in series. VII. Complex numbers. VIII. Functions of more than one variable. IX. Vector algebra. X. Applications of vector algebra to analytical geometry of straight lines and planes. XI. Vector functions. Differential geometry of curves. Line integrals. XII. Matrices, determinants and Linear dependence. XIII. Linear equations, Eigenvectors and Eigenvalues. XIV. Curvilinear coordinates and multiple integrals. XV. Vector analysis. XVI. Ordinary differential equations. The Laplace transform. XVII. Functions of a complex variable. XVIII. The Dirac δ-Function; Fourier series and integrals. XIX. Factorial, Legendre and Bessel functions. XX. Statistics and Probability.

R.K. Saxena, McGill University

Matrix Mechanics, by H.S. Green. (P. Noordhoff Ltd., Gronigan, 1965, The Netherlands). 118 pages. $5.50.

This is a refreshing little text which presents in a clear, compact form the basic ideas of quantum mechanics. It is quite novel in that it uses only the algebraic techniques of matrix mechanics. The text is supplemented by short exercises throughout and at the end of each chapter.

The book opens with a historical sketch followed by an introduction to the mathematics of Hilbert spaces. The postulates of quantum mechanics are introduced and applied to the harmonic oscillator. The eigenvalue problem is then discussed more generally and applied to several interesting examples, notably angular momentum and spin. The final chapter is a brief introduction to relativistic quantum mechanics.

D. Masson, University of Toronto

Thermal Stresses in a Composite Cylinder with an Arbitrary Temperature Distribution along its Length, by V.S. Nikishin. New York, Plenum Press Data Division, 1966. 119 pages. $22.50.

This book is a monograph, translated from the Russian by a Subsidiary of Consultants Bureau Enterprises Inc. of New York. It was originally published in 1964, as one of the Transactions (Trudy) of the Computing Center of the Academy of Sciences in Moscow.

The subject matter of the book is well stated in the title, but it should perhaps be added that a "composite" cylinder is one where the "core" is different from the "shell" (the author has particularly shells of various materials filled with concrete in mind). The mathematical formulation of the problem is based on linear elasticity theory and the usual law of thermal expansion. On this basis, the problem treated becomes one of solving a set of differential equations with appropriate boundary conditions. The method used is one of expansion in orthogonal functions; it is carried through to its numerical conclusion; the latter is

presented in 58 pages of tables.

The aim of the book is to present design information for engineers who have to deal e.g. with concrete-filled caissons which are only partially submerged. For this purpose, the material contained in the tables and the theory pertaining thereto are well presented.

Adrian E. Scheidegger, University of Illinois

An Introduction to Computer Programming, by Henry Mullish. Gordon and Breach, New York, 1966. x + 244 pages.

This book provides a detailed introduction to FORTRAN II programming presented through selected problems not requiring extensive mathematical knowledge. The choice of FORTRAN II as a programming language is difficult to appreciate since in most computer installations FORTRAN IV is now used and there are already available many books describing the latter language.

An appendix summarizing the FORTRAN language would have been most desirable for reference purposes.

W.D. Thorpe, McGill University

1965 Brandeis University Summer Institute in Theoretical Physics. M. Chretian, S. Deser, Editors. - Vol. I: Axiomatic Field Theory, xi + 516 pages, $32.50. Vol. II: Particle Symmetries, xii + 691 pages, $35.00. Gordon and Breach, Publ., New York, 1966.

These are lecture note volumes; however, this somewhat derogatory term should not be taken too seriously since the "notes" are in fact carefully prepared and highly polished. They contain material ranging from the phenomenology of the unstable particles of modern high energy physics, the mesons in particular, to axiomatic field theory. Much of the application of mathematics to modern physics may be divided into two broad fields both of which are well represented and discussed here with extensive references to the literature. One field is concerned with constructing theories of particles in accordance with observed symmetries. This is a program with a long tradition, exemplified by the characterization of atomic states according to the irreducible representations of a symmetry group, 0(3). Volume I, along with parts of Volume II, is largely devoted to recent attempts to perceive and make use of more subtle symmetries of nature which may lead to a useful classification of elementary particles according to the irreducible representations of some group, perhaps SU(6). The other main thrust of mathematics in modern physics is in the direction of discovering the analyticity properties of the Green's functions, essentially, which describe scattering processes. This aspect is investigated in great depth, particularly in the axiomatic field theory lectures of Volume II. These are two most