

Probleme der kosmischen Physik. Herausgegeben von Prof. Dr. Christian Jensen und Prof. Dr. Arnold Schwassmann. Band 7: *Der Massenaustausch in freier Luft und verwandte Erscheinungen.* Von Prof. Dr. Wilhelm Schmidt. Pp. viii + 118. (Hamburg-Altrahlstedt: Henri Grand, 1925.) 6 gold marks.

THIS useful little book summarises the literature of the last fifteen years or so relating to transport phenomena in the atmosphere (and also, as a natural extension of the same ideas, similar phenomena in the ocean). The transport of heat and momentum and water vapour by atmospheric eddies is of great importance in meteorology, though the fact has been recognised only in recent years (largely through the work of Prof. G. I. Taylor). The author has himself written widely on these problems.

Modern Physics.

Reflections on the Structure of the Atom. By Florence Langworthy. Pp. xi + 260. (London: Watts and Co., 1926.) 12s. 6d. net.

THIS volume, which covers a wide range, is concerned mainly with an atomic model in which the neutral atom of hydrogen is assumed to be built up of three "atoms of its isotope, ur-hydrogen," and three electrons. On this purely speculative foundation is raised an elaborate superstructure. "In my atom the double-positives (Alpha particles) are massed at the centre, and so I have the single positives free to unite with electrons and form planets that can be neutral, negative, or positive." The author is of opinion that a chemist will find the structure of her atom far more to his mind than that of the Bohr atom, which presents to the world outside negatives (electrons) only. The latter model she holds in scorn, going so far as to say that our knowledge of atomic structure "has been marking time all these years since the Rutherford atom became the Bohr atom"!

In the new wave-theory of matter associated with the name of Schrödinger, a material particle is regarded as a singularity in a wave, but to the author of the present volume even the wave-theory of light is anathema. "Those who have handicapped their intellectual faculties by believing in 'waves' are now engulfed thereby." She claims to be one of the few who have always believed in Newton's corpuscular theory of light. Whatever may be the final solution of the problem of reconciling the quantum theory and the undulatory theory, it will not be reached by turning a blind eye to one side of the questions at issue. Truth is great, and will prevail; but in our view the cause of knowledge will not be advanced by the speculations in this book.

A Numerical Drill Book on Physics. By Prof. L. W. Taylor. Pp. viii + 95. (Boston, New York and London: Ginn and Co., 1926.) 1 dollar.

THIS collection of problems in physics, which should prove useful to teachers, presents some novel features of interest. Nearly every problem is first formulated in algebraic terms; four independent sets of numerical data are provided for each example, these being chosen so as to cause the results to pass through maxima

and minima wherever possible; answers are given usually correct to four significant figures. The mathematical tables at the end of the book are clearly printed.

Chemistry and its Borders.

An Introduction to Chemistry. By C. G. Vernon. Pp. 276. (London: George Harrap and Co., 1926.) 4s. 6d.

MR. VERNON'S book is based on the application of the heuristic method. It proceeds from an account of the beginnings of chemistry, which is cryptically and incorrectly said (p. 177) to have been founded by Jabir, to the work of Dalton. The study of the oxides of nitrogen, 'muriatic' acid and the halogens, sulphur, etc., then follows, and by p. 179 the structure of the atom is attained. The rest of the book deals with practical work, and several interesting experiments are described. There are many excellent illustrations, including portraits of Boyle, Priestley, and Lavoisier.

Even those teachers who do not believe in the rather literary method of introduction to the science here adopted will find Mr. Vernon's book interesting and suggestive. The historical details appear to have been compiled from trustworthy sources, although the judgment passed (on p. 19) on the Alexandrian School is somewhat startling.

A Dictionary of Applied Chemistry. By Sir Edward Thorpe; assisted by eminent contributors. Vol. 6: S. Acid to Tetryl. Revised and enlarged edition. Pp. viii + 791. (London: Longmans, Green and Co., Ltd., 1926.) 60s. net.

THE characteristic features of the new volume of Thorpe's "Dictionary" are so similar to those of the preceding volumes that very little comment is possible. There has been a considerable expansion, from 572 to 791 pages, in the new edition, but this has been distributed with remarkable uniformity, and the reviewer has been unable to discover any striking novelties in the present volume, except that the 'article' on tetryl, which in the old edition was confined to the single word '= butyl,' now contains an account of an important auxiliary explosive. Articles on sodium, sulphur, sulphuric acid, synthetic drugs, and tartaric acid have been expanded considerably, but again mainly by interlining with new matter rather than by additions in bulk. It, therefore, only remains to express appreciation of the completion of what is presumably the penultimate volume of the "Dictionary."

Photochemical Reactions in Liquids and Gases: a General Discussion held by the Faraday Society, October 1925. Pp. 435-658. (London: Gurney and Jackson, 1926.) 15s. 6d. net.

WITH the natural growth of the experimental sciences, the gaps between physics and chemistry somewhat unexpectedly expand rather than contract. From time to time, however, from one side or the other, some new point of view is presented, and in a few years a large portion of this 'terra incognita' is explored and mapped out. In support of this thesis