

increasing very rapidly. This book is designed to introduce them to the study of the subject, and may be warmly recommended to them, but it is worthy of the attention of the professional psychologist also. The special features of the book are the freshness and clearness of the treatment, and the novel arrangement of mental phenomena under the three heads sensitive-ness, docility, and initiative. Prof. Royce thus ignores the traditional divisions of the subject, which, though merely survivals from the old and misleading faculty-psychology, have largely determined the mode of treatment of most modern writers. By so doing he is enabled to treat every mental process as a whole having cognitive, conative and affective aspects.

Though not himself an experimenter or a physiologist, Prof. Royce fully and generously admits the importance of physiological and experimental psychology, and recognises that the advance of the subject represented by this book is largely due to modern work by those methods; his sketch of the functions of the nervous system and his numerous references to physiological considerations are altogether admirable and judicious, and he shows how greatly experimental methods have furthered our analysis of mental processes.

Here and there throughout the chapters practical deductions of the first importance to teachers are clearly and soundly drawn; for example, it is admirably shown how "differentiation of the simultaneous slowly results from the repeated acts, and from the powers of discrimination which have been cultivated in connection with them," and there follows the maxim, "Undertake to systematise this differentiation of consciousness through fitting series of successive deeds."

One of the most novel features is the treatment of the feelings. While agreeing with Wundt in regarding the classification of feelings into the two groups, pleasant and unpleasant, as very inadequate, Prof. Royce does not accept that author's six classes, but regards feelings of quiescence and of restfulness as two classes of antagonistic feelings correlative with the pleasant and unpleasant. In the chapter on the conditions of mental initiative, the importance of this distinction is fully illustrated. It is there forcibly shown how "mental initiative" depends upon "a certain overwealth of persistent activities" not immediately adaptive and not necessarily pleasant, and it is asserted that "all such activities are characterised by the feeling of restlessness. In their physical aspects they are examples of the 'tropisms' of Loeb." This last statement is difficult to accept. In the introduction Prof. Royce shows that he has been much impressed by the phenomena of "tropism" as manifested by lowly organisms, and he seems to feel that the conception of the "tropism" is of great importance for psychology. But the later references to the subject do little to justify the expectations thus aroused. In the case of the "overwealth of persistent activities" which are so important for mental growth, it would seem to be truer to say that they are examples of "irritability," the fundamental property of all living

substance, and to treat them as examples of "tropisms" is not warranted by any considerations advanced in the book or known to the present writer.

The concluding chapters deal with varieties and abnormalities of minds, and many valuable hints are given as to the special treatment of individuals demanded of the teacher and parent. Among all the many books on psychology, there is none that within so small a compass, can give more insight into the life of the mind, and none that can be studied by schoolmasters with greater or equal advantage to their professional efficiency. W. McD.

OUR BOOK SHELF

Animal Studies: a Text-book of Elementary Zoology for Use in High Schools and Colleges. By David Starr Jordan, V. L. Kellogg, and Harold Heath, of Leland Stanford Jr. University. Pp. 459; 259 figures. (New York and London: Appleton and Co., 1903.) Price 5s. net.

THIS is an interesting and delightful text-book of elementary zoology, combining some parts of "Animal Life" and "Animal Forms," in the same series, with new material on classification, extinct forms, geographical distribution, special adaptations, instincts, and economic value. Beginning with chapters on the conditions of animal life and the principles of classification, the volume takes a survey of the most important classes from Protozoa to mammals. Then follow chapters on life-histories, the struggle for existence, adaptations, animal communities, commensalism and parasitism, protective resemblances and mimicry, the special senses, instinct and reason, and so on. When we compare a school-book on geography of a quarter of a century ago with the best modern school geography, we seem to breathe a different atmosphere, and so it is when we compare the natural history for schools which was in circulation twenty-five years ago with this lively, up-to-date, well thought-out, beautifully illustrated, and, in short, well adapted modern school text-book of zoology.

We quote, in illustration of its educational value one example:—"At one time we had two adult monkeys, 'Bob' and 'Jocko,' belonging to the genus *Macacus*, neither with the egg-eating instinct, and a baby monkey, 'Mono,' of the genus *Cercopithecus*, whose inherited impulses bore a distinct relation to feeding on eggs, just as the heredity of *Macacus* taught the others how to crack nuts or to peel fruit. To each of these monkeys we gave an egg, the first that any of them had ever seen." The result of the experiment was in the highest degree instructive. Mono cracked the egg against his upper teeth, made a hole in it, and sucked it. "Then holding the egg-shell up to the light and seeing that there was no longer anything in it, he threw it away." He treated all subsequent eggs in the same expert fashion, while "Bob" and "Jocko" treated their eggs like nuts, and therefore ineffectively.

We recommend this book strongly; it is simple but not superficial, it is both interesting and instructive; it is written with an educational perspective. It is particularly desirable in elementary books that every general statement should be critically scrutinised, and the standard of accuracy in this volume is a high one. We are not, however, prepared to accept every statement, e.g. that fur-seals "absorb the water needed through pores in the skin." J. A. T.