BOOK REVIEWS

BERBERIAN, S. K., *Introduction to Hilbert Space* (Oxford University Press, 1961), 206 pp., 52s.

This little book has the unusual merit of being completely self-contained, nothing being assumed except the most elementary real analysis. It is written for the use of first and second year graduate students (U.S. pattern) but would be equally suitable for second or third year honours students in the U.K. All proofs are given in full detail and without appeal to hand waving, and the book contains many easy exercises, so that it can be recommended for unassisted reading by beginners. Naturally, the cost of this is that the book does not reach very far into the theory of operators in Hilbert Space, ending in fact with the spectral theorem for a compact normal operator. The spectral theorem for a bounded self-adjoint operator can now be proved so easily and explicitly that the reviewer believes that it could have been included without departing from the author's principles. However, this is an introduction, and as such it is excellent. Among the exercises are some, distinguished by a star, which are not exercises in the usual sense at all, but are statements of more advanced theorems. For example, one of these " exercises " is a statement of the Gelfand-Neumark theorem on the representation of B^*-algebras by operator algebras. The reader should perhaps be warned not to spend too large a part of his life in trying to prove these theorems for himself; but they are valuable in showing the reader something of the theories to which he is being introduced.

The professional mathematician will probably prefer to read a more condensed account, for example the relevant chapters of " Leçons d'analyse fontionelle " by F. Riesz and B. Sz.-Nagy, but for teaching purposes this book is ideal.

F. F. BONSALL

EGGLESTON, H. G., *Elementary Real Analysis* (Cambridge University Press, 1962), viii+282 pp., 37s. 6d.

The word " elementary " in the title of this book indicates that the course is self-contained and that advanced topics such as Lebesgue integration and Fourier series have been omitted. The choice of subjects in the theory of convergence and of functions of a real variable is wide, including for example series of complex terms, double series, functions of bounded variation and the Riemann-Stieltjes integral, and the treatment is remarkably full for a book whose basic length is only 205 pages. The last chapter gives a condensed account of the theory of functions of two real variables, with some results on repeated integrals, but double integrals are not included. An appendix deals with the properties of hemi-groups, groups and fields, with the definition of the integers by means of Peano's axioms, and with the definition of rational, real and complex numbers. In addition to the worked examples in the text, some 55 pages are devoted to hints on the solution of the exercises which follow each chapter.

This is a book which will be extremely useful to those who teach analysis, but in the reviewer's opinion the subject has been made unnecessarily difficult for students by an excessive use of mathematical symbols and jargon. Many statements in the book could be expressed more clearly, and a few more briefly, in plain English.

The use of English is not, however, the book's strongest point. The punctuation leaves something to be desired from time to time, particularly in the early chapters.

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