

and the geometric meaning of each. Duality includes the null system, with linear systems of linear line complexes, and the tetrahedral complex.

The last chapter of the book is devoted to a discussion of the foundations of projective geometry from the axiomatic standpoint; it includes postulation, numerical spaces, ordinal relations, harmonic groups, equivalence and the postulate of Archimedes.

This is followed by a development of projective coordinates of imaginary elements, with particular emphasis on the invariance of cross ratios.

The book is excellently printed with black type on thin opaque paper, is practically free from typographical errors, and is provided with a subject index and a list of authors. It provides an adequate and dependable preparation for work in algebraic geometry.

VIRGIL SNYDER

*Georg Cantor.* By A. Fraenkel. Leipzig, B. G. Teubner, 1930. 78 pp.

In view of present day interest in the foundations of mathematics, this pamphlet is a timely publication. The major portion is naturally devoted to a sketch of Cantor's life and personality, and a full discussion of his development as a mathematician. As might be expected, these are inextricably mingled. Although the *Mengenlehre* holds the center of the stage, some of Cantor's other activities are of no less interest to the reader,—for example, his concern with the Bacon-Shakespeare controversy.

The latter part of the pamphlet is concerned with an outline of Cantor's publications and ends with a bibliography. It is of interest to learn of his contributions to the theory of numbers and the theory of trigonometric series, and instructive to see how these led to the theory of aggregates. It is in precisely such respects that a work of this kind is of value, providing the student with a background that gives a richer knowledge of the subject.

W. A. WILSON

*Cours de Mécanique.* By Paul Painlevé and Charles Platrier. Paris, Gauthier-Villars, 1929. iv+644 pp.

This book is a printed version of lectures given by C. Platrier (substituting for P. Painlevé) to second-year students at the École Polytechnique. The main topics discussed are Rigid Dynamics, Hydrodynamics, Elasticity, Aerodynamics, Theory of Relativity. The point of view is quite modern and the treatment is very satisfactory. The discussion of the gyroscope is about the best we have seen in a general treatise as is also that on wave-propagation. The discussion of tensor analysis is adequate for a student who is not desirous of being a specialist in this subject. The only criticism that one could fairly make of the work is its very academic character; a book containing several chapters on aerodynamics which does not mention Prandtl's name cannot appeal strongly to the practical man of affairs. Nevertheless the book is a valuable addition to Appell's renowned treatise on Mechanics, which book it (together with Painlevé's *Cours de Mécanique*, Tome I) replaces to a certain extent.

F. D. MURNAGHAN