Advanced Algebra for Colleges and Schools. By W. J. MILNE. Pp. 608. 1903. (American Book Co.)

This is a complete course beginning with easy problems soluble by the simplest of simple equations, and concluding with chapters on graphs of functions and the elementary theory of equations. It covers the same ground as the larger Hall and Knight or Smith, but the general impression given to the reader is that the chapters which form the "advanced" part of the book are rather sketchy, though as far as they go they are clear. Continued Fractions, Probabilities, and Permutations, etc., for example, occupy but twelve pages each, mainly of widely spaced type, and Theory of Numbers only nine. The space devoted to what follows the Binomial Theorem fills less than a third of the book. Graphs are not introduced at all in the elementary part of the work. The book is beautifully printed and got up, and the general treatment within the narrow limits, which are perhaps determined by the circumstances of the secondary schools of America, is clear and satisfactory.

Vorlesungen über Algebra. By Dr. GUSTAV BAUER. Pp. iv. and 375, 1903. (Teubner.)

This volume is published as a tribute to Professor Bauer on the occasion of his attaining his 80th birthday, by his friends of the Mathematical Society of Munich, etc. It consists of four chapters devoted to the general properties of equations and their solution. The last chapter deals with the theory of Determinants and their application to quadratic and bilinear forms. About twelve pages are given to the Galois theory.

Mathematischer Bücherschatz. Compiled by E. WÖLFFING. Vol. I. Pure Mathematics. Pp. xxxvi. and 416. 1903. (Teubner.)

This bibliographical dictionary, of all the mathematical text-books and monographs of importance in pure mathematics issued during the nineteenth century, will be found a valuable addition to the mathematical library. A useful critical introduction deals with previous bibliographies, catalogues, synopses, etc. The sections divide the whole subject in such detail that the list of books on any portion of the subject may be found in a few moments. With the name of each book is given the name of the publisher, the date of appearance, and the price. The English prices are sometimes given in marks and at other times in shillings, not that it matters much. We have tested the book pretty carefully and find it exhaustive and accurate—astonishingly so—considering the various languages, and the enormous number of books recorded. From the list of errata, the greatest difficulty seems to have been the initials of authors. We can add one to the list—R. H. for K. H. Graham. In the title of Russell's *Foundations of Geometry*, p. 186, for *Russel* read *Russell* and for *essai* read *essay*. Wolstenholme's collection of problems is omitted, though Laisant's is included. Under Hearn, G. W., p. 286, for the *2 corder* read *2nd order*. Under Heath, same page, for *Appollonius* read *Apollonius*. The list of authors fills over thirty pages of three columns. Dr. Wölffing is to be congratulated on having so successfully coped with this mass of material, and we look forward with pleasure to the second volume on Applied Mathematics, which may appeal to an even larger sections of the community than the first. We should add that where a work—Salmon's *Conics*, for example—has been translated into other languages, full particulars are given.

De l'Expérience en Géométrie. By C. DE FREYCINET. Pp. 178. 4 frs. 1903. (Gauthier-Villars.)

M. de Freycinet can find no *a priori* reasons for our geometrical concepts. The very name, Geometry, exhibits in a marked degree the manner in which those conceptions were first manifested. Buildings could not be erected, ground could not be measured, until the existence of rudimentary ideas about lines, angles, and areas. These ideas eventually found their finest expression in architecture. Indeed, it has been said that whatever genius a race has for pure geometry is invariably betrayed in the style of architecture it affects. Our concepts of the straight line, of space, of volume, tangency, etc., are all derived