



CHAPMAN & HALL

11 New Fetter Lane,
London EC4P 4EE

Grassland Ecology and Wildlife Management

E. DUFFEY, M. G. MORRIS, J. SHEAIL,
L. K. WARD, D. A. WELLS and T. C. E.
WELLS

July 1974: 0 412 12290 1: 304 pages:
tone and line illustrations: hardback:
£5.40

This book describes the distribution and ecology of lowland grasslands in Britain with special reference to their flora and fauna, history, and management for wildlife conservation. The maintenance and manipulation of grasslands for agricultural, scientific, conservation and recreational purposes requires an extensive knowledge of the responses of plants and animals to different treatments and disturbance factors. The book examines these in relation to the range of variation in lowland grassland ecosystems and to the known land-use history.

OUTLINE STUDIES IN BIOLOGY

The individual books in the Outline Studies in Biology Series present succinct, authoritative and up-to-date introductions to their subject. They supplement and extend main course texts, and because each book deals with only one topic the series offers the advantage of great flexibility of use.

Outline Studies in Biology
**Brain
Biochemistry**
H. S. Bachelard

Brain Biochemistry

H. S. BACHELARD

July 1974: 0 412 12760 1: 72 pages:
illustrated: paperback: 95p

Immunochemistry

M. W. STEWARD

July 1974: 0 412 12450 5: 64 pages:
illustrated: paperback: 95p

Further details of these and related titles, together with a list of stockists, are available from the publishers on request.

conversion. It is therefore difficult to see for whom this book was written; without device requirements it will be of little use to the engineer; it will infuriate the physicist.

Volume 1 is intended to summarise the field and present ideas which will not be changed by subsequent developments. Unfortunately the analogues and the presentation of physical principles do not bring out the excitement of understanding and therefore make it worth undergraduate study; the continued reliance on the statement "a more detailed presentation appears in volume 2" means that the physicist without volume 2 will give up in disgust.

The four chapters of this book present an introduction to thermionic converters, an analysis of ideal performance, a description of vacuum converters and finally a chapter on vapour filled thermionic converters. In what is clearly intended to be a definitive book the brevity of the historical review in chapter 1 is surprising, but most of the various types of converter prior to 1966 are well illustrated. The book has, however, clearly been some time in preparation and converters developed after 1966 are not mentioned. The book is lavishly illustrated, so that the relevant text is often several pages away; it is, however, reasonably indexed, gives a large number of references and contains a useful set of tables and curves. The latter when used in conjunction with the step-by-step instructions given in chapters 3 and 4 give reasonable approximations to observed device characteristics and thus form one of the most useful parts of this volume.

In view of the coherence of presentation suggested by the authors for the complete book, it is perhaps unfair to judge this volume in isolation; however without volume 2 it does not seem worth £9.00. A. W. PENN

Antibody diversity

The Variation and Adaptive Expression of Antibodies. By George P. Smith. Pp. xii+219. (Harvard University: Cambridge, 1973.) \$12.

THE comparative analysis of amino acid sequences of immunoglobulins has been a major preoccupation of immunologists and molecular biologists for a number of years. The mass of data and the conclusions drawn from this have had a fundamental influence on present ideas on the genetic bases of antibody diversity and the evolution of protein structure. This book presents an exhaustive computer analysis of the data available to the author at the time in an attempt to define evolutionary relationships.

The book starts with a short survey

of fundamental concepts, intended for readers who are unfamiliar with immunology, and goes on to present tables of all the amino acid sequences that are the subject of subsequent analysis. Unfortunately, since the tables were completed a very considerable amount of important data has been published. In this respect the book is already out of date and does not include an interesting variety of sequences of human, mouse or rabbit κ chains. The analysis of heavy chains fares worst as the book does not adequately cover human μ , α and ϵ chains or mouse γ chains.

A very useful chapter is then devoted to the procedures used for the reconstruction of protein evolution. This provides the reader with a good introduction to the intricacies of the computer programs used. This is followed by an elaborate study of the evolution of C regions. The analysis, although merely confirming accepted ideas, does provide a very balanced view on the reliability of the proposed evolutionary patterns.

The following two chapters are devoted to an exposition of different theories on the origin of antibody diversity and the contrast between the expectations of each theory and the evolutionary patterns derived from the data. The exposition of the theoretical expectations is clear and detailed. The arguments in favour of the germ line theories are presented at their best. This is not the case in the presentation of the opposed arguments. (For instance, the critical discussion on linked parallel mutations (page 103) is only marginally touched on and does not include the possible requirements of tertiary structure.) This is to be expected since the author presents himself as a convinced germ liner.

Three appendices cover references for all the proteins listed, a discussion on allotypes and on ribosomal RNA genes as a model of multigene evolution.

Altogether this is a very readable book which transmits the intellectual excitement of the intricacies of the significance of every possible evolutionary clue. But the problem of antibody diversity is no longer the exclusive domain of protein chemists and the impact of the book is likely to be affected by the success of other approaches. Such new avenues are not properly presented. I was particularly struck by the author's remarks on DNA-RNA hybridisation (page 112): "Conclusive results from this type of experiment depend on the purification of immunoglobulin mRNA . . . a difficult technical feat". Alas, such a "technical feat" was being performed in several laboratories and in fact relevant papers were published at the same time as this book. C. MILSTEIN