

the section on birds and mammals about which groups good books in English already exist. These sections appear to be the most reliable and better parts of this book.

The colour plates of birds, 1-4, are fair; those of beetles, 5 and 6, are poor; those of butterflies and moths, 7-9, are fair; plate 10 depicts 36 Lepidoptera larvae, some readily recognisable. The 14 dragonflies on plate 13 are passable. Plate 14 of various Hymenoptera and Diptera is almost useless. No reference is given to the page opposite which each plate occurs, thus making it irritatingly difficult to locate a plate. The figures of the invertebrates are of variable quality but many could be much better.

As stated in the foreword this book 'will help the amateur to recognise any wild animals, birds and insects which he may encounter'. But it will also mislead, and it will certainly not be of much use to the advanced student. The translation is quite good.



JOHN SANKEY

*The drawing, one of many in the book, is of a beech marten.*

**The Oxford Book of Insects** by John Burton. Oxford University Press, 50s.

This book has been designed as an introduction to the insect life of the British Isles, with colour illustrations of some 780 different species. It is true that this is a small percentage of the 20,000 or more insects so far recorded in this country, but the vast majority of these are never likely to be seen by the layman. The species illustrated have been very well selected and provide representative examples from all the insect groups found in Britain. The quality of the illustrations is exceedingly high, particularly in the case of the butterflies and moths which of course lend themselves to this treatment. Most of the pictures are life size, but where this is not so, great care has been taken to indicate the actual size.

Opposite each colour plate there are well-written notes on each species illustrated, providing a great deal of information on distribution, general habits and breeding biology. This is particularly useful in the case of the lesser-known groups such as bristle-tails, thrips, spring-tails and stoneflies, which are difficult to find out about unless one has access to specialist journals.

The publication of this single volume covering the Insecta is indeed welcome as this is undoubtedly the best way of conveying to the amateur naturalist an idea of the wealth of form and adaptation presented by this vast group of animals.

H. G. VEVERS

**Ecological Adaptations for Breeding in Birds** by David Lack. Methuen, 84s. New York, Barnes & Nobel.

Over the last few years naturalists whose interests embrace both ecology and ethology have gradually become aware of something that now seems almost too obvious to be worth mentioning – that all aspects of the natural history of a species are interrelated; none can be fully understood in isolation. How these interrelations work is beginning to be understood in some vertebrate species, especially in birds, because more people have studied them than the other

groups and many aspects of their biology are amenable to quantitative evaluation. Thus whether a species lays one egg or ten, whether its incubation period is 15 or 25 days, whether it is monogamous or polygamous, cease to be merely curious facts and take their place in a complex adaptive web, moulded over the ages by natural selection. The study of natural history becomes ever more interesting and challenging.

Dr Lack's is the first full-length book devoted to this theme. He acknowledges the stimulus of the recent work of Dr Crook on weaver-birds, which laid down some of the guide-lines, but he goes much further. Simply for its wide coverage of the breeding biology of birds, the book would be invaluable; but as he surveys one group of birds after another he throws new light on hitherto puzzling aspects of their natural history, and convincingly relates facts that have seemed unrelated. It is a remarkable synthesis.

Having said all this, one would like to be able to add that the book makes enjoyable reading. Unfortunately, it is not easy going. This is partly a result of the general plan of the book, which works through the main ecological groupings of birds applying the same principles to each, with much consequent repetition; and partly the result of the author's style, which is very well adapted to discussing complex, interrelated, numerical data with absolute clarity, but has become rather stereotyped and monotonous. One misses the lightness of touch that made *The Life of the Robin* such an attractive book.

D. W. SNOW

### **Zoos by Emily Hahn. Secker & Warburg, 84s.**

This latest addition to the literature of zoos will be welcomed by the zoo-lover who wishes to know something of zoos outside his own country. Two chapters on the early history of animal keeping and the evolution of zoos form an entertaining introduction, and though this must be of necessity superficial, the author produces some interesting facts, such as that Amsterdam's lion house, started in 1340, was the first municipal collection in Europe. The chapters on feeding and dealers properly emphasise the folly of allowing the public to feed zoo animals, and the neglect suffered by so many animals at the hands of the more unscrupulous dealers. A final long chapter on conservation is devoted to a report of the 1966 symposium held by zoo directors and conservationists in San Diego.

The middle two-thirds of the book are devoted to Miss Hahn's marathon tour of some of the major zoos in Europe, the Far East, Australia and the USA. One cannot but admire her stamina in undertaking this journey, but there is no plan: the reader is given some interesting facts about the origins of these zoos, and about some of the animals which were brought to her attention. Yet these are almost lost in a mass of subjective material which soon palls and often misleads. We are told that the Spanish public are indifferent to zoos, yet Barcelona has twice as many visitors as the London Zoo. Again, we are informed that the lack of a breeding policy at the Calcutta Zoo is understandable considering that it has an area of 'only 50 acres'. The impressive breeding records of restricted urban zoos like Basle and Bristol seem to have escaped her attention.

The 36 half-tone plates are all portraits of animals; excellent though they are, it would be interesting to see what some of the zoos described actually look like. One cannot help feeling a slight sense of frustration at being offered such a large American doughnut with so little jam in the middle.

GEOFFREY SCHOMBERG

*The Penguin Dictionary of Natural History* by Richard Fitter, assisted by Maisie Fitter, is now published in hard covers by A. & C. Black (35s)