WHITTAKER'S MODERN ANALYSIS.

A Course of Modern Analysis. By E. T. WHITTAKER. Cambridge, England, University Press, 1902. xvi + 378 pp.

This book, as the subtitle explains, is intended as "an introduction to the general theory of infinite series and of analytic functions; with an account of the principal transcendental functions." There is certainly room for a book of this sort, especially as the transcendental functions treated are of the most varied kinds, including the gamma function, hypergeometric functions with the special and limiting cases of Legendre's and Bessel's functions, as well as elliptic functions, both Weierstrass's and Jacobi's normal forms being treated in detail. Somewhat more than half the book is devoted to an account of these functions. Part I, which to some extent may be regarded as introductory to this second part, is designed, to use the author's own words, to contain "an account of those methods and processes of higher mathematical analysis which seem to be of greatest importance at the present time." There is so much of interest and importance in these chapters, parts of which can be found nowhere else in the English language, that it may seem ungracious to criticise the choice of material which has commended itself to the author. There are, however, one or two matters of fundamental importance whose omission it is hard to justify. The subject of series, which claims the lion's share, forms only one of several infinite processes which occur constantly in analysis and which are, in fact, freely employed in the latter part of the book, though usually without justification except in the case of series. As an illustration of what is meant, attention may be called to the treatment of infinite products. Four pages are devoted to the question of the convergence and absolute convergence of such products, but the conception of their uniform convergence is not touched upon. Or again, to come to a matter of still greater importance, the distinction between finite and infinite definite integrals * is not

* I follow T. J. I'A. Bromwich (*Proc. London Math. Soc.* Ser. 2, vol. 1, p. 176 where reference to G. H. Hardy is made) in translating the German terms *eigentliches Integral* and *uneigentliches Integral* by *finite integral* and *infinite integral* respectively. The terms *proper* and *improper* integrals, which have sometimes been used, although they come nearer to the German, do not seem