

racy a high one. Mr. Kermode may fairly claim to have bestowed on the student a lasting possession, and to have done for the Isle of Man what Dr. Anderson and the late Mr. Romilly Allen did for Scotland.

A word must be said in conclusion as to the plates, which greatly enhance the value of the work. They are taken, not from photographs, but from reduced copies, made with the greatest care, of full-sized drawings, founded on rubbings of the stones.

CHEMICAL AND PHYSICAL TABLES.

Van Nostrand's Chemical Annual, 1907. Edited by Dr. J. C. Olsen. Pp. x+496. (London: A. Constable and Co., Ltd., 1907.) Price 12s. 6d. net.

CHEMICAL and physical tables required by various kinds of chemists have been collected in this annual. Among the ninety-three tables it contains are five-figure logarithms, constants of the elements, some very complete tables of factors and their logarithms for the calculation of gas, volumetric and gravimetric analyses, constants of fats, oils and waxes, the more important constants (molecular weight, specific gravity, melting point, boiling point, solubility, crystalline form and colour) of some 4000 inorganic and 5000 organic compounds, specific gravities of solutions, vapour pressure, conversion, and heat of combustion tables. The remainder of the book is taken up with classified lists of the chemical papers and books published since the beginning of 1905, and an index.

This matter forms a volume which has been much needed, and will be most useful to all chemists. No pains have been spared to make many of the tables accurate and comprehensive, as, for example, the above-mentioned data for some 9000 compounds. The classified list of chemical papers, on account of its conciseness, should, if kept complete, be quite useful even to those who have the fuller abstracts of the Chemical and American Chemical Societies; the list of books will be even more valuable.

Unfortunately, references have been given only in a few cases to the original observers of the data used in the annual. In future editions such references should be made more complete. The following quantities are not defined:—electrical conductivities, specific heat of gases (whether C_p or C_v), and the various "constants" and "values" for oils, fats and waxes. To give Reichert-Meissl values without definition when two sets of values are current is confusing. The table of gas densities is quoted, unfortunately, from Landolt-Börnstein-Meyerhoffer Tabellen, where the densities are calculated on certain assumptions (clearly wrong in the light of the work of D. Berthelot, P. Guye, Lord Rayleigh and others) instead of being the observed densities; further, the values found by E. Morley for hydrogen and oxygen in his classic work are not given.

While laborious determinations are being made to improve the second decimal place of atomic weights, there are scarcely any other physico-chemical constants known to anything like the accuracy which atomic

weights now have. The energies of many of the workers on atomic weights might now with great advantage be turned to improving the accuracy of many other constants. Boiling points are an example of this; scarcely any are known to 0.1° , and many current values for the same substance differ by whole degrees. The boiling points of organic substances in this book are from Beilstein, yet for five out of the six esters we have tried, the very careful determinations of Young and Thomas are not given.

We have detected few misprints; the logarithm of 2011 is incorrect. The value of the inch in millimetres is given to eight places, or to 10^{-9} cm.; this is less than the accepted value for the diameter of an atom, and the minimum length visible. The boiling point of helium is given as -267° ; we were not aware that it had been liquefied; Olszewski failed to do so by cooling it to a calculated temperature of -270° .

We know of no other tables of this kind in English which are so complete and so up to date as this annual. It is convenient in size, and clearly printed on good paper. The five-figure logarithms are the best arranged we have seen.

T. H. L.

A NEW TEXT-BOOK OF PSYCHOLOGY.

Elements of Psychology. By Dr. S. H. Mellone and Margaret Drummond. Pp. xvi+483. (Edinburgh and London: W. Blackwood and Sons, 1907.) Price 5s. net.

THIS book is the joint work of two authors who are evidently well acquainted with the needs of the examinee, as well as those of the more genuine student of the science of psychology. It is therefore not surprising to find in the preface the statement that the book is intended as "a contribution to the teaching of psychology." Every stone of offence is carefully removed from the learner's path. Even the usual order of treatment is altered for his benefit. After a few introductory chapters on the method and subject-matter of the science, the student is brought face to face with the most essential characteristic of consciousness, viz. mental activity, and in its most pronounced form—volition. Not until the emotions and pleasure-pain have been treated with like fulness and concreteness do the authors descend to the conventional sequence of sensation, perception, &c. This order is determined by relative difficulty of introspection, the prominent complexes of mental life being taken before their more abstract elements.

It will thus be seen that the introspection standpoint is avowedly adopted as the fundamental one. Although the objective conditions of consciousness are by no means neglected, no attempt is made to develop that objective and functional view of mental life which is so popular in certain quarters at the present day, and, to the present writer's mind at least, seems so full of promise. The standard authorities—Ward, James, Stout, &c.—are closely followed, and to such good purpose that the book forms an excellent introduction to the study of these authorities them-

selves. A notable feature is the list of detailed references inserted at the end of each section.

