

foundation is laid for the teaching of the principles and rules.

In the teaching of algebra he would make plain the theory of imaginaries, when the extraction of the square root comes up; and would introduce an exposition of geometric quantity before taking up the equation of the second degree. He predicts that the day when the geometric calculus will be introduced in the regular course of instruction is not far off. In the concluding chapter he deplores the too great centralization of mathematics in Paris to the injury of the rest of France.

In conclusion we recommend the volume to the notice of every live mathematician, and to every one interested in the nature of human knowledge.

ALEXANDER MACFARLANE.

*Elements of Comparative Zoology.* By J. S. KINGSLEY, S.D., Professor of Zoology in Tufts College. New York, Henry Holt & Co. 1897.

This book of 357 pages embodies an attempt to combine the text-book proper with the laboratory manual in such proportions as to meet the demand of the beginner. It is contended in the preface that "a knowledge of isolated facts, no matter how extensive, is of little value in education, excepting as the powers of observation are trained in ascertaining those facts." In accordance with this idea, the author lays stress upon the more obvious features of the types considered, and seeks to lead the student to an intelligent appreciation of the significance of those features in studies under the title of 'Comparisons.' For example, a bony and a cartilaginous fish are studied separately, and then the facts acquired by the student are correlated by a series of questions which require a careful comparison. In this way twenty-five types are studied and compared, the types representing all the main divisions of the animal kingdom, and being chosen from the most readily accessible materials.

The text of the work is based upon the systematic relations and discusses the orders seriatim.

There is one detail of arrangement, however, which will not appear to everybody to be entirely happy. In the discussion of the fishes

the Selachii and Teleosts are treated at some length, and then follows the part bearing upon Pisces. When one comes to the sub-classes he is referred back to Selachii and Teleosts. This may prove somewhat confusing, although the motive is evidently to emphasize the groups of which types have been studied.

There are numerous illustrations and diagrams, the latter in many cases being particularly suggestive.

The part devoted to the laboratory work is arranged in the form of simple directions for dissection and questions to lead the student to as independent a method as possible. The criticism that will be forthcoming will be that the laboratory work is meager—that students, even in the high school, frequently want to know more than the laboratory guide leads them to. This, however, is a minor criticism, since the teacher, if up to the mark, can supplement the work according to his judgment.

The introduction contains suggestions in regard to the carrying on of laboratory work; apparatus, which is reduced to a minimum as to both quantity and simplicity; materials for dissection, and reference books.

The whole is a small, handy volume, neatly bound and well printed on good paper.

F. E. LLOYD.

*The Phytogeography of Nebraska.* 1. General Survey, by ROSCOE POUND, Ph.D., Director of the Botanical Survey of Nebraska, and FREDERIC E. CLEMENTS, A.M., Assistant Instructor in Botany in the University of Nebraska. Lincoln, Neb. 1898. 8vo., 329 pp., with four maps. Presented by the authors to the Faculty of the University of Nebraska as a thesis for the degree of Doctor of Philosophy.

From the preface we learn that this work is the result of nearly five years of active study of the floral covering of Nebraska, carried on by the members of the Botanical Seminar in the Botanical Survey of the State. The systematic study of the vegetation of Nebraska was begun by Dr. Bessey in 1884, and has since been carried on by him and his students, all previous collecting having been more or less desultory and unreliable. The Botanical Survey was or-