

*Ueber das Wesen der Mathematik.* Zweite Auflage. Von A. Voss. Leipzig, Teubner, 1913. iv + 123 pp.

THE high conception which this author has of the character and place of mathematics is shown by the following quotation from page two: "Unsere ganze gegenwärtige Kultur . . . ihre eigentliche Grundlage in den mathematischen Wissenschaften findet." Nevertheless he believes that mathematics is the most unpopular of the sciences. The reason for this he finds in the fact that the elementary (undergraduate) courses give so small a portion of mathematical doctrine, whereas in other sciences the college student is accustomed to make far greater headway into their more vital parts.

After a brief discussion (pages 1-3) of such matters as those just mentioned the author gives a short sketch (pages 3-24) of the development of mathematics from the earliest times to the present. This is followed by a discussion (pages 24-31) of pure mathematics as a science of numbers and (pages 31-81) of the mathematical ideas of the nineteenth century. The remainder of the text (pages 81-119) is given to a variety of topics such as applications, axioms, progress, objective value of mathematics and the reforms in mathematical instruction.

R. D. CARMICHAEL.

*Practical Mathematics.* By NORMAN M'LACHLAN. Longmans, Green and Company, 1913. vi + 184 pp., including answers, tables and index. Price 80 cents.

"THE aim of the book is to treat those plane and solid figures with which engineers are most familiar, in such a manner that a student may make calculations on the appliances he sees and uses in daily life."

The author does not attempt to secure this result by a mathematical development of the subject, but by giving the necessary definitions and formulas and applying them in detail to a large number of examples. Methods of calculation are given very fully, so that the student who has not had experience in the manipulation of formulas and trigonometrical tables can readily use the book. In fact, the arrangement is such that the majority of students can use the book successfully without an instructor. A text of this sort fills a present need. There are many night schools and classes for boys who work part time, where the pupils desire only to be able