

those ideas already existing in the minds of physicists before the discovery of the first of the radio-active substances.

In summarising work on points about which there is difference of opinion the author shows a commendable caution, and his verdict usually appeals to one as safe; perhaps an exception occurs where he states that the available evidence indicates that the activity of radium C can be altered by change of temperature.

The book constitutes a valuable addition to the literature of radio-activity, and can be recommended to those interested in that fascinating subject.

J. A. M.

*The Psychology and Training of the Horse.* By Count E. M. Cesaresco. Pp. xvi+334. (London: T. Fisher Unwin, 1906.) Price 10s. 6d. net.

In spite of its title, this book is no addition to our rapidly multiplying collection of works on animal psychology. It cannot be called scientific in the strictest sense. Modern psychological science endeavours so far as possible to found its conclusions on experimental treatment of its subject-matter, and in the case of the lower animals, where direct introspection is impossible and analogy unsafe, it refuses to accept conclusions not obtained in this way. But no records of experiments performed on the horse are to be found in Count Cesaresco's book. Description and anecdote there is in plenty, and that of the greatest interest, but all explanation is *a priori* and decidedly anthropomorphic. Psychological terms are used wherever possible to give precision to a description the main value of which is independent of such adventitious adornments. Not that the psychology is necessarily incorrect; on the contrary, it appears to have probability on its side, only it cannot lay claim to the title of strict science.

The practical knowledge displayed by the author is full and precise, and, doubtless, will alone suffice to commend the book to horse-lovers. Indeed, the earlier "psychological" chapters on the nature of the horse's mind form a description written merely *ad hoc*, prefatory to the main theme of the book, viz. the best methods that may be employed in the training of the horse for the service of man. These methods are based on the assumption that the horse learns by association of his actions with their pleasurable or painful effects, and by no higher process. No record is given of any attempt to justify this assumption experimentally. At times the book barely rises above platitude, and there is also much unnecessary repetition strewn up and down its pages. The absence of any of the elegances of style is doubtless to be accounted for by the fact that the author is writing in a language not his own. Despite these drawbacks, the book is quite readable, and thoroughly justifies its existence.

*Elementary Botany.* By Dr. E. Drabble. Pp. vi+234. (London: Edward Arnold, n.d.) Price 2s. 6d.  
*Biologie unserer einheimischen Phanerogamen.* By M. Wagner. Pp. xii+190. (Leipzig and Berlin: B. G. Teubner, 1908.) Price 6 marks.

It would seem almost impossible to devise a new disposition of matter in an elementary text-book, but it must be allowed that Dr. Drabble has drafted a setting which differs in arrangement from the standard books of its kind. He begins with an explanation of physiological principles as a preparation for the interpretation of morphological structure, and touches on plant modifications and classification. The course outlined is very workable, and will certainly find

favour with not a few teachers in schools. The text is characterised by accurate and logical exposition, combined with a sufficiency of illustration to make the points clear. Experiments for testing the physiological deductions are suggested. These might in several instances have been more fully detailed with advantage. The figures are not so creditable, and some are unnecessarily crude, such as the crocus corms and the fruits on p. 165, while Fig. 8 supplies an example of how not to set up the experiment. These are, however, slight defects when compared with the general excellence of the subject-matter.

The botanical volume, written by Dr. M. Wagner, is in no sense a text-book for use in schools, but provides a compendium of the various contrivances, mechanisms, and characteristics of flowering plants. Thus, in a chapter on light requirements, the author schedules a series of contrivances serving to intercept and absorb the light rays; then the various types of climbers are catalogued, and the methods of guarding against destruction of chlorophyll in the leaves are outlined. Under each heading a list of the plants showing the particular character is enumerated. The book is therefore intended primarily for reference, and, doubtless, teachers will be glad to add it to their library. The information is arranged under the general headings of nutrition and reproduction, and the chapters follow physiological, not ecological, conceptions. The author states in the preface that he has collated his facts from the works of Haberlandt, Kerner, Ludwig, and other writers. It would have added greatly to the value of the book if he had given references to the original sources.

*The Deinhardt-Schlomann Series of Technical Dictionaries in Six Languages: German, English, French, Russian, Italian, Spanish.* By Alfred Schlomann. Vol. iv. Internal Combustion Engines. Compiled by Karl Schikore. Pp. x+618; with about 1000 illustrations and numerous formulæ. (London: Archibald Constable and Co., Ltd., 1908.) Price 8s. net.

In noticing the first volume of this series of dictionaries in our issue for May 3, 1906 (vol. lxxiv., p. 6), descriptions of the objects of the series and the methods of treatment were given. The present volume deals with the following subjects among others:—gases and oils; the theory, construction, equipment and erection of internal combustion engines; materials and their economical use; complete plants; and general working and testing. The illustrations, though of necessity small, since the volume is of pocket size, are generally remarkably clear. The excellent alphabetical index with which the volume is provided makes reference easy and will greatly enhance the popularity of the dictionary among technical students and workers.

*Highways and Byways in Surrey.* By Eric Parker. With illustrations by Hugh Thomson. Pp. xix+452. (London: Macmillan and Co., Ltd., 1908.) Price 6s.

It is unnecessary to praise the charming series to which this book is the latest addition. Mr. Parker's volume will appeal in an especial manner to Londoners, who are within easy access of the delights of which he writes; and it may be hoped that the descriptions of Surrey's natural beauties and historic interests will encourage town dwellers to explore neighbouring counties for themselves. Mr. Parker has many useful hints to students of nature as to the favourite habitats of special plants and animals; and the sportsman, too, will find some guidance of the kind he desires. The sketches make it possible to appreciate the beauty of the highways and byways in Surrey without visiting them.