

SHORTER NOTICES

Cours de Mathématiques Générales (Analyse et Géométrie). By R. Garnier.
Tome I: Calcul Différentiel. Géométrie. Paris, Gauthier-Villars, 1930.
11+463 pp.

The French courses in *mathématiques générales* and *mathématiques spéciales* are designed to fill in the gap between the *Lycée* and the university. The former, offered in the university, is intended mainly for students of physics and chemistry who wish a practical technical knowledge of mathematics through advanced calculus. The emphasis is more on analysis than geometry.

The first eight chapters of the book under review are devoted to a classical exposition of differential calculus. The theory of infinite series, including calculations with expansions limited to a few terms, is given a much larger place in the exposition than is usual in American texts. The exponential function is introduced as a solution of the functional equation $f(x+y) = f(x)f(y)$. Again, the power series development of $y = (1+x)^\alpha$ is obtained as a particular solution of the differential equation $(1+x)y' = \alpha y$. Also the magnitude of the error committed in using Newton's method for computing the roots of an equation is discussed with unusual completeness.

The last three chapters deal with analytic geometry and elementary differential geometry. Vector analysis is used wherever feasible. The volume ends with the theorem of Meusnier and a discussion of the indicatrix of Dupin.

The reviewer noted only five slight typographical errors, on pages 181, 182, 221, 346, 447, which, however, do not rob the context of its significance. The style is clear. Some of the more abstract theorems are not proved, but references are made explicitly to Goursat, *Cours d'Analyse*. The large number of figures (172) should prove helpful to the student. The book is well written; possibly a good index, such as may be found in Vessiot et Montel, *Cours de Mathématiques Générales*, would be an improvement.

W. E. BYRNE

Leçons de Géométrie Projective. By F. Enriques. Translated from the fourth Italian edition by P. Laberence. Paris, Gauthier-Villars, 1930. 430 pp.

The German translation of this well known book was reviewed in this Bulletin by Snyder (vol. 10, 1904, p. 355), who called attention to the omission of any treatment of the ruled quadric surface. The French translation under review has an added Chapter XIV on ruled quadric surfaces and twisted cubic curves; and the former Chapter XIV has now become Chapter XV, with two added paragraphs on projective twisted cubics and elliptic biaxial homographies. Except for these additions, the book is a close translation of the earlier Italian and the German editions. Whether the added Chapter XIV was contained in the later Italian editions or appears for the first time in this French translation the reviewer is unable to say, as he has no convenient access to a copy of the fourth Italian edition.

W. B. CARVER