SHORTER NOTICES.

Corso de Analyse Infinitesimal. F. GOMES TEIXEIRA. 3 vols., 8vo. Porto, 1892–96.

WHILE perusing the present book it was a constant source of regret to me that Portuguese is not better known in our country. Otherwise this admirable work on the calculus would enjoy widespread popularity among us. Its author, the distinguished director of the Academia Polytechnica at Porto, has been uniformly successful in the difficult task of selecting from the immense material available. The manner of presentation leaves nothing to be desired. The style is lucid and elegant, and the whole work bears in a refreshing manner the imprint of an original mind. In many places the author has incorporated parts of his own prolific and valuable writing on the subject. In regard to rigor, it seems to us that Professor Teixeira has very happily chosen the golden mean. The excessive rigor of a Weierstrassian has been wisely avoided; at the same time the author has given this matter due attention. An occasional slip will doubtless be corrected in later editions. Altogether the work has so favorably impressed us that we should prefer to see it translated into English rather than any other work on the subject we know of. It is a deplorable confession that the English language does not to-day possess a work on the calculus of this class. We indicate very briefly its contents.

Differential Calculus, pp. 383.—The first hundred pages are devoted to a careful exposition of the fundamental notions and processes of analysis; numbers, limits, infinite series and products, continued fractions, continuity. At page 112 the differential calculus proper begins. We touch only on one or two matters. Th esubject of implicit functions, ordinarily treated so carelessly, is given here with rigor and elegance. In this connection the elementary properties of functional determinants are given. The exact form of higher derivatives is given with more than usual fullness. Application is made to Bernoulli's numbers and formulæ of Waring. The treatment of maxima and minima of functions of two variables is incorrect. The error which the writer of these lines criticised in the BULLETIN of July, 1898, has also been made in this place. After the usual application of Taylor's series to geometry follows an interesting chapter on functions defined by series.