

been unduly simplified; yet more that such a treatment is too far removed from the diversity and complexity of island life itself. And while homage is paid to Darwin and Wallace, it is rather startling to find that the names of Guppy and Ridley appear nowhere in the book.

Criticisms of this sort, however, generally await attempts to bring order, through model-construction and quantitative analysis, into the "natural history" sciences, where the complexity and apparent uniqueness of natural situations tend to obscure underlying regularities. The great value of MacArthur and Wilson's models is that, in being predictive, they compel reassessment of familiar data. This in itself, however, has dangers, for the data satisfactory for one mode of analysis may be inadequate for another. I doubt, for example, that Lansing's data on the flora of islets in the Dry Tortugas, collected during eleven days in 1904 and described by Millsbaugh, and compared with Bowman's later survey in 1916, will support the analysis of extinction rates (including a table and two diagrams) which is based on them. It would not be difficult to obtain similar data in which one could have greater confidence.

MacArthur and Wilson's emphasis on the development of an equilibrium between immigration and extinction, with area as the major control of species numbers, in contrast to the simple effect of isolation limiting the number of species which manage to reach islands, has important implications, especially in conservation. There is a tendency to regard any extinction (especially of birds) on remote islands as a biological disaster, in some cases with justification; but once it is realized that extinction is a normal and indeed predictable process, it should be possible to select islands and species for conservation on more objective grounds and with greater prospects of success. At the same time, MacArthur and Wilson's call for more experimentation on islands (with artificial extinction either manually or by poison, and artificial immigration), to throw light on what happens in varying conditions of island size, altitude, isolation and ecological diversity, and the list of places where such experiments could proceed (page 181), will chill a number of spines, and re-emphasizes the need for some long-term planning of the future of remote islands.

This book will permanently influence the nature of island studies, by its theoretical approach, and by stimulating the reinterpretation of old data and suggesting the need for new. In a concluding discussion of island stepping stones, even wider issues are raised which have a direct bearing on the history of the ocean basins through the Tertiary and the function of now-lost islands in the development of present island biotas. It is a pity that many will be repelled from this book by the price as well as by the mathematics. D. R. STODDART

## MOLLUSCAN STUDIES

### Studies in the Structure, Physiology and Ecology of Molluscs

Edited by V. Fretter. (Proceedings of a Symposium held at the Zoological Society of London, March 8 and 9, 1967. Symposia of the Zoological Society of London, No. 22.) Pp. xvii + 377. (Academic Press: London and New York, October 1968.) 90s; \$15.

As the title indicates, this symposium covers an unusually wide field, a consequence of the range and significance of modern molluscan studies. Indeed, it deals with what, apart from the Arthropoda, is the most important of invertebrate phyla; one with a basic structure of great simplicity but at the same time highly plastic permitting a unique degree of adaptive radiation occurring primarily within the sea but permitting very significant spread into freshwaters and on to the land.

The twenty-nine contributions, of very varying length, range from electron microscopic, cytochemical and pharmacological studies of the brain and neurones of the common garden snail, *Helix aspersa*, to the presentation of evidence on changes in the population of land Mollusca in this country since the last Glacial Period and an account of the present distribution of such animals in relation to available habitats in the Solomon Islands.

There is a comprehensive survey by Alison Kay of knowledge about the minute bivalve gastropods, blending intimately in colour with the algae they consume, which were only discovered in 1959 by Kawaguti and Baba and which are an unexpected further instance of the remarkable capacity for adaptive radiation within the Opisthobranchia. Another fascinating example is the nudibranch, *Melibe leonina*, catching zooplankton with an enlarged, transparent oral veil and here described by Anne Hurst. Recent studies on the dynamics of burrowing, employing ingenious techniques, are summarized by E. R. Trueman. Knowledge of minute species of Solenogastres (Aplacophora), Prosobranchia and Opisthobranchia which form part of the interstitial fauna of marine sands is here reviewed in a well illustrated account by B. Swedmark of Sweden.

Other contributions include electron microscopic studies of muscle and of the neurosecretory cells and neurohaemal organs in the freshwater snail, *Lymnaea stagnalis*, gametogenesis and oviposition in which form the subject matter of another article. J. Lever and R. Thijssen describe their very engaging studies on the effects of transport of empty bivalve shells, some perforated by gastropod borers, on sandy beaches which results in a differential sorting dependent on size, symmetry and presence of one or two drill holes and on whether the valves be of the right or of the left side.

In brief, this admirably produced and illustrated volume is a source of information to a wide range of readers with interests covering electron microscopy, ecology, comparative anatomy and physiology, reproduction and distribution. Most certainly it should be in the library of every malacologist. C. M. YONGE

## ADRENAL FUNCTION

### Functions of the Adrenal Cortex

Edited by Kenneth W. McKerns. Vol. 1: Pp. xv + 1-644 + vii + 2 plates. Vol. 2: Pp. xiv + 645-1176 + vi + 26 plates. (Biochemical Endocrinology: a Series of Monographs.) (Appleton-Century-Crofts: New York, May 1968.) \$21 each volume.

THESE two volumes on the biochemical endocrine function of the adrenal cortex are to be part of a continuing series of monographs on various biochemical aspects of endocrinology. The comprehensive chapters each specially written by world experts formed the basis of a symposium. The discussions following the papers were edited and are included at the end of each chapter.

The first volume is divided into three parts. The first part is the pathway of steroidogenesis from cholesterol to pregnenolone, followed by the second part which has four chapters on the regulation and mode of action of aldosterone and finally the last part which consists of nine chapters on the mechanism of action of ACTH on steroidogenesis and protein synthesis. The chief difficulty of a book of this sort would appear to be that quite a lot of material in one chapter is repeated in subsequent chapters. The repetition is inevitable when different experts on the same subject write different chapters, and whilst it may certainly help in being doubly instructive for the unformed reader it can be rather boring for specialists in the subject. This repetition, however, coupled with the very informative discussions at the end of each chapter, does