equation. In addition to these, as has been mentioned above, there are discussions of error analysis, and finally applications to statistics and non-linear problems.

The young student will find the very numerous and extremely detailed illustrations helpful and he should profit from the carefully selected problems and list of references to the literature.

                                                    H. H. GOLDSTINE

Moderna teoria delle funzioni di variabile reale. By G. Vitali and G. Sansone. Part II. *Sviluppi in serie di funzioni ortogonali.* By G. Sansone. (Consiglio Nazionale delle Ricerche. Monografie di Matematica Applicata.) 3d ed. Bologna, Zanichelli, 1952. 7+614 pp. 7000 lire.

The first edition of this treatise was reviewed in vol. 45 (1939) p. 218 and the second edition in vol. 58 (1947) p. 736 of this BULLETIN. The fact that the second edition was exhausted in less than three years is as good a proof of the excellence of the book as could be desired. The new edition is 103 pages longer than the second one. This is partly due to a change of the format and the addition of a number of figures.

Various additions have been made in chapter II: a discussion of the Gibbs phenomenon, bounds for the partial sums of Fourier series of functions of bounded variation, and applications of Fourier series to the stationary state of temperature in an infinite semi-strip and to the isoperimetric problem. A number of additions have been made in chapter IV: expansions in Tchebychef-Laguerre and Tchebychef-Hermite series, discussion of the zeros of Hermite and Laguerre polynomials, their asymptotic behavior for large n, and the applications of these estimates to the expansion problem. In connection with the developments on pp. 357–363 the author might have found some use for the reviewer's paper *Contributions to the theory of Hermitian series* [Duke Math. J. vol. 5 (1939) and Trans. Amer. Math. Soc. vol. 47 (1940)]. The reviewer is gratified to see that the misspelling of the name of Walsh has been corrected. The discussion of convergent sequences of characteristic functions in chapter VI on the Stieltjes integral has been revised. May the author soon have to prepare a fourth edition.

                                                    EINAR HILLE

Contributions to the founding of the theory of transfinite numbers. By G. Cantor. Translated, and provided with an introduction and notes, by P. E. B. Jourdain. New York, Dover, n.d. [1952]. 9+211 pp. Paper bound, $1.25; cloth bound, $2.75.