

(9) Dr. Pring's "Laboratory Exercises" covers a rather narrow range of experiments in physical chemistry, but the book has the advantage that many of the experiments are well worth doing, and are not included in more conventional text-books. The use of Junker's gas calorimeter, the Mahler-Cook combustion bomb, and the Wanner pyrometer, together with experiments on the charge and discharge of an accumulator and on electrolytic oxidation and reduction, provide a course of real value both as an education in method and as a training in operations of great technical importance. Such a course affords a real inducement to a student to enter the Manchester laboratory, offering as it does exceptional opportunities for technical training on lines widely different from the ordinary course of work in physics or in physical chemistry. T. M. L.

OUR BOOKSHELF.

Prehistoric Thessaly: being some Account of Recent Excavations and Explorations in North-eastern Greece from Lake Kopais to the Borders of Macedonia. By A. J. B. Wace and M. S. Thompson. Pp. xvi+272+vi plates. (Cambridge: University Press, 1912.) Price 18s. net.

MESSRS. WACE AND THOMPSON have opened a new chapter in the history of early civilisation. They have shown that in northern Greece a Neolithic culture, with a peculiar geometric art of its own, held the field contemporaneously with the Bronze Age "Minoan" and "Ægean" culture of southern Greece until the latter had reached its final phase and was entering upon its decline. Bronze was not used by the prehistoric Thessalians until the "Third Late-Minoan Period" of the Ægean culture, when they finally accepted its use from the southerners, not earlier, probably, than *circa* 1300 B.C., and not very long before iron came into general use. This is a most revolutionary discovery, and its effect upon the supposed history of the development of the use of bronze in the rest of Europe cannot yet be gauged. M. Tsountas, the distinguished Greek archæologist, had already discovered important remains of the Neolithic Thessalian culture, with its remarkable polychrome geometric pottery, at Dimini and Sesklo, but he had failed to detect its remarkably late date. He placed it on the usual *a priori* grounds anterior to the Bronze Age Minoan civilisation merely because it was Neolithic. The discovery of Messrs. Wace and Thompson, for which they give chapter and verse in this book, is a much-needed rebuke to a *a priori* arguments in dating prehistoric antiquities.

I regret that considerations of space forbid me to say more of the book, which is a fine one. In it the authors have given us not merely a description of their own work, but a comprehensive monograph upon all the recent excavations in

northern Greece, including those of Tsountas and Sotiriadis, which have inaugurated this new knowledge of early European civilisation.

H. R. HALL.

Gem-stones and their Distinctive Characters. By Dr. G. F. Herbert Smith. Pp. xv+312. (London: Methuen and Co., Ltd., 1912.) Price 6s. net.

THIS compact and well-illustrated manual supplies a want which has long been felt. So many minerals have been found, in recent years, to furnish varieties characterised by brilliant colours, with exquisite transparency and lustre, that jewellers have now a much wider choice than formerly in making selections for their artistic productions. It is unfortunately true that the use of these new gem-stones is greatly hindered by popular prejudices in favour of the materials with an old-established reputation, but a work like the present is calculated to bring home, both to the artists in jewellery and the public served by them, the wealth of unexploited material at command for ornamental purposes.

The early chapters of the book, describing the characters of gem-stones and the methods of discriminating between different species, are characterised by simplicity, clearness, and accuracy. Among the chapters on technology, that which is perhaps of greatest interest deals with the *manufacture* of precious stones. The method by which true rubies are now regularly produced for the market is not only fully described, but is illustrated by a photograph of the apparatus actually employed. The author is, however, able to show what means are available for discriminating between the natural and the artificial gems, and he adds: "At the time the manufactured ruby was a novelty, it fetched as much as 6*l.* a carat, but as soon as it was discovered that it could easily be differentiated from the natural stone, a collapse took place, and the price fell abruptly to 3*s.*, and eventually to 5*s.* and even 1*s.* a carat. . . . The prices of the natural stones, which at first had fallen, have now risen to almost their former level." The wise caution is still insisted on, however, of *Caveat emptor*.

In the descriptive part of the book an attempt at classification of gem-stones is made, which will probably not meet with very general acceptance. The title of "precious-stones" is only allowed to the diamond, ruby, sapphire, and emerald. The large group of "semi-precious" stones includes (with the topaz, spinel, peridot, zircon, opal, &c.) many beautiful substances which up to the present have been little used. The remaining classes are the "ornamental stones" and the "organic products"—pearl, coral, and amber.

An important feature of the work is the number of illustrations given in it. Besides those in the text, there are thirty-three plates, three of which are in colour, giving a fair idea of the appearance of the gems in their natural and cut conditions.

J. W. J.