scheme may be regarded as analogous to the modern method of infinitesimals when founded upon the doctrine of limits. There is a normal and systematic procedure, although tedious and laborious, for converting the mechanical proofs into exhaustion proofs. Therefore Archimedes may be regarded as having taken the decisive step in founding a method which in essential respects is that of the integral calculus. If he had been like many modern mathematicians, he would have omitted the exhaustion proofs altogether, but would have added to each of his mechanical proofs a set phrase like this: "It is easy to see that an exhaustion proof may be constructed in the usual manner. This is left as an exercise for the reader."

CHARLES S. SLICHTER.

SHORTER NOTICES.

Mehrdimensionale Geometrie, II Teil, *Die Polytope*. Von PROFESSOR DR. P. H. SCHOUTE. Leipzig, G. J. Göschen (Sammlung Schubert XXXVI). 1905. ix + 326 pp.

THE second (and final) volume of this work, like the first, is worthy to be associated with the other excellent books of the Schubert collection. Comparatively little of the subject matter is new, but a large number of interesting and useful results have been gathered together in a convenient form. The entire volume is devoted to the treatment of the polytop, which the author defines, for space of n dimensions, as any portion of that space enclosed in any manner whatever. The first 262 pages treat the linear polytop, *i. e.*, one bounded by flat spreads of $n-1$ dimensions (R_{n-1}'s); while the remaining 64 pages are concerned with the hypersphere, cone, cylinder, and rotation spread.

Under the heading "Topologische Einleitung," the first section treats (among other things) the simplex, and its various sections and projections; the question of a general classification of polytops; the definition of hyper-pyramids and prisms and the n-dimensional analogues of other special polyhedra, such as the truncated pyramid and prism, the frustums, etc.; and finally discusses the Euler law and its n-dimensional extension. In this treatment of the Euler law, thirteen pages are devoted to the well-known three-dimensional case, four different methods