functions and curves includes an application to Van der Waals' equation for a gas. The chapter on the indefinite integral is long and thorough and contains an interesting practical simplification of the method of partial fractions due to M. V. Ostrogradskii. The chapters on definite integrals and series contain no surprises.

The second volume deals in similar vein with functions of several variables, differential equations, and Fourier series.

There are no exercises.

Hugh A. Thurston, University of British Columbia

Differential Equations, A Modern Approach, by Harry Hochstadt. Holt, Rinehart, and Winston, Inc., New York, Toronto, London, 1963. viii + 294 pages.

This is highly recommended as a textbook for a third or fourth year honours course on ordinary differential equations. The book could be used for a first course on the subject for students with two years of Calculus and some experience with linear algebra. All the necessary background material on the latter is included in a preliminary chapter. The viewpoint is refreshingly modern, in contrast with dozens of other recent books at this level. The stress is consistently on ideas and theory rather than tricks and special substitutions. There is a good selection of exercises, a useful bibliography, and an adequate index.

Linear systems of differential equations are treated first, with emphasis on equations with constant coefficients, analytic coefficients, and regular singularities. Among the many novel features is a treatment of asymptotic expansions of solutions about singular points. Boundary value problems are introduced early and emphasized, and integral equations are mentioned. A chapter is included on equations with periodic coefficients, a speciality of the author. The last two chapters deal with nonlinear systems, including stability theory with a brief introduction to Lyapunov's direct method, periodic systems, limit cycles, the Poincaré index, and perturbation theory.

C. A. Swanson, University of British Columbia

Methods in Analysis, by Jack Indritz. Macmillan Co. (New York), Collier-Macmillan Canada Ltd. (Toronto), 1963. x + 476 pages.

This is one of several recent books intended to bridge the gap between an Advanced Calculus course and the sort of mathematics courses required to give a thorough insight into the theory of the linear operators arising in mathematical physics. Unfortunately this is a big gap and is perhaps rather too big to be effectively bridged by the one-year course which this book represents. Furthermore, by focussing attention on "well-behaved" examples of the ideas discussed, some of the real problems which may arise in practice are not revealed. The reviewer would prefer to see the more advanced techniques discussed in a course which requires linear algebra as a prerequisite and possibly a course in differential equations also.

In spite of these difficulties inherent in the subject matter, the book was found to be very well written with careful developments of the necessary analysis. Useful and informative examples are liberally supplied. To summarize the contents: Chapter 1 is on vector spaces and linear transformations. Chapter 2 is on matrix operators with special emphasis on symmetric operators and matrices similar to diagonal matrices. Chapter 3 is on limit processes for point sets and functions defined on point sets. Chapter 4 presents the Hilbert-Schmidt theory for Fredholm integral equations with symmetric kernels. Chapter 5 is a useful introduction to approximation theory particularly by means of Legendre polynomials, Hermite polynomials, and trigonometric functions. Chapter 6 is mainly concerned with a self-adjoint differential operator defined on a finite interval of the real line; the Green function is discussed. Chapter 7 gives an introduction to the theory of Fourier transforms.

To sum up: this book can be strongly recommended as a reference and possibly a text for introductory courses on the theory of linear operators.

P. Lancaster, University of Alberta, Calgary

Mathematiques, par A. Hocquenghem et P. Jaffard. Tome II. Masson, 1963.

The first of the four "books" which comprise this volume deals with the linear algebra of vector spaces; many lecturers will be glad to have this treatment conveniently to hand in a calculus text.

The next book, "représentations des fonctions" deals with uniform convergence, series (including Fourier series) and Fourier and Laplace transforms.

Next, "Analyse vectorielle" covers multiple, curvilinear and surface integrals (with a chapter on transformations) including improper integrals; and ends with an extended treatment of vector functions and "Formules Stokiennes".