This book is designed as a companion to the same authors' text "Ordinary differential equations: a first course" (cf. this Bulletin - Volume 11 No. 2). It would certainly be quite useful to students using that text. The authors assert however that the book is "essentially self-contained and will be useful as an accompaniment to books and courses covering the same topics". In the reviewer's opinion, this claim is not justified - there are too many references to the text itself. For example (p.155): "We now apply Gronwall's inequality ... Theorem 6.2, p.252 [of the text] ... " A check of twelve other elementary texts in the subject on the reviewer's shelves failed to reveal a single reference to Gronwall's inequality.

Colin Clark, University of British Columbia.

Systems of Singular Integral Equations, by N. P. Vekua. Translated by A. G. Gibbs and G. M. Simmons. P. Noordhoff, Groningen, 1967, 216 pages.

This book is a translation of the Russian edition which appeared in 1950. It is a carefully written monograph with an excellent translation that should be attractive to the mathematician interested in the theory of analytic functions and the equations of mathematical physics.

The author studies Hilbert boundary value problems and systems of singular integral equations with Cauchy type kernel, in the complex plane. In the first two chapters the homogeneous and inhomogeneous Hilbert problem for several unknown functions, including the case of discontinuous coefficients is solved. In each case the functions satisfy the Holder condition. A theory of systems of singular integral is presented and Noether type theorems are proved. The problem of regularization and equivalence are discussed and the notion of index introduced. Typical theorems are those asserting that subject to suitable conditions a singular integral is equivalent to an essentially regular Fredholm integral equation.

In Chapter 3 the author gives applications of the preceding chapters. Some of the problems considered are the Riemann problem, with discontinuous coefficients and for systems of analytic functions. Also boundary value problems for systems of linear partial differential equations of elliptic type.

The final chapter involves some generalizations. For example a generalized Hilbert problem for several unknown functions and systems of singular integral equations for the case of contours with corner points is considered.

The long delay in the appearance of this book is regrettable. Particularly so, since a number of papers - some by the author - generalize and supplement the results of the monograph. In the preface the author gives a short account of these developments including an admirable bibliography.

H. P. Heinig, McMaster University.

Scattering Theory, by Peter D. Lax and Ralph S. Phillips. Academic Press (1967).

The main purpose of this text is to use a new approach to scattering theory for hyperbolic differential equations.

The authors deal with systems described by a group of unitary operators $\{U(t)\}$ acting on a Hilbert space H in which there are two distinguished subspaces D- and D+ with the property that as t varies from $-\infty$ to $+\infty$, the subspaces U(t)D- and U(t)D+ increase (decrease) monotonically from the zero subspace to the whole space H. With each subspace D- and D+ there is associated a special spectral representation of the group $\{U(t)\}$; in the one D- is represented by functions analytic in the lower half-plane, in the second D+ is represented by functions analytic in the upper half-plane. The two representations are related by a unitary operator-valued multiplicative factor $S(\sigma)$, $-\infty < \sigma < \infty$, called the scattering matrix.