complished. We join the author in his hope that his work "will attract engineers and applied mathematicians to a field which well rewards study and research."

H. GEIRINGER

Fourier transforms. By I. Sneddon. New York, McGraw-Hill, 1951. 12+542 pp. $10.00.

It is the aim of the author to discuss various types of integral transforms from an elementary mathematical viewpoint and to demonstrate how they may be applied to various boundary value problems which arise in the physical and engineering sciences. Accordingly, some basic aspects of these transforms are discussed in the first three chapters of this text. Chapter one is concerned with the Fourier, Laplace, and Mellin transforms for one variable as well as the multiple Laplace and Fourier transforms. It is unfortunate that the complex form of the Fourier transform was not included here, for then one could see that there is no basic distinction between these transforms. That is, what may then be accomplished by the unilateral transform of Fourier may be equally well accomplished by the unilateral Laplace transform, etc. The second chapter contains a discussion of Hankel transforms (real case) as well as the relation between the real multiple Fourier transform and Hankel transforms. It closes with a discussion of dual integral equations of a special class which has been discussed by Titchmarsh and his collaborators. The closing chapter of this part of the book is devoted to a discussion of the finite Fourier and Hankel transforms. These transforms are infinite series of the Fourier or Fourier-Bessel type which arise naturally in Sturm-Liouville expansion theory. The application of these finite transformations to appropriate boundary value problems simply states that one is aware of the correct form of the expansion in advance.

The remaining seven chapters are concerned with the applications of these mathematical methods to many ordinary and partial differential equations which arise in the physical and engineering sciences. No specialized knowledge of physics is assumed and the remaining background is discussed with the view of supplying the necessary differential equations and their subsidiary conditions. We find, in the second portion of the book, applications drawn from vibration theory, elasticity, hydrodynamics, and heat conduction as well as some problems drawn from atomic and nuclear physics.

The book closes with three appendices. The first one is concerned with some properties of Bessel functions, while the second one discusses the method of steepest descent and some numerical methods.