

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

to use mathematics as a tool and do not care for the rigorous development of formulas. For such, this book is well suited in the subject matter it presents.

We find in this book the word "trapezium" used for a quadrilateral with two sides parallel and the other two not. This follows continental rather than English usage. The encyclopedias and dictionaries do not agree in their definitions of the terms "trapezium" and "trapezoid." A uniform usage of the terms applied to the plane figures seems desirable.

The author of the book should be criticized for his selection of a title. The book has to do with practical problem solving and is not a mathematical development of the subject. Mathematics means more than substitution in formulas.

T. E. MASON.

Elementarmathematik vom höheren Standpunkte aus. Teil II: *Geometrie.* By F. KLEIN. Second edition. Leipzig, Teubner, 1913. viii + 547 pp.

In this new edition, the text of the first edition* is reproduced with some minor changes, the literature references are brought up to date, and notes (pages 531-546) have been added on the following subjects: models illustrating affine transformations, the relation of Grassmann's geometrical conceptions to the theory of invariants, the foundations of geometry, and recent developments in the teaching of geometry.

T. H. GRONWALL.

Elementare Algebra. Akademische Vorlesungen für Studierende der ersten Semester. By EUGEN NETTO. Second edition. Leipzig, Teubner, 1913. x + 200 pp.

In this new edition, some misprints in the first edition† have been corrected, and there are also some slight changes in the wording of various propositions.

T. H. GRONWALL.

Einführung in die Vektoranalysis mit Anwendungen auf die mathematische Physik. By RICHARD GANS. Third edition. Leipzig, Teubner, 1913. x + 131 pp.

To the second edition‡ of this well-known text a chapter

* Reviewed by J. W. Young in BULLETIN, vol. 16 (1909-10), pp. 254-265.

† Reviewed by J. H. Tanner in BULLETIN, vol. 11 (1904-05), pp. 441-442.

‡ Reviewed by H. B. Phillips in BULLETIN, vol. 17 (1910-11), pp. 100-104.