REVIEWS AND NOTICES OF BOOKS

Relativistic Hydrodynamics and Magnetohydrodynamics—*Lectures on the Existence of Solutions.* By Andre Lichnerowicz. (W. A. Benjamin, Inc., New York and Amsterdam), 1967. Pp. ix + 196.

This informal research monograph is intended as a *supplement* to graduate courses in mathematical physics or applied mathematics. The author presents a new and complete mathematical study of the equations of motion for both charged and uncharged relativistic fluids.

The text begins with an introductory survey of the Leray theorems on hyperbolic partial derivative systems. Main applications are given to charged fluids with a null conductivity, and to the case of magnetohydrodynamics. Included is the first known existence theorem for the equations of magnetohydrodynamics. There is also a new approach to the theory of shock waves, as well as a report on new results in this field. C. V. R.

Fundamentals of Quantum Mechanics—*Particles, Waves and Wave Mechanics.* By Sidney Borowitz. (W. A. Benjamin, Inc., One Park Ave., New York and Amsterdam), 1967. Pp. xiv + 401. Price $ 13.90.

This book is intended primarily as a one-year exposure to non-relativistic wave mechanics for senior students in college. A knowledge of calculus, elementary differential equations and vector analysis is presupposed. Beyond that, all of the mathematical techniques are developed as they are needed. The organization of the book and the selection of the preparatory material were dictated by the special problems associated with the presentation of the meaningful course at this level.

The subject-matter of this book has been dealt with under the following headings: 1. Waves and Particles; 2. Wave Propagation; 3. Fourier Series, Fourier Integrals, and Related Topics; 4. Wave Propagation and Optics; 5. Geometrical Optics—The Short Wavelength Limit; 6. Dynamics; 7. The Hamilton-Jacobi Theory of Dynamics; 8. The Schrodinger Wave Equation; 9. Solution of Some One-Dimensional Problems; 10. Harmonic Oscillator; 11. The Foundations of Wave Mechanics; 12, Angular Momentum; 13. The Hydrogen Atom; 14. Perturbation Theory; 15. Time-Dependent Perturbation Theory; 16. Systems of Identical Particles. C. V. R.

A Second Course in Complex Analysis. By William A. Veech. (W. A. Banjamin, Inc., One Park Ave., New York and Amsterdam), 1967. Pp. ix + 246. Price $ 8.75.

A clear, self-contained treatment of important areas in complex analysis, this senior-graduate level text is designed for a one-semester intermediate course.

The material is largely classical, with a few distinguishing features such as a detailed discussion of the prime number theorem. The Riemann mapping theorem is presented as a special case of an existence theorem for universal covering surfaces. Heavy emphasis is given to the geometry of complex mappings, particularly through frequent use of Schwarz's lemma. The universal covering surface of an arbitrary planar region is constructed, and the theorems of Landau, Schottky, Montel, and Picard are developed as consequences of the existence of certain coverings. C. V. R.

Advances in Chromatography (Vol. 4). Edited by J. Calvin Giddings and Roy A. Keller. (Marcel Dekker, Inc., 95, Madison Avenue, New York), 1967. Pp. xiv + 380. Price $ 16.50.

Volume 4 of this well-known series contains the following articles: GENERAL CHROMATOGRAPHY: R_F Values in Thin-Layer Chromatography on Alumina and Silica, by Lloyd R. Snyder; Steroid Separation and Analysis: The Techniques Appropriate to the Goal, by R. Neher; Some Fundamentals of Ion-Exchange-Cellulose Design and Usage in Biochemistry, by C. S. Knight; GAS CHROMATOGRAPHY: Adsorbents in Gas Chromatography, by A. V. Kiselev; Packed Capillary Columns in Gas Chromatography, by Istvan Halasz and Erwin Heine; Mass-Spectrometric Analysis of Gas-Chromatographic Eluents, by W. H. McFadden; The Polarity of Stationary Liquid Phases in Gas Chromatography, by Lutz Rohrschneider.

C. V. R.