Integral equations and their applications to certain problems in mechanics, mathematical physics and technology. By S. G. Mikhlin. Translated from the Russian by A. H. Armstrong. New York, Pergamon Press, 1957. 12+338 pp. $12.50.

This is a substantial but not an exciting account of the theory of integral equations of the regular and singular type with applications to the physical sciences. The book is divided into two parts, the first third giving the theory and the second two-thirds discussing the applications.

The regular cases, which include those equations whose kernels may be made regular by a finite number of iterations, are studied by the classical methods of Fredholm, Hilbert and Schmidt. Various devices for determining characteristic values are considered and some numerical examples are given. In the last quarter of this section a brief account is given of the type of singular integral equation which the author needs in some of his applications. That is, this final chapter on integral equations discusses those equations whose kernels are of the Cauchy or Hilbert type with the related function theoretic methods required to obtain solutions for these equations. This account is readable and the reader will not be annoyed with the masses of special detail which other writers have attempted to supply on this topic. The stage has now been set to treat boundary problems of the Hilbert-Riemann type which arise so often in the applied fields.

An interesting assortment of problems involving integral equations which arise in the mechanics of continuous media and which come from such diverse equations as Laplace's, the biharmonic, the wave and the diffusion equation (all in two dimensions) is discussed with the machinery developed in the first part of the book. Like his compatriot, Muskhlishvili, Mikhlin refers to unusual problems in wave motion which integral equations can handle and then fails to provide the reader with some of the important details.

ALBERT E. HEINS

Elements of the theory of functions and functional analysis, Vol. 1, *Metric and Normed Spaces.* By A. N. Kolmogorov and S. V. Fomin. A translation by L. Boron of *Elementy Teorii Funkcii i Funkcional'nogo Analiza.*, I. *Metričeskie i Normirovannye Prostranstva.* Rochester, Graylock Press, 1957. 9+129 pp. $3.95.

This little book, the first in a projected series by the same authors, is a textbook prepared from material presented at the Moscow State University and could serve as a text for, or as a welcome adjunct to,