

ELEMENTARY ZOOLOGY.

- (1) *Zoology: An Elementary Text-Book.* By Dr. A. E. Shipley and Dr. E. W. MacBride. Third edition. Pp. xx+752. (Cambridge: At the University Press, 1915.) Price 12s. 6d. net.
- (2) *Elementary Text-book of Economic Zoology and Entomology.* By Prof. V. L. Kellogg and Prof. R. W. Doane. Pp. x+532. (New York: H. Holt and Co., 1915.) Price 1.50 dollars.

(1) A NEW edition of "Shipley and MacBride" will receive a welcome from students and teachers of zoology, for the original work—published in 1901—took at once a distinct place among text-books on account of the freshness and individuality of the authors' method. The present volume exceeds in length its forerunner by 100 pages, and many improvements have been introduced. For example, the groups of the flatworms, nemertines, rotifers, and nematodes have been brought from their former position at the end of the volume following after the mammalia, and placed before the annelida. The arrangement, which startled readers of the first and second editions, was intended to emphasise the authors' opinion that these groups are not cœlomata, and this opinion is still set forth, perhaps too dogmatically, in the clear "Introduction to the Cœlomata" that precedes immediately the account of the annelids. The authors have accepted Goodrich's distinction—now familiar to zoologists—between true nephridia and cœlomoducts (such as the excretory tubes of arthropods, molluscs, and vertebrates). They also revert to the "orthodox" interpretation of the mammalian ear-ossicles, and in connection with this problem supply a valuable diagram of the temporal region of the skull in theromorphous reptiles for comparison with the mammalia. The book still neglects, to a great extent, palæontological as well as embryological facts, but these are invoked where questions of morphology and relationship are discussed. Indeed, the last half of the volume comprises an excellent introduction to the comparative anatomy of vertebrates. As regards systems of classification, there is always room for differences of opinion, but we believe that most students of the Mollusca will object to the removal of the Chitons from association with Chætoderma and Neomenia, and their replacement in the Gastropoda; while among the arthropods, the unnatural group of the "Myriapoda" is still retained, and appears in the same class with the insects and the peripatids—an altogether indefensible association. The introduction has been lengthened by

two pages for the inclusion of a necessarily imperfect sketch of recent work on heredity.

(2) Indeed the writers of comprehensive modern text-books must be constantly faced with the question whether it is better to discuss some subject imperfectly or to leave it alone altogether. Profs. Kellogg and Doane have, with considerable success, attempted, within the limits of a handy volume, to furnish their students with a guide not only to the facts and principles of zoology but to its applications to hygiene, fisheries, agriculture, horticulture, forestry, and stock-raising. What may be called the general zoological sections of the book are often sketchy—as where the development of the Mammalia is dismissed in less than a page and the student is told that there is no placenta in marsupials. But there is much trustworthy information pleasantly given, the examples being drawn mostly from North American species. The concluding portion of the book is devoted to economic subjects, and there may be found accounts—good though brief—of harmful protozoa, insects, and arachnids, with the means to be adopted for repelling their attacks. The authors might perhaps have used the space at their disposal more effectively by expanding this section to fill the whole volume, leaving the student to get his general facts from existing books, of which there are surely enough. Yet a chapter of twelve pages on "Animal Life and Evolution" is a wonderful example of what can be done in the way of packing a surprising number of valuable facts and suggestions into a small compass. It might indeed be defined as a sample of "compressed biology."

G. H. C.

ECONOMIC GEOGRAPHY.

An Atlas of Economic Geography. By Dr. J. G. Bartholomew. With introduction by Prof. L. W. Lyde. Pp. lxvi+96 maps. (London: Oxford University Press, 1914.) Price 5s. net.

THE name of Bartholomew on any atlas is a synonym for careful draughtsmanship and artistic colouring, and the "Atlas of Economic Geography" is not only no exception to the rule, but also a marvel of cheapness. Prof. Lyde as joint-editor is responsible for the selection of the maps, which are intended to illustrate mainly world and continental distributions. So far as they go, the various maps and diagrams make up a valuable collection. The generalisation necessary for such small-scale maps has been on the whole successful, except in the case of gold, the colour for which is much too liberally distributed. No attempt has been made, however, to distin-