

but there is no corresponding entry in the bibliography. On the plus side is the inclusion of a good set of problems and notes at the end of each chapter giving directions to further study. I find this a welcome addition to the literature and recommend it to those interested in learning this area of mathematics.

J. R. SMART

SNEDDON, I. N., *Mixed Boundary Value Problems in Potential Theory* (North-Holland Publishing Company—Amsterdam, 1966), viii + 282 pp., 80s.

The topic discussed in this book has flowered in the last few years. Of the 170 references given only 52 are dated earlier than 1950 and most of these are to standard general mathematical works or classical work of the nineteenth century. The author puts the start of the recent work down to Titchmarsh's study of dual integral equations in 1937. This may be so but the continuing work is largely due to the author, and his students and collaborators. There are those who say that with the advent of high speed computers the analytical work of the book is no longer necessary; this is often untrue as anybody who actually tries to solve some of the problems of the book *directly* by means of a computer will soon find out. The book discusses how a problem is put into a form which *can* be solved by a computer, usually as a Fredholm integral equation of the second kind.

Much recent work has been done in potential theory alone, as this book shows, though there is a good deal which has a wider application than that given. Much remains to be done, however, even in potential theory. For instance I have yet to see a solution to the simple-seeming problem of the field due to a torus of elliptic cross section charged to a constant potential.

In this book an operational method is exploited to great effect. The author is largely responsible for the development of this method though he is too modest to say so. By its judicious use much tedious analysis has only to be done *once*—a great advance over the laborious work so often repeated in slightly disguised forms by the earlier workers. The analysis has to be done once, however, and here it is done in a valuable chapter in the book called *Mathematical Preliminaries*, which comes in after an introductory descriptive chapter. The author says that most of it will be familiar but indeed there may be much that is not entirely so, and it is most useful to have all this collected together in a space of 37 pages.

After a chapter on the classical problem of the electrified disc there is one on dual integral equations, one on dual series equations and one on triple integral equations and series. Next comes a chapter on integral representations and a final chapter on applications to potential problems, where certain numerical results and approximate methods are discussed.

This is an eminently practical book, well designed to meet the needs of the people for whom it is written, namely students of applied mathematics, physics and engineering. The reader is given every help and nowhere is a proof "left to the reader". As the topic is not an easy one this will be greatly appreciated by the workers in many fields who will no doubt use the book.

J. C. COOKE

LANCZOS, CORNELIUS, *Discourse on Fourier Series* (University Mathematical Monographs, Oliver and Boyd, 1966), viii + 255 pp., 63s.

This excellent book is mainly intended for students of engineering, physics and mathematics at both senior undergraduate and postgraduate level. It is not quite a self-contained volume but it includes a wide range of material. The historical development of the subject is also given in a way which makes it alive and thoroughly absorbing.

In the first chapter of over 100 pages the author discusses the beginnings of Fourier's work, goes on to mention the different applications to physical problems and then gets