Vorlesungen über Darstellende Geometrie. By Dr. Emil Müller. II. Band: *Die Zyklographie.* Edited from the manuscript by Dr. Josef Leopold Krames. Leipzig and Vienna, Franz Deuticke, 1929. ix+476 pp.

The third edition of the second volume of Dr. Müller's text and the first volume of his lectures were reviewed by the present reviewer in this Bulletin in 1923 (vol. 29, pp. 478–479). The first volume of the lectures was in the name of Dr. Müller and Dr. Erwin Kruppa.

Dr. Krames states in the introduction that the late Dr. Müller entrusted to him the editing of the manuscript for this second volume, only part of which was then in form for publication.

This book contains a more extensive use of the orientation of circles than had previously been made by Fiedler. In fact, the authors' fundamental operations are with orientated circles, (Zykeln), orientated straight lines (Speeren), and orientated curves (Richtungskurven). Their use of these terms is in harmony with that of Ed. Laguerre.

The ten chapters deal with the "zyklographic" representation of points, straight lines, planes, curves, and nets of curves, and surfaces and with contact transformations, etc. Special attention is directed to the chapter on "*C*-Geometrie" (parabolic pseudo geometry).

We are endebted to Dr. Krames for his skill in editing this unfinished manuscript—the last contribution of a talented and industrious worker in the field of descriptive geometry.

E. B. COWLEY

Repertorium der Höheren Mathematik. By E. Pascal. Second edition: first volume, *Analysis*; second section. Edited by E. Salkowski. Leipzig, B. G. Teubner, 1927. Pp. v–xii and 529–1023.

Parts of the second edition of the Pascal Repertorium have been reviewed, upon their appearance, in this Bulletin, and the outstanding features of the work have been fully discussed. It is therefore unnecessary to make very detailed comments on the present section. Reference is made to the Bulletin: vol. 19, pp. 372–374, and vol. 29, p. 373.

Approximately two-thirds of this second section of the first volume is devoted to the theory of analytic functions in its classical ramifications, and a good exposition is given of both the Weierstrassian and Riemannian points of view. A relatively large portion of the space thus reserved for function theory is assigned to the automorphic functions and the elliptic modular functions. The remainder of the book offers a brief treatment of fundamental concepts and methods in (1) the theory of differential and difference equations, and that of differential forms, (2) the theory of continuous transformation groups, and of contact transformations, and (3) the calculus of variations. Contributors to the section are: A. Guldberg of Oslo, Ernesto Pascal of Naples, F. Engel of Giessen, Hans Hahn of Vienna, Gustav Doetsch of Stuttgart, E. Jahnke and A. Barneck of Berlin, H. W. E. Jung of Halle, and R. Fricke of Braunschweig.

In conformity with the general plan of the undertaking, the present section, like its predecessors in the second edition, attains a definitely