*Lessen over de Hoogere Algebra.* Vol. I. By Fred. Schuh. Groningen, P. Noordhof, 1920. xx + 526 pp.

This work, which is to be complete in two volumes, was planned to be a ninth edition of Lobatto's *Higher Algebra* and on its title page is being announced as such. But although designed at its inception to be simply a revision of the eighth edition of Lobatto, the changes and additions which have arisen are so numerous as to warrant the appearance of these volumes as texts by Dr. Schuh himself. Very little has been taken bodily from Lobatto's text, the material taken over unchanged being primarily the examples and exercises used; but even with respect to these much new material has been added. These additions have so enlarged the work as to necessitate its publication in two volumes.

In volume I, the new material includes the treatment of theory of linear transformations and quadratic forms and the closely allied characteristic equation, called by Dr. Schuh the "secular equation" or "$S$-equation." To compensate for the quantity of additional material, there has been eliminated from the Lobatto text the treatment of permutations and combinations as they relate to the binomial theorem and to powers of polynomials, the reader being referred for these subjects to the secondary algebra published by Dr. Schuh in collaboration with P. Wydenes, which publication is to be considered as the connecting link between Wydenes' *Elementary Algebra* and the present two volumes of Dr. Schuh. Following the chapters dealing with determinants, linear equations and transformations, quadratic forms, simple properties of polynomials in $x$, are chapters in which D'Alembert's, Rolle's, Des Cartes' Budan-Fourier's and Sturm's theorems and their applications are treated in full. The concluding chapter treats the characteristic equation. The work is replete with examples, there being 815 in this first volume. The text is an admirable one suited to an advanced undergraduate course in college algebra.

J. N. VAN DER VRIES

*Encyklopädie der Mathematischen Wissenschaften.* Volume II, Part II. Edited by H. Burkhardt, W. Wirtinger, R. Fricke, and E. Hilb. Leipzig, B. G. Teubner, 1901–1921. xv + 897 pages.

This part of the German encyclopedia of mathematics contains articles by Osgood on the general theory of analytic functions of one and of several complex variables, by Wirtinger on algebraic functions and their integrals, by Fricke on elliptic functions and on automorphic functions including elliptic modular functions, by Hilb on linear differential equations in the complex domain and on non-linear differential equations, by Krazer and Wirtinger on Abelian functions and general theta functions. The first article was completed in 1901 and the last in 1920. The authors, editors, and publishers are to be congratulated on the completion of this part of the encyclopedia. It will be of the greatest service to the students of analysis. Indeed, the earlier articles have been in use for many years. Americans are proud that the article on analytic functions is written by a noted American mathematician who has contributed so much to the field.

A. D. PITCHER