorothy S. Luciano. (Tata McGraw-Hill Publishing Company, Ltd., New Delhi). 1975. Pp. x + 614, Price Rs. 39·00.

The overall organization and approach of the book is based upon a group of themes :

All phenomena of life, no matter how complex, are ultimately describable in terms of physical and chemical laws ; certain fundamental features of all function are shared by all cells and, in addition, constitute the foundation upon which the specialization is built and the body's various coordinated functions like circulation, respiration, etc., result from the precise control and integration of specialized cellular activities.

These viewpoints are established with suitable illustrations in the introductory chapter. The book then progresses from the cell to the total body, utilizing at each level of increasing complexity, the information and principles developed previously.

Part I is devoted to an analysis of basic cellular physiology and the essential physics and chemistry required for its understanding and deals with chemical composition of the body, movements of molecules across cell membranes, energy and cellular metabolism, protein synthesis, heredity and cell development.

Part II analyses the concept of the body's internal environment, the nature of biological control systems and the properties of the major specialised cell types—nerve, muscle and gland.

Part III, then, analyses the coordinated body functions, circulation, respiration, regulation of water and electrolyte balance, digestion, energy balance and reproduction.

Defence mechanisms of the body, processing of sensory information, control of body movement and consciousness and behaviour are other highly informative chapters.

The book is intended for undergraduate students regardless of their scientific background. All topics are featured in an extremely interesting manner. The claim of the authors that besides providing an up-to-date information on the mechanisms of body function, the approach has been to make the student think rather than simply memorize, is amply justified by the presentation of the concepts and explanations, along with the considerable gaps in our current understanding of Human Physiology.

M. SIRSI.

ANNOUNCEMENT

Symposium on Infrared Materials and Devices

A Symposium on Infrared Materials and Devices will be held at Solid State Physics Laboratory, Delhi 110 007, on March 11 and 12, 1976. The main emphasis in the Symposium will be on (*a*) IR materials ; (*b*) IR devices. The deadline, for receiving the abstract is 15th October 1975 and for receiving manuscript 1st December 1975.

Further details can be had from the Chairman of the Symposium.

ERRATA

Table II of the note entitled "An Unreported Linkage Group in Rice (*Oryza sativa* L.)" appeared in *Current Science*, May 20, 1975, Vol. 44, No. 10, Page 356 under column WP, *for* 799 *read* 99 and *for* 108·94 *read* 185·94.

In the note entitled "Cytogenetics of Semi-arid Plants" by A. K. Singh, appeared in *Current Science*, July 20, 1975, Vol. 44, No. 14, Page 511, *for* "Cytological Studies in *Corallocarpus conocarpus* Dalz & Gibs." *read* "*Corallocarpus epigaeus* Rottle & Willd. of Cucurbitaceae".

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