

## SHORTER NOTICES.

*Mathematische Spiele.* By W. AHRENS. Third edition. [Aus Natur und Geisteswelt, No. 170.] Teubner, Leipzig and Berlin, 1916. vi + 114 pp.

THE principal new matter introduced in preparing the third edition of this booklet consists of an additional section (Magische Quadrate auf Amuletten) in the chapter on magic squares and the enlargement of the chapter on mathematical fallacies, the latter having been increased from seventeen to twenty-eight pages. To make room for this without increasing the size of the book, the whole of Chapter IV of the second edition (on Wanderungsspiele) has been omitted and also the following parts of chapters: Chapter II, §4 (Das Puzzle mit Schranken); Chapter V, §1 in part (on the number of one's ancestors); Chapter VII, §4 (Eine andere Ankleidung des Spiels Nim). Otherwise only slight changes have been made. The modifications result in increasing the interest of the booklet.

R. D. CARMICHAEL.

*Tratado Elemental de Goniometria.* Por J. DE MENDIZABAL TAMBORREL. Second edition. Mexico, Departamento de Talleres Graficos de la Secretaria de Fomento, 1917. 209 pp.

THIS textbook contains an elementary treatment of the theory and applications of the trigonometric functions. It does not correspond closely with any of the usual textbooks on this subject as we know them in this country, the difference arising primarily from the fact that the author is willing to use freely the elementary methods of the differential calculus whenever the occasion suggests it. The first of the three parts of the book is devoted to a study of the trigonometric functions; the second and third parts, to applications involving plane triangles and spherical triangles respectively. The exposition is usually suited to the needs of a learner at the stage of his development generally found among our sophomores. The book is sometimes to be criticized for lack of rigor or completeness in the proofs. A glaring instance of this sort of defect is that afforded by the derivation of the usual infinite products for  $\sin u$  and  $\cos u$  on pages 86 and 87.

R. D. CARMICHAEL.