

THE ROTHSCHILD COLLECTION OF FLEAS

An Illustrated Catalogue of the Rothschild Collection of Fleas (Siphonaptera) in the British Museum (Natural History)

By G. H. E. Hopkins and Miriam Rothschild. Vol. 2 : Coptosyllidae, Vermipsyllidae, Stephanocircidae, [Macropsyllidae], Ischnopsyllidae, Hypsophthalmidae and Xiphiopsyllidae. Pp. xi+445+32 plates. (London : British Museum (Natural History), 1956.) 6 guineas.

THE first volume of this great work, covering the Pulicoidea, was published in 1953 and a review appeared in *Nature* (173, 1203; 1954). The second volume covers seven (of fifteen) families of the Ceratophylloidea. Most of these families are small, and some may be termed obscure. With one or two exceptions, the families are not especially closely related; their treatment together is therefore largely artificial and has the undesirable feature that their closer relatives will be dealt with sporadically in the remaining volumes of the series. The authors are aware of this defect; but their grouping was dictated by practical considerations. Only three of the families treated are represented in the north temperate parts of the world; of these the Ischnopsyllidae are world-wide in distribution; the Vermipsyllidae, Nearctic and Palearctic; and the small family Coptosyllidae, restricted to the Mediterranean and Siberian subregions of the Old World. Xiphiopsyllidae and Hypsophthalmidae are Ethiopian, and Macropsyllidae and Stephanocircidae are Australian, the latter also being well represented in South America. The Coptosyllidae (one genus and nine species or subspecies) are parasites of gerbilles; the Vermipsyllidae (three and twenty-nine), of ungulates and carnivores; Stephanocircidae (eight and twenty-eight), of marsupials, rodents, and perhaps shrews; Macropsyllidae (two and two), apparently of rodents; Ischnopsyllidae (fifteen and seventy-six), exclusively of bats; Hypsophthalmidae (seven and twenty-six), of rodents and insectivores; and Xiphiopsyllidae (one and four), of rodents.

The introductory sections of the book contain much material that is virtually repeated from Vol. 1. However, these sections, including the phylogenetic 'tree' and lists of genera and subgenera, have been corrected and supplemented to bring them up to date. Much of the glossary of technical terminology is repeated, too; but the definitions and illustrations apply especially to the large superfamily Ceratophylloidea, whereas the glossary of the previous volume emphasized the Pulicoidea. The key to superfamilies, families, and subfamilies of fleas is also repeated, but is provided with illustrations that greatly increase its usefulness.

The general plan of the volume is similar to that of the preceding one; superfamilies, families, subfamilies, and genera are fully defined, but species and subspecies must be determined by use of the keys and illustrations, which are, however, adequate for the purpose. Citations are given for original descriptions and important subsequent publications, and complete records of specimens in the Collection are provided. If satisfactory published illustrations were available, they have been reproduced; in other cases new figures of high quality have been prepared by F. G. A. M. Smit and Arthur Smith. The generosity of the authors and the publishers in the

matter of illustrations may be appreciated when one considers that 707 drawings and 193 excellent photographs (mostly by Arthur Barron) are provided to illustrate a volume dealing with only 174 species and subspecies.

Although primarily a catalogue of the Rothschild flea collection, the finished work will treat all described species and therefore will virtually constitute a monograph of the fleas of the world. Typographical and other errors in the present volume appear to be few; unfortunately, reference to the Macropsyllidae was omitted from the title page. The book is authoritatively written, lavishly illustrated, and beautifully printed and bound. Like its predecessor, it is a credit to the authors and the publishers.

G. P. HOLLAND

THE HOST-PARASITE RELATIONSHIP

Parasites and Parasitism

By Prof. Thomas W. M. Cameron. Pp. xix+322. (London: Methuen and Co., Ltd.; New York: John Wiley and Sons, Inc., 1956.) 35s. net.

WITH the experience of more than thirty years teaching of parasitology in London, Edinburgh and Quebec, Prof. Cameron has written this book, which is outstanding for the new approach it makes to the subject. It treats parasitism as a natural biological phenomenon and as a branch of ecology and not from the anthropocentric or economic viewpoint because, all too often in the past, parasitism has had its true nature obscured by a concept of disease and has been regarded subjectively rather than objectively. It is not a substitute for texts on medical or veterinary parasitology as it deals with principles rather than with practice.

Because of the many unsuccessful attempts that have been made to formulate an accurate definition of a parasite, the author attempts to present a concept of the organism by considering how it feeds and discusses nutrition and its evolution in an introductory chapter. There follows a general survey of parasites in which representative types from the bacteria, fungi, spirochaetes, protozoa, viruses, rickettsias, coelenterates, helminths, annelids, arthropods, molluscs, and vertebrates are discussed. This is followed by a consideration of the evolution and development of the defence mechanism of the host. The consequences of parasitism are then discussed. The concluding chapters deal with infectious disease, the factors involved in the distribution of parasites, the principles of control of parasites and parasitic diseases, host specificity and the evolution of parasites. There is a list of 156 selected and annotated references and a separate list of some important catalogues and indexes. These are followed by a classification of the parasites mentioned in the text and by an adequate glossary and index. Many of the 115 diagrams throughout the text are used to replace detailed morphological descriptions which, with systematics, have been kept to a minimum mainly for considerations of space. Misprints and errors are, happily, scarce but the following corrections should be noted: *Fasciola* metacercaria excysts in the alimentary tract (p. 89), *Polystoma* (p. 98), *Caryophyllaeus* (p. 105), pine-weevil (p. 137) and *Braula* (p. 180).

Prof. Cameron suggests that, to read and understand his book, a working knowledge of biology in