

through the medium of the latter. Aids to computation, such as logarithms and the slide-rule, are introduced and largely employed in the later stages. Trigonometrical tables are also explained. The principal feature of the work is perhaps the excellent and extensive collection of practical exercises, in which the student has the advantage of the author's expert knowledge of the building and engineering trades and of his wide experience as a teacher. The subject is developed in the modern spirit, and the book will be very acceptable in many quarters.

#### GERMAN PHILOSOPHICAL TEXT-BOOKS.

*Geschichte der Philosophie.* By Karl Vorländer. I. Band, pp. xiv+361; II. Band, pp. viii+512. (Leipzig: Dürr'schen Buchhandlung, 1908.) Price 3.60 marks and 4.50 marks.

*Grundlinien der Psychologie.* By Dr. Stephan Witasek. Pp. viii+392. (Leipzig: Dürr'schen Buchhandlung, 1908.) Price 3 marks.

*Die Entstehung der wirtschaftlichen Arbeit.* By Dr. Ed. Hahn. Pp. iv+109. (Heidelberg: Carl Winters Universitäts-buchhandlung, 1908.) Price 2.50 marks.

PROF. VORLÄNDER'S "*Geschichte der Philosophie*" is an attempt to compress into two small volumes an account of the course of development of philosophy from the earliest times to the present day. When it is added that the work includes a short account of the life and writings of almost every writer of any importance at all in philosophy during the last five-and-twenty centuries, little hope will be felt of the success of the author in his attempt. It is therefore of the highest credit to Prof. Vorländer that he has achieved the seeming impossible, and produced a work which is both eminently readable and strictly accurate. He displays complete mastery of his subject throughout, and a fine sense of the distinction between the relevant and the irrelevant, the latter quality being possibly in part due to the fact that he is a prominent representative of the Neo-Kantian school, and excels in the application of the critical method. The same fact explains why so large a portion of the second volume is allotted to a treatment of the philosophy of Kant, at the expense chiefly of the description of Hegelianism which follows, and which cannot but be considered extremely inadequate by any school of philosophers. The last hundred pages of the book, on the philosophy of the present day (since 1840), make very interesting reading, and give much information not to be found outside the pages of "*Ueberweg-Heinze*"; but where so many names are mentioned, it is surely most surprising to find no reference whatever to William James and the pragmatic school, more particularly as the prodigious development of the science of psychology during the last few years and its significance for modern philosophy are distinctly emphasised.

Of late years text-books in psychology have been multiplying rapidly, but no external justification is needed for the publication of Dr. Stephan Witasek's manual. This book is admirably arranged, clearly written, and thoroughly up to date, and is probably

the best and most complete *introductory* text-book of the science which we possess at the present day. In the earlier, more general, chapters the author argues out controversial points thoroughly, yet without profuseness; in the later ones, on "special" psychology, he gives the very latest results in the experimental study of the different forms of mental process. The discussion of the various possible theories of the relation of mind and brain is exceptionally well done. The arguments against psychophysical parallelism and its most recent form, panpsychism, are effectively put, and although the author admits that there are also serious objections to the interaction theory, it is very evident that his own sympathies are in this direction. The outcome of the discussion would seem to be, "Either interaction or a substantial soul," which, if quaint, is decidedly optimistic!

Dr. Hahn's book is a short anthropological essay on the origin of work possessing little more than an academical interest.

WILLIAM BROWN.

#### OUR BOOK SHELF.

*The Radio-active Substances.* By W. Makower. Pp. xii+301. (London: Kegan Paul and Co., Ltd., 1908.) Price 5s.

THE author's aim in writing this volume is to present the chief phenomena and theories relating to radio-activity in a concise and simple form. The subject has been competently dealt with in an elementary manner in other works, but it is advancing rapidly, and the present work is intended to enable readers to keep pace with its development. All branches of the subject are treated in this book. Beginning with chapters on the nature of gaseous conductivity and on the methods of measurement employed, the author goes on to describe the discovery of the radio-active substances, the nature of the radiations they emit, the emanations, the active deposits from the emanations, and their successive transformations. In the concluding chapters the activity of substances in general and the mechanism of radio-active changes are briefly discussed.

The author has succeeded admirably in his aim of giving a very full and accurate summary of the chief facts and theories in a concise form, but perhaps the summary is too complete and condensed for general readers. The food supplied is sound and wholesome, but the general reader who has no knowledge of the subject to start with will find it difficult to absorb all the nourishment supplied to him in such condensed form. In some parts, notably when discussing the successive transformations of the radium atom, the author has successfully made use of simple analogies in presenting the results to his readers.

In the introduction the author is guilty of stating that the properties of radio-active substances have necessitated a "revision of many of our conceptions both in physics and chemistry." In no sense is this statement defensible, and occurring in a book intended in some measure for non-scientific readers, who are too prone to consider every new discovery as upsetting previous conceptions, it is likely to lead to the aggravation of an evil already sufficiently pronounced. It is due to the author, however, to point out at once that the above statement is an isolated one, and that the book as a whole conveys no such impression, showing as it does how the conceptions evolved from the study of radio-activity follow as a natural sequence

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 Deinhart-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.