

(1815-1819); a History of British Quadrupeds, by Thomas Bell (1837); British Quadrupeds, by W. Macgillivray (Jardine's Naturalist's Library, 1838); a new and revised edition of Bell's British Quadrupeds (1874); British Animals extinct within Historic Times, by James E. Harting (1880); and now, A Handbook to the British Mammalia, by R. Lydekker (1895). The present work differs in scope from any of its predecessors inasmuch as it treats of both the living and the extinct species.

The author states in his preface that he makes no claim to personal knowledge of the habits of British mammals, but has drawn largely on Macgillivray's 'Manual,' of which work the present 'may be regarded almost as a new edition.' The principal differences are that Mr. Lydekker has rewritten the whole of the technical matter, has brought the geographic distribution and nomenclature down to date, from his standpoint, and has added a dozen pages of introduction. In the matter of nomenclature the earliest specific name is adopted when it does not happen to be the same as that of the genus in which it is included. On this point American naturalists will be pleased to read the following, from the prefatory note by the able editor of Allen's Naturalist's Library, Mr. R. Bowdler Sharpe. Mr. Sharpe says "I feel convinced, however, that the absolute justice of retaining every specific name given by Linnæus will some day be recognized. Thus, in my opinion, the correct title of the Badger should be *Meles meles* (L.); of the otter, *Lutra lutra* (L.); of the Roe-deer, *Capreolus capreolus* (L.); of the Common Porpoise, *Phocæna phocæna* (L.); of the Killer, *Orca orca* (L)."

The illustrations are the same as those in the original edition of Macgillivray, which formed the 22d volume of Jardine's Naturalist's Library (1838). They are cheaply printed, without attempt at fidelity of coloring, and differ from the originals in having the foregrounds, as well as the animals, colored. The original skull outlines also are retained, though for what purpose one can hardly imagine, since in most cases it would be difficult, if they were not so carefully labeled, to tell the family to which they belong.

The feature of the British Mammal fauna that strikes the naturalist with greatest surprise is its paucity in species. In his introduction Mr. Lydekker says that, excluding introduced species, only 41 terrestrial mammals 'can be regarded as indigenous inhabitants of Britain during the historic period,' and five or six of these are now extinct; hence the total number of indigenous mammals now living in England, Scotland, and Ireland together is not more than 35 or 36, and the number inhabiting Ireland is only 19. The contrast with any equal area on the continent of Europe or America is striking. For instance, the single State of New York contains at least 53 indigenous land mammals. The explanation of the small number of species in the British Islands is that the early fauna was largely exterminated during the glacial epoch, and the species have not been able to reach the Islands since. This explanation is rendered the more probable by the fact that a dozen of the present mammalian inhabitants are bats—animals that could easily cross the channel—thus reducing the number of truly terrestrial species to a couple of dozen.

The most extraordinary statement I have observed in the book is that the common shrew spends the cold months 'in a state of profound torpor' (p. 78). So far as known, none of the shrews hibernate; on the contrary, they remain active throughout the longest and coldest winters, and even in the far north scamper about on the snow when the temperature is many degrees below zero.

The book as a whole, while lacking the multitude of detailed observations so valuable to the local field worker, is nevertheless a welcome addition to mammal literature and will prove a useful work of reference for many years to come. The closing chapter on 'The Ancient Mammals of Britain' is the most important of all.

C. H. M.

The Cambridge Natural History, Vol. V., Peripatus.

By ADAM SEDGWICK, M. A., F. R. S., Fellow and Lecturer of Trinity College, Cambridge. *Myriapods*, by F. G. SINCLAIR, M. A., Trinity College, Cambridge. *Insects, Part I.*, by DAVID SHARP, M. A. (Cantab.), M. B.

(Edinb.), F. R. S. London and New York, Macmillan & Co. 1895. 8°, pp. xi+584, and 371 wood cuts. \$4.00.

This volume of the *Cambridge Natural History* bears upon its cover the subtitle *Peripatus, etc., Sedgwick*; from which one gains no hint that the book consists chiefly of the first part of an extensive treatise on Insects by David Sharp. But such is the case, more than five-sixths of the volume being on this subject and by this author.

The volume is begun by an essay on *Peripatus* by Adam Sedgwick, the well-known authority on this genus. This essay, which gives the title to the volume, comprises only 24 pages; but it contains a very clear account of the structure, habits and development of these, the most generalized of all arthropods. To this account are added a synopsis of the known species and a map illustrating the geographical distribution of the genus.

Following the essay on *Peripatus* is one treating of *Myriapods* by F. G. Sinclair. This occupies about 50 pages of the volume. After a somewhat rambling introduction, there is given a brief synopsis of the orders and families of this class, based chiefly on the classification of Koch. This is followed by an excellent account of the structure of Myriapods, including a discussion of the distinctive features of each of the four orders, an outline of the embryology of these animals, and a résumé of our knowledge of fossil forms.

The chief interest in the volume, however, centers in the portion written by Mr. Sharp. During the last few years, in this country at least, there has been a great increase in the number of students of insects; and any work on this subject from the hand of a master is sure to be warmly welcomed. In this case the welcome will not be soon worn out. *Sharp's Entomology*, as this and the succeeding volume should be termed, will find and keep a place on the desk of every working entomologist; for, judging by the part before us, this is the best general treatise on insects that has yet appeared in any language.

The great merit of the work lies in the clearness and simplicity of its style, in the excellence of the illustrations, in the extent to

which recent contributions to the morphology of insects are included, and in the numerous bibliographical references.

In the division of the Insecta into orders, a conservative plan is followed, only nine orders being recognized; but most of the smaller orders of recent writers are indicated by sub-headings. The following is a list of the orders recognized: *Aptera*, *Orthoptera*, *Neuroptera*, *Hymenoptera*, *Coleoptera*, *Lepidoptera*, *Diptera*, *Physanoptera* and *Hemiptera*.

The resurrection of the old name *Aptera* and its application to the order now almost universally known as the *Thysanura* seems to me to be unfortunate. The advantage of retaining the termination 'ptera' for each of the orders, which seems to be the main reason for this course, could have been attained by the adoption of Brauer's term, *Synaptera*, which is of the form desired, is not in itself misleading, and has not been used in a widely different sense, as is the case with *Aptera*.

It seems strange too, in the light of recent contributions on the subject, that our author, in his linear arrangement of the orders, should separate so widely the Trichoptera (included by him in the Neuroptera) and the Lepidoptera; certainly these groups have been shown to be more closely allied than any other two of the nine orders.

But criticisms of details in a brief notice of so important a work as this are hardly worth while. It is enough to say that the plan of treatment is excellent, and that it has been carried out in an admirable manner. Entomologists will eagerly await the appearance of the concluding volume.

JOHN HENRY COMSTOCK.

The Herschels and Modern Astronomy. By AGNES M. CLERKE. Published by Macmillan & Co., New York. Pp. vi+224, with three portraits. Price, \$1.25.

For this volume, considered as biography, we have nought but praise. In smoothly flowing lines its author gives, not the annals of the Herschel family, but rather a series of pictures from the lives of Sir William, Sir John and Caroline which suffice to present in vivid colors the individuality of brother, sister and son. We catch