thor proposes to consider applications of group theory to the whole breadth of classical and modern physics: fields as diverse as crystallography and thermodynamics; dynamical systems and molecular physics; electrodynamics; general relativity and ergodic systems; atomic, molecular, and nuclear spectra; solid state and crystals (vibration and ionic spectra); and finally the role of groups in elementary-particle theory.

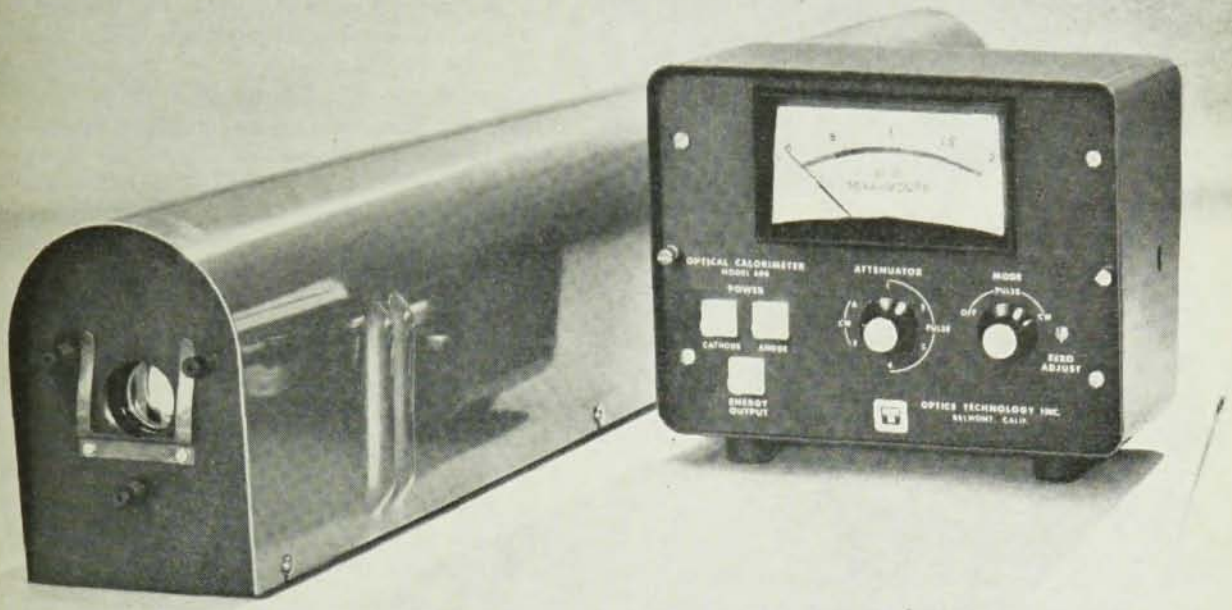
Judging from the depth and the extended treatment of the topics covered in the present and in the proposed companion volume, the author and his collaborators have aimed at producing no less than a treatise of encyclopedic character. It goes without saying that an undertaking of this scope will have enduring value in scientific circles. The specialist will find an unusual wealth of ideas and material to draw from, well organized and clearly presented as one expects from the pen of French scientists. The nonspecialist and advanced student, having neither the time nor the interest to study the original papers, will acquire more than a bird's-eye view of the beauty, elegance, and power of group theory and its vast applications to practically the whole field of theoretical physics.

Introduction to Scientific Inference. By Robert Hooke. 101 pp. Holden-Day, San Francisco, 1963. $4.74. *Reviewed by William S. Bickel, Pennsylvania State University.*

MUCH has been written about statistics and the statistical treatment of data, but *Introduction to Scientific Inference* is different in that its few pages emphasize the ideas of quantitative inference and not the mathematical techniques. But even though it is not intended to be a detailed work on statistical theory, it does present a concise mathematical introduction to many topics with which the author feels scientists and engineers should be more familiar. Obviously sympathetic with P. W. Bridgman's comment about statistics being bad enough but bad statistics being intolerable, the author has succeeded in displaying the modus operandi of the statistical treatment of data, starting with the selection of the population-sample model, leading through a discussion of confidence statements and uncertainty to fitting the mathematical model to real situations. This interesting treatment is written in a way that will be beneficial and stimulating to anyone involved in the harvest of information from experimental data.

Quantum Mechanics. By D. B. Beard. 309 pp. Allyn & Bacon, Boston, 1963. $8.95. *Reviewed by Leonard E. Porter, University of Wisconsin.*

THE avowed objective in writing this textbook was to offer an introduction to quantum mechanics which avoids the postulatory approach. The basic plan was to establish familiarity with the description and properties of wave motion, to consider evidence for the particle behavior of electromagnetic waves and the



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wave behavior of particles, and finally to present the wave function by way of the Feynman path integral.

Immediately following a capable execution of this plan is a derivation of the Schrödinger equation, which is used thereafter in discussing the standard examples of elementary quantum mechanics. The remaining four fifths of the book is quite conventional in content. However, the detail with which the customary problems and techniques, with illustrative applications, are presented is commendable, as is the abundance of physical interpretation. The last of eleven chapters designed for a one-semester undergraduate course is devoted to an excellent discussion of chemical resonance theory. There are two additional chapters, directed at prospective graduate students, which introduce spin, symmetry, parity, and vector addition, and elastic-scattering theory. It should be noted that this text employs the space representation exclusively, and that Dirac notation is withheld until the eleventh chapter.

Although the style is consistently informal, the smoothness of the prose is marred by a large number of parentheses, of which many are superfluous. The presence of at least seventy-five minor errors and misprints proved annoying to the reviewer.

The Quantum Theory of Many-Particle Systems. Harry L. Morrison, ed. Vol. 2 of Internat'l Science Review Series, edited by Lewis Klein. 345 pp. Gordon & Breach, New York, 1962. $4.95. *Reviewed by Stuart A. Rice, University of Chicago.*

IN the early postwar period, the Physical Society of Japan collected and reprinted papers on various subjects, i.e., statistical mechanics, diffusion in solids, etc. These inexpensive collections were extremely valuable to students and research workers because of the convenience with which they provided relevant literature in a given area of physics or chemistry. The volume edited by Morrison is in the tradition of the earlier Japanese reprint volumes. Since the volume consists of a collection of reprints, there is no need to discuss the text. I will only briefly comment that these papers provide an extremely useful supplement to the recent book on quantum statistical mechanics by Kadanoff and Baym.

In my opinion the volume could be improved in only two respects: (1) the selection from the vast literature could have been enlarged to include other papers on closely related subjects; relevant extensions would include some of Watson's work on scattering theory, some of the work on the self-consistent field formalism, etc.; (2) the value of the work would be considerably enhanced if the reprints were preceded by a set of extended notes. Such notes have been supplied in some of the reprint collections published by Benjamin.

It is clear that this book is a useful collection of papers which can be recommended to all students of the many-body problem. I hope that it will soon be followed by other collections dealing with classical theory and with applications to specific systems.