

dimensional texture and of fluid movement in sediments.

The section on chemical analysis might be misleading because it only deals with the determination of carbon (as total organic carbon) and carbonate-carbon, followed by a chapter on the measurement of Eh and pH. The techniques suggested for determining organic car-

bon are standard ones, including wet and dry combustion methods, the results of which are compared. Dry combustions were made on commercially built Coleman and Leco C-H analysers. In my experience, analyses of organic carbon in carbonate-rich sediments tend to be erratic when they are calculated by difference between

separate total carbon and carbonate-carbon analyses. The single sample method (Shaw, *J. Soil Sci.*, **10**, 323; 1959) is usually more reliable.

The book constitutes a valuable laboratory guide and source-book on the methodology of sedimentary petrology and has assembled a lot of widely dispersed literature. T. W. BLOXAM

Biological Sciences

Biodevelopment

Molecular-Genetic Mechanisms of Development. By Zhores A. Medvedev. Translated from the Russian by Basil Haigh. Pp. xiv+418. (Plenum: New York and London, 1970.)

It is part of the current biological faith that the advances in genetics and molecular biology will provide the means to understand embryology. Some molecular biologists are turning to developmental biology, and this is only right, for developmental biology occupies a key position in biology: it can be seen as the means whereby genetic information is expressed in terms of functional cellular patterns and organized forms. It provides the link between genetics on the one hand, and morphology and physiology on the other. What is not at all clear is the level at which rapid progress is to be made and I remain to be persuaded that, at this stage, studies at the molecular level will always be the most productive. While it might be true for the control of gene action and protein synthesis, a contrary argument might be made for such aspects of development as pattern formation, where the cellular basis is not understood. And even for gene action it seems that some of the striking recent advances have come from cell biology, namely nuclear transplantation and cell hybridization.

The book does not live up to its exciting title and, however good a molecular geneticist the author may be, he gives little indication of having insight into the problems of development. For him it seems it is nothing more than gene activation and that this is best understood in terms of thinking from bacterial models. Most of the book is concerned with molecular biology and biochemistry. It starts with DNA and protein synthesis and then goes on to virus reproduction. The emphasis here and elsewhere is on molecular genetics and, for example, while virus assembly is seen as a morphogenic process it is not treated as such. Self-assembly and its associated problems along Caspar-Klug lines is barely mentioned. This is followed by an account of induction in bacteria and chromosome replication.

Material more relevant to development is considered in the chapters on chromosome structure and function, and changes in proteins and nucleic acids during development. While they contain a great deal of data, they form rather unsatisfactory reviews because of the lack of an adequate conceptual framework. Biochemical morphology, such as changes in enzyme activity of four enzymes during development, is as dull as the dullest traditional morphology. Also the style, perhaps due to translation, makes reading difficult: for example, "The issuing of programming instructions by the nucleus cannot be turned simply in time or in space (as in a certain type of symmetry), but it must conform to the actual morphological and physiological pattern of development, to the new conditions arising on account of the new relationships". The last chapters on the control of gene action are the most interesting but, because they were written in 1968, are somewhat out of date. Repetitive DNA, molecular hybridization, cell hybridization, recent work on nuclear transplantation are virtually absent and only receive brief mention in the last chapter written in an attempt to bring the book up to date. Cellular interactions, cell movement, polarity, determination, transdetermination, quantal mitoses, which are frontier regions of developmental biology, are just absent. This is classical molecular biology crudely applied to embryology. Perhaps the author, who is scholarly and very knowledgeable, is just too out of touch with current trends in the field.

LEWIS WOLPERT

Cells and Molecules

Advances in Cell and Molecular Biology. Edited by E. J. DuPraw. Pp. xv+308. (Academic: New York and London, July 1971.) \$15; £7.

Protein Synthesis. Edited by Edwin H. McConkey. Pp. xi+298. (Marcel Dekker: New York and London, 1971.) \$19.50.

THE aim of each of these volumes is to provide reviews which will keep abreast

of research on the rapidly expanding topics of cell and molecular biology. Each promises to be just the first in a series, future volumes of which will appear at unspecified intervals.

What distinguishes these series from the many others already available? *Advances in Cell and Molecular Biology* is related to DuPraw's book, *Cell and Molecular Biology*, on which it will build. One of the hazards of writing books on topics such as these is that they tend to become out of date so very rapidly. By editing a series, to which contributions will be made by many authors, DuPraw intends to keep up to date the ideas discussed in his book.

But the contributions to the first volume of this series are written at a level very different from the basic text to which they are supposed to relate. Each article consists in part of a detailed review of the author's own work, in part of a review of research in general. The readers of the series of reviews will presumably be very different from those who would read the original text.

How useful will the series be as a collection of reviews of this type? I must confess that my prejudice is that series of this nature serve little useful purpose, except for those who are themselves working in closely related fields; but such people are usually fairly well informed in any case. What is needed so badly is a series of reviews which can easily be understood by those not themselves indulging in research on the particular topic to be discussed.

There seems, indeed, little to distinguish this new series from the many other review volumes with which cell and molecular biology is served. The emphasis of the first volume lies with the chromosome itself. Each review is very detailed, so that the uninitiated will find it difficult to follow the discussion. Each contains a number of references to be measured in hundreds rather than in tens; it will be a discerning reader indeed who can pick out the main lines of research from among them.

The aim of the series *Protein Synthesis* is to provide a critical evaluation of progress in research, both in eukaryotes and prokaryotes, and not merely to