inspection. An examination of the bibliography in Ahrens's Mathematische Unterhaltungen und Spiele, to take a relatively unimportant case, shows how weak is § 313, Mathematische· Belustigungen.

The misprints are too numerous to consider, except as types. T. L. Heath appears as R. D. Heath, author of a life of Appollonius, with no mention of his other works. McCormack's translation of Schubert, published at 75 cents, is assigned to MacCormack and the price is given as $3.75. Professor John Dewey appears as A. Dewey, Professor Cajori as Cajory, a good English Euclid as Euclide, H. N. Robinson as H. or N. H. Robinson, and G. A. Wentworth as G. H. Wentworth. Arithmetic appears as arithmetics, "another" as "an other" (page 192), and McLellan as MacLellan (page 8), and the many other errors of this kind in English show that similar ones may be expected in other languages. The same carelessness is seen in the index and the cross references, there being no mention of Lagrange (as indexed) on page 139, the Braunmühl cross reference (page 1) 188 being an error for 181, and the reference to page 357 in the Inhaltsverzeichnis being an error for 358.

Since a definite basis of classification, a careful selection of material, and a minimum of typographical errors are essential if a work of this kind is to be recognized, there can be but one opinion of this attempt of Professor Wölffing, that it will take no rank as an authority in the field of mathematical bibliography.

DAVID EUGENE SMITH.

Elemente der Vektor-Analysis. Von A. H. BUCHERER. Leipzig, B. G. Teubner, 1903. vi + 91 pp.

VECTOR analysis has been attracting to itself each year more and more attention in Germany. Up to the present year no account of the subject had been published in separate form except the bulky classics little suited to the actual needs of the practical physicist. Dr. Bucherer has supplied the deficiency admirably so far as he goes. It is only natural to compare the book with the very similar introductory chapter of Professor Föppl's Einführung in die Maxwell'sche Theorie der Elektricität (1894). In fact the two presentations of vector analysis cover the same number of pages and where Bucherer surpasses in quantity Föppl excels in clearness.

The subjects treated are as usual : scalar and vector products ; differentiation with respect to a scalar d/dt and with respect to