Concentrated within its 499 pages is a wealth of biological scientific detail. Perhaps other writers could be encouraged to publish a similar synthesis of important biological information. In particular, there is a considerable need for a comparable book devoted to the placenta. Meanwhile, Ralph Wynn has set a very high standard for any who may care to follow his method of presentation. N. F. MORRIS

TOOTH BIOLOGY

Structural and Chemical Organization of Teeth

Vol. 1. Edited by A. E. W. Miles. Pp. xv+525. (New York: Academic Press, Inc.; London: Academic Press, Inc. (London), Ltd., 1967.) 220*s*.

THERE can be little doubt that the first volume of this two volume treatise contains much of interest and significance to biologists in general as well as to dental research workers. The reason for this probably lies in the fact that most of this volume deals with dental development which exhibits many fundamental processes of biology such as induction, morphogenesis and mineralization. The relationship between the neural crest cells and dental development, not yet fully understood but well reviewed in this volume, provides a good example of how things dental have application to the wider realms of biology.

It is a little more problematical to assess the value of this book to the dental research worker. Its encyclopaedic character means that those chapters dealing with subjects where advances have been rapid are to some extent dated. The initial overtures to the contributors were made some five years ago and, although the editor has tried, by the addition of addenda, to keep abreast of recent developments, advances in some fields have been so rapid as to make this an impossible task. This criticism must not be allowed, however, to detract from the value of the volume as a whole. It provides an excellent source of reference and this alone justifies the effort that has gone into its production. I am, however, a little perturbed by the cost of the volume. Together with its companion this exceeds twenty pounds, which virtually limits its sale to libraries. Whether large, expensive, multi-author treatises are the best means of collecting and sifting information can be questioned. The eleven chapters in this volume could equally well have been published in the form of separate monographs at a cost allowing individual purchase over a period of time. Even so, the contents of this book needed to be published and the editor, together with the publishers, has succeeded magnificently in what must have been no mean feat of production. A. R. TEN CATE

GENES IN ACTION

The Message of the Genes

By Navin Sullivan. Pp. 198. (London: Routledge and Kegan Paul, Ltd., 1968.) 25*s*. net.

THE past two decades have witnessed enormous advances in our understanding of what genes are and how they function. It is not unimportant that the layman should have an opportunity of learning about these developments. After all, it is he who eventually finances research; the discoveries made will, no doubt, have an ever increasing impact on the society in which he lives and, if he is able to share in some of the excitement which research generates, so much the better. Mr Sullivan's book is not for the specialist.

The Message of the Genes opens with a description and interpretation of Mendel's experiments on the inheritance of certain traits in peas. This is followed, in the second chapter, by a brief account of chromosomes and the construction of genetic maps. The next two chapters describe the chemical components of which cells are made, the function of proteins as enzymes and hence why nucleic acids, as the information carriers, are so important. This lays the foundation for the next six chapters, which are concerned with modern molecular biology: how genetic information is duplicated and how it is expressed. Mechanisms for gene expression begin the final chapter, which concludes with a short section on memory.

In all this Mr Sullivan presents the relevant experiments with a fresh enthusiasm: far from being a textbook, this account is written in an engaging style which will draw the reader on to follow the line of thought or the connexion between seemingly unrelated observations. This is accompanied by the occasional aside in which the author relates how the physical difficulties of solving the problem were overcome by the scientist, or the excitement of the meeting at which the results were first presented.

The specialist may find several unimportant errors in the book: the structures of ammonium cyanate and urea on page 42 are incorrect, the legend to Fig. 24 gives the wrong impression of the position on an *s*RNA molecule to which the amino-acid is attached, and a couple of people are credited with work which was done by others. A reader with a small knowledge of chemistry might have expected the book to be more chemical in outlook, particularly those sections which describe the biosynthesis of proteins and nucleic acids. These criticisms should not deter the lay reader. The book, the message of which comes across as a clear and lucid presentation, is to be recommended at its modest price. M. S. BRETSCHER

EXPERIMENTS IN BEHAVIOUR

Experiments in Animal Behaviour

By Marguerite D. Hainsworth. Pp. x+206+8 plates. (London : Macmillan and Co., Ltd. ; New York : St. Martin's Press, 1967.) 35*s*.

TEACHERS at all levels have learned by bitter experience the problems of class experiments in behaviour. They usually require a long time in which to carry them out, the observations only producing a pattern which demands explanation after numerous notes on factors which may or may not be crucial have been made. Animals are wayward creatures liable to make just those reactions which theory finds it hardest to explain. Miss Hainsworth attempts to come to the teachers' help by drawing together a number of possible experiments on the behaviour of animals from all parts of the animal kingdom. She does many a service in this, for not only does she continually pose questions the answers of which lie in the observations made but she also harps on the need for quantitative results. Indeed, criticism of work on behaviour by other scientists is frequently that it is uncritical in its methodology, but this book endeavours to instil into the student a sense of the importance of questioning not only what he is studying but also how he is studying it.

Part of the point of the book is that it shows that any part of an animal's activities is worth studying in the context of behavioural investigations. It is not necessary to look at courtship, striking though this essential behaviour is and despite the amount of space given to it in the literature; how an animal moves may be closely observed and analysed, or its food preferences, or its reaction to light or a slope. These details of behaviour, however, may too easily be considered minutiae by a student, not worthy of great attention and quite unexciting. Successful experiments, in terms of class morale, are ones that stand a good chance of working in the sense that they produce discussable results. But great faith is needed to carry