Exercices de Géométrie analytique. Par P. AUBERT and G. PAPELIER. Tome Premier. Paris, Libraire Vuibert. 360 pp.

IN this book are given 451 exercises on analytic geometry divided among the following fields: the straight line, 94 exercises; the circle, 69 exercises; parametric equations, 46 exercises; classification of conics, 55 exercises; the general equation of the conic, 31 exercises; centers and diameters of conics, 34 exercises; the general properties of conics, 91 exercises; polar coordinates, 31 exercises. Many of the exercises are accompanied by a figure and about one half of them are solved. In several cases more than one solution is given, so as to illustrate different methods of approaching the same problem. The authors have assumed the student to be familiar with harmonic properties, projective transformations, and similar topics which are given in the United States in a second course in analytics. Homogeneous coordinates are not used, and thus many of the problems are solved by rather tedious methods. In our American colleges the book could be used to good advantage in a second course in analytics in conjunction with such a book as Salmon's Conic Sections. The problems are of too difficult a nature for a first course as given in our institutions.

F. M. MORGAN.

Orders of Infinity. The "Infinitärcalcül" of Paul Du Bois-Reymond. By G. H. HARDY. Cambridge University Press, 1910. viii + 62 pp.

MANY problems of mathematical analysis are adequately treated by consideration of the fact that a function does or does not approach a limit, where we may understand the notion of a limit to include the real infinity, with or without sign, and the complex infinity. Other questions, however, demand more refined investigations,—on the one hand when a limit exists and an estimate is necessary of the rapidity of approach to the limit; on the other hand when no limit exists and some notion of the behavior of the function is still requisite. As early as 1821, Cauchy recognized the usefulness of such considerations in his accurate definition of la plus grande des limites and la plus petite des limites,—today more commonly known as superior and inferior limits.