The book, as a whole, commends itself for its simplicity of presentation. The treatment of the logarithm is a doubtful pedagogical expedient but there is no lax rigor about it. The responsibility is shifted to the numerical calculation of logarithms, just as was done in Olney's Calculus over thirty years ago.* A student who has had elementary training in algebra and trigonometry can read the book without difficulty and, in the main, it presents enough of the calculus and its applications to serve that body of students of which we have spoken at the beginning. But it does not represent what we, in America, have come to consider as a first course in the calculus.

L. WAYLAND DOWLING.

Vorlesungen über die Weierstrasssche Theorie der irrationalen Zahlen. Von VICTOR VON DANTSCHER. Leipzig und Berlin, Teubner, 1908. vi + 79 pp.

IN the preface we are told that these lectures are based upon a course given by Weierstrass in the summer semester of 1872, which was followed by the author of the present volume, and upon an elaboration of a later course given in 1884. The work under review is, however, not a mere reproduction of things given by Weierstrass, but it is the direct outcome of a course given repeatedly at the University of Gratz by Professor von Dantscher. It furnishes an easy and clear introduction to that theory of irrational numbers which was first developed by Weierstrass in his lectures at the University of Berlin, and it has decided pedagogic as well as scientific value.

C. Méray was the first to give a purely arithmetic meaning to the term irrational number,† and the theories developed by him, G. Cantor, Heine, and Dedekind have perhaps become better known than the theory of Weierstrass. This may be partly due to the fact that no expository publication relating to this theory was ever prepared under the direction of Weierstrass, and only the fundamental elements of this theory have been accessible in the works of Kossak, Pincherle, Biermann, and others. The first of these was based upon a course of lectures given by Weierstrass during the winter semester of 1865–6, and it was published in 1872 under the title "Die Elemente

* It should be stated that Olney sought only to avoid infinite series. The Watson proof of the rule for differentiating the logarithm tacitly assumes that $dx^n/dx = nx^{n-1}$ holds for all real values of n.

† Encyclopédie des Sciences mathématiques, tome I, vol. 1, p. 149.