Altogether, the book will be found admirably suited for its purpose, viz. to serve as a general text-book for pass examinations in the subject at a university, and will probably earn a well-deserved popularity. One is tempted, however, to look for something more in a text-book on such a science as psychology. The science is a comparatively new one, with an ever-broadening outlook, and a text-book such as we have before us might well be expected to extend or at least define this outlook by discussion of the most recent experimental results attained by psychologists, where they appear to involve important modification of theory. Yet we look in vain for any reference to the important experiments of Drs. Head and Rivers on cutaneous sensibility, or, again, to those of Prof. Sherrington on the relation between the two eyes in their response to intermittent light stimulations. A treatment of the latter would probably have reminded the authors likewise to discuss the general problem of psychical fusion, over which they preserve a disappointing silence. These are two instances out of several that might be quoted.

Objection might also be made to the method of treatment of the general psychophysical relation in the chapter headed "Mind and Brain." A more concrete and detailed discussion would have given greater relevance to the suspense of judgment therein advocated, or might even have opened up the prospect of a reconciliation of interactionism and parallelism on metaphysical lines. Not even a beginner is likely to be satisfied with a crude "either—or" in this case.

The book should be valuable alike to teachers and students, as being a compact, sound, and thorough statement of current views in psychology. W. B.

OUR BOOK SHELF.

Die Physik Roger Bacos. By Sebastian Vogl. Pp. 106. (Erlangen: Junge und Sohn, 1906.)

In this dissertation, Dr. Vogl has collected a large number of interesting facts relating (i) to Roger Baco's, or, as we commonly say, Bacon's, biography, his education and his friends and colleagues; (ii) the literature of the Greeks, Romans, and Arabs, from which he derived his physical ideas; and (iii) his physical works. As the result of this study, Dr. Vogl has given us a typical insight into the state of science in the thirteenth century. Baco was born about the time that the Dominican and Franciscan orders were founded, and in these circumstances the position of a man who was far in advance of his times is not difficult to understand, especially in such an atmosphere as that of Oxford, where he remained until 1240.

As usually happens, Baco's claims to fame can hardly be said to be well understood even at the present time. Dr. Vogl considers that no great importance can be attached to his predictions of steam engines, flying machines, and other modern inventions, all of which only reproduce ideas current in Arabic and other writings. On the other hand, Dr. Vogl considers Baco has claims to be regarded as the founder of mathematical physics, and the large portion of the *opus majus* devoted to the uses of mathematics in science doubtless constitutes one of the most important advances with which Baco was associated. His physical writings dealt mainly with optical problems, and this

is scarcely to be wondered at, for geometrical optics is the simplest and at the same time the most perfect branch of applied mathematics. When we remember the great hostility and apathy which exist at the present time against mathematicians in England (as exemplified by a remark on p. 49 of *NATURE*, November 21, 1907, if this is to be taken seriously), we cannot wonder that in an age of religious superstition and ignorance Baco fared badly. Although seven hundred years have elapsed, the world has not yet realised the great extent to which ignorance of mathematics is responsible for human crime, poverty, and misery.

The Preservation of Infant Life. A Guide for Health Visitors. By Emilia Kanthack. Pp. iv+92. (London: H. K. Lewis, 136 Gower Street, W.C.) Price 1s. net.

THIS small book consists of six lectures which were delivered by Miss Kanthack to voluntary health visitors in St. Pancras. In the words of Dr. J. F. J. Sykes, the medical officer of health of that borough, who has written a short preface, it "may be strongly recommended to those who intend to undertake health visiting amongst the poor."

It would be difficult to conceive of the subject of the preservation of infant life being better presented to the class of audience to which Miss Kanthack had to address herself, and the lectures furnish evidence of a considerable study of her subject, together with a sound practical acquaintance with it. They will well serve as models for those who may have to address similarly constituted audiences, and they may be read with pleasure and profit alike, not only by every woman health visitor, but by every educated woman. The information is so happily expressed and tellingly presented that one lays down the book with the sincere wish that Miss Kanthack may give us more.

In her opinion, personal influence is the keynote of success in dealing with infantile mortality. She emphasises the fact that the baby is an entity long before it is born; therefore, to give it a good start the mother must be looked after during pregnancy. Speaking of the dangers of the artificial feeding of infants, she makes the following stricture:—"If one of the brute creation refused to suckle its young it would be thought a monstrous violation of nature, and yet a woman may evade this natural function and it arouses no comments."

Sanitation in Daily Life. By Ellen H. Richards. Pp. ix+82. (Boston: Whitcomb and Barrows, 1907.) Price 60 cents net.

It is now generally agreed that in every efficient school the pupils should receive instruction in the simple laws of personal hygiene and of public health. The short, bright chapters which this book contains on subjects like "the clean city," "the clean house," and "habits of cleanliness" should be of value to teachers, especially those in elementary schools, as indicating the possibility of explaining vitally important truths in a manner which can be understood by children. The illustrative experiments at the end of each section should be studied by teachers who give lessons on health.

Der neue Leitfaden. By L. M. de la Motte Tischbrock. Pp. x+126. (London: John Murray, 1907.) Price 2s. 6d.

A SATISFACTORY course for students—juvenile or adult—commencing the study of the German language is provided in this book. In addition to being grammatically and educationally sound, and of good literary quality, the volume contains many extracts on scientific subjects as exercises for reading and translation.