

There is little point, however, in continuing to list errors made so long ago and doubtless long realized and regretted by the authors. It is to be hoped that the excellent and industrious Israeli translators will now concentrate on making available to western readers recent research publications such as the contents of *Ornithologiya* and *Bionica*, or of the many Soviet specialist symposia. Even here, a multitude of abstracts would be more useful than a few complete translations. The requirement for up to date information is particularly strong where the study of wildfowl is concerned. Their numbers, distribution and habits are being changed by drainago and other large-scale hydro-engineering projects, nowhere more drastically than in the Soviet Union. In large measure, too, the ducks, geese and swans that winter in Europe, Africa and Asia are bred in the Soviet Union. We must therefore continue to find out what is being done to study and conserve wildfowl there.

G. V. T. MATTHEWS

## OPHIUROIDS OF SOVIET SEAS

### Ophiuroids of the USSR Seas

By A. M. D'yakonov. Edited by A. A. Strelkov. Translated from the Russian by R. Finesilver. (Keys to the Fauna of the USSR, No. 55.) Pp. ix + 123. (Israel Program for Scientific Translations: Jerusalem, 1967. Distributed by H. A. Humphrey, London.) 55s.

THIS work is the culmination of many years' study by D'yakonov on the ophiuroid fauna of the Soviet Union. It is mainly a taxonomic study, but because of the considerable geographical extent of the country, with shores bordering on the Arctic and North Pacific Oceans as well as the Black Sea and Baltic (though the last with its low salinity includes no echinoderms in its fauna), many of the 114 species included are common to other parts of the northern hemisphere, notably Scandinavia, Scotland, Iceland, Greenland, northern Canada, Alaska and northern Japan. Descriptions of thirteen species and one genus, new at the time of the original publication (1934), are included. Most of these are from the far-eastern seas, but one is the only endemic ophiuroid of the Black Sea, the formal description of which is long overdue, the name given to it by Tscherneavsky in 1861 being a *nomen nudum*. The introduction includes some zoogeographical discussion and the full range of each species is given in the text. There are clear keys to the various taxa and each of these is provided with a diagnosis or description. The 47 text-figures are clear but sometimes a little diagrammatic and occasionally misleading (in figure 18 the oral papillae are shown articulated to the adoral shields). The author follows Mortensen's subdivision of the Ophiuroidea into only two orders rather than that of Matsumoto which has reverted to favour within the last ten years following the publications of Fell and Murakami. The translator has adopted the descriptive terminology based on "aboral" and "oral" introduced by Hyman for ophiuroids and adopted by Fell and others. Altogether this is an indispensable book for the student of ophiuroid taxonomy and for the identification of the northern species.

AILSA CLARK

## CRUSTACEAN PHYSIOLOGY

### Aspects of the Physiology of Crustacea

By A. P. M. Lockwood. (University Reviews in Biology.) Pp. x + 328. (Oliver and Boyd: Edinburgh and London, 1968.) 55s. paperback.

DR LOCKWOOD'S book is the eighth in the series of University Reviews in Biology and is described by the author as a textbook for senior undergraduates and as background reading for postgraduates.

In an introductory chapter, the unique features of arthropods are outlined, in particular the influence of

the moult cycle on many aspects of their physiology. Although the book deals mainly with Malacostraca, comparative work on other sub-classes is included and so a brief classification of Crustacea is given. The second chapter, on osmotic and ionic regulation, is by far the best part of this book. It expands and brings up to date much information given in the author's paper in *Biological Reviews* published in 1962, and of particular interest is the discussion of the part played by amino-acids in the osmotic adjustment of cells. Chapters on moulting and hormones follow and some aspects of these subjects, the section on colour change for example, suffer from overcondensation. The physiology of blood systems, respiration and metabolism are usefully dealt with in that the author has brought together much information which is otherwise scattered in a number of publications. The succeeding chapters on neuromuscular systems and sense organs are clearly written and give an adequate account of recent work in this field. A short chapter on feeding and digestion completes the text.

Unfortunately, there is much to suggest that this book has been hastily produced and a few specific examples must suffice to substantiate this criticism. There are too many misspelt generic and specific names and in a classification of some Crustacea on page 121, *Artemia* and *Branchipus* [sic] appear as Notostraca while *Triops* is included in the Conchostraca [sic]. The wavelengths of maximum absorption of haemocyanin are expressed in terms of  $\mu$  and thus wrong by a factor of  $10^{-3}$  (page 116) and the oxygen pressure at which haemoglobin is half saturated is expressed in mm O<sub>2</sub> rather than in mm Hg, as in the original publication (page 122 and table 13). In figure 16 there is little correlation between the legend and the six parts of the figure, five of which are incorrectly identified and a seventh part appears to be missing. Figure 66A should have been omitted. It is a poor diagram, not very instructive yet profusely labelled with 41 abbreviations; there is, however, no legend to explain their meaning.

Dr Lockwood's book is about twice the size and three and a half times the price of earlier numbers in this series and, at 55s for the paperback edition, is unlikely to attract the undergraduate buyer. It is to be regretted, I think, that the author did not restrict the scope of this book and deal in greater depth with a single topic; for example, the problems of osmotic and ionic regulation. This is a subject on which he writes lucidly and with apparent enthusiasm: the result would have been a smaller, cheaper and more useful publication.

BARBARA M. GILCHRIST

## ATLAS OF BRAINS

### Atlas of the Brains of Domestic Animals

By Tetsuo Yoshikawa. Pp. xvii + 172 plates. (University of Tokyo Press: Tokyo and London; Pennsylvania State University Press: Pennsylvania, September 1968.) \$19.50; 186s.

THIS is a beautifully produced work illustrating sections of the fore-, mid- and hind-brain in a horse, "cattle" (Holstein-Friesian breed), goat, sheep, pig and domestic fowl. Between twenty-five and thirty cross-sectional levels are shown for each brain and, for the pig, a number of sagittal sections; the sections are stained by the Weigert-Pal method and therefore illustrate only the pattern of myelinated nerve fibres and tracts. The magnifications vary between  $\times 6$  and  $\times 20$ . There is a special article (by Ko Sakamoto) with illustrations of the cytoarchitecture of the diencephalon of the horse.

The illustrations are all scale drawings, obviously executed with meticulous care and, so far as one can judge, accuracy. The author is probably right that drawings are clearer than photographs in this kind of material. Apart from one page (a short description of the diencephalon of