HOBSON'S SECOND VOLUME

The Theory of Functions of a Real Variable and the Theory of Fourier's Series. By E. W. Hobson. Second Edition, vol. II. Cambridge University Press, 1926. x+780 pp.

It is a long time since I previously had so much delight in examining a book as I have recently experienced in the rapid reading of the second volume of Hobson's *Functions of a Real Variable.* It is characterized by an extraordinary richness of content and by the remarkable indications which it affords of the marvelous vitality and fecundity of the current investigations in the general theory of functions of a real variable and in the theory of Fourier's series in particular. This second volume completes the author's extension and revision of the one-volume work which first appeared in 1907, the earlier part of his revision having been published in 1921 as volume I of the second edition. Almost the whole of the matter for the new volume II has been re-written and much new matter has been added so that the extent of the whole work is now twice as great as that of the first edition. The new matter is largely the fruit of investigations carried out in the last twenty years. The completed work now affords a most effective testimonial to current progress in one division of mathematics as well as the most important exposition yet given of knowledge in that domain.

The volume is beautifully printed in the style for which the Cambridge University Press has justly become famous among mathematicians. The volume is bound so as to be pleasing both to the eye and to the hand when new; but, as experience with earlier books so bound has shown, it has not the durability which one has a right to expect in the case of a volume of such permanent value and one likely to be so frequently used. In some places the author might have improved the appearance of the page by a happier choice of notation or a more suitable arrangement of formulas. A considerable number of minor errors escaped detection in the final proof-reading. But where there is so much excellence in regard to the matters of major importance, it is perhaps ungracious to do so much as to call attention to these minor blemishes.

There can be no doubt that the two volumes of the second edition of this work will be for a long time of constant use to every one who has to do with investigations touching the theory of functions of a real variable and the theory of Fourier series.

The first of the ten chapters of volume II deals with sequences and series of numbers. Into the 98 pages of this chapter the author compresses an excellent exposition of the theory of series with real constant terms, the earlier part of it being abbreviated by the use of some theorems from volume I. The reader will be interested in the compactness of the exposition and the comprehensiveness of the theory so far as the problem of convergence is concerned. It is in no sense a complete summary of what is known about series with constant real terms but it is an account which sets all the main facts in their proper light. Nearly forty pages of the chapter are given to the problem of the summability of series of constant terms.