

treated are fewer in number and the whole method of discussion is radically different. At most universities of France a course in mathématiques générales is offered for students of physics, chemistry and engineering. Algebra, analytical geometry, analysis, and mechanics are here developed.* Largely as a preparation for such courses and to fill up lacunæ in connection with them, M. Sainte-Laguë's book was written. While rigor of presentation is not neglected, details in proofs are not always dwelt upon and practical applications of the various subjects are emphasized.

To contrast with Tannery, the first section (pages 1-81) treats of arithmetic; the next section (pages 82-202) of algebra, including derivatives; plane trigonometry, pages 203-234; under geometry (pages 235-399) the sub-headings are: lines and planes, parallels, spherical geometry, metrical relations, lengths, areas and volumes ("formule de Tchebitcheff" is used on page 347 and page 502 but this spelling is not sanctioned by either Cantor or *Bibliotheca Mathematica*), graphic constructions, descriptive geometry, methods in geometry; kinematics, pages 399-416.

At the end of every section are references to 500 exercises for solution (pages 417-470). These are mostly numerical and letters *A*, *B*, *C* indicate the degree of their difficulty. Then follow various numerical tables including one of logarithms (four place), formulas, etc. The whole concludes with an admirable "index alphabétique" as well as "table des matières" (pages 503-512).

Anyone somewhat familiar with the French educational system will find this volume of interest. In connection with both the theory and the problems there is suggestive material for early undergraduate college teaching.

R. C. ARCHIBALD.

Encyklopädie der Elementar-Mathematik. Angewandte Elementar-Mathematik. Zweiter Teil. Dritter Band. Zweite Auflage. Von HEINRICH WEBER und JOSEF WELLSTEIN. Leipzig und Berlin, Teubner, 1912. xiv+671 pp. 14 Marks.

* A representative treatment of the subject is given in E. Fabry's *Traité de Mathématiques générales*, 2e éd., Paris, 1911, and the key to the problems, *Problèmes et Exercices de Mathématiques générales*, Paris, 1910. The first editions of these books have been reviewed in the *BULLETIN*, vol. 15 (1909), pp. 395-399 and vol. 17 (1911), p. 320.