

*Funktionentheoretische Vorlesungen.* By H. Burkhardt. Berlin, Vereinigung Wissenschaftlicher Verleger. Band 1. Heft 1. *Algebraische Analysis*. Dritte umgearbeitete Auflage, besorgt von G. Faber, 1920. 10 + 182 pp. Band 1. Heft 2. *Einführung in die Theorie der Analytischen Funktionen einer Komplexen Veränderlichen*. Fünfte umgearbeitete Auflage, besorgt von G. Faber. 1921. 10 + 286 pp.

The first edition of this excellent and well known elementary treatment of function theory appeared in 1897. Since then it has appeared in three further editions, in 1903, 1907, and 1912 respectively, under the revision of the author. The latter died in 1914. This fifth edition of the second section and the third edition of the first section have been issued under the direction of Dr. G. Faber who succeeded Burkhardt at the Technische Hochschule in Munich. The first edition of Heft 2 was carefully reviewed by M. Bôcher in this BULLETIN, vol. 5 (1898-99), pp. 181-185. The second edition of Heft 2, together with the first edition of 1, was reviewed by L. E. Dickson in this BULLETIN, vol. 10 (1903-04), pp. 317-321. The third and fourth editions present no essential changes. It is to be noted that S. E. Rasor has provided a good English translation of the fourth edition and has supplied splendid sets of problems to accompany each chapter. The translation is published by D. C. Heath and Co.

In the present edition no fundamental changes appear, and the method and spirit of Burkhardt have been retained by Faber. Whatever slight changes have been made are in the interest of clarity and simplicity. These two books should continue to furnish an excellent introduction to the theory of functions, both real and complex.

H. J. ETTLINGER

*Géométrie Perspective.* By M. Emanaüd. Paris, Octave Doin, 1921. xv + 432 pp.

The Encyclopédie Scientifique published under the direction of Dr. Toulouse contains as a sub-class the Bibliothèque de Mathématiques Appliquées edited by M. d'Ocagne of nomographic fame. The volume under review belongs to this series and has been written by M. Emanaüd, the chief of graphic courses at the École polytechnique. In an introduction of 39 pages the author gives a brief account of the properties of collineations in two and three dimensions with special reference to their applications in perspective constructions. This is a very commendable feature of the book. In fact, a scientific base of this sort is indispensable for a successful and up-to-date course in perspective. When years ago the reviewer was teaching artistic perspective at the cantonal technicum in Biel, Switzerland, he followed the same method.

M. Emanaüd's book is very ably written. It covers the usual topics in perspective. Of particular interest are the chapters on perspective in art, on theatrical perspective, and on the construction of dioramas and panoramas. The only serious criticism which the reviewer has to make pertains to the figures, which are very poorly drawn and lettered.

A. EMCH