Theory of Groups in Classical and Quantum Physics, Vol. I: Mathematical Structures and the Foundations of Quantum Theory. By Théo Kahan in collaboration with P. Cavaillès, T. D. Newton, G. Lochak, R. Gouarné, G. Rideau, and R. Nataf. Translated by H. Ingram. English translation edited by A. R. Edmonds. American Elsevier Publishing Co., Inc., New York (1965). 566 pp. $37.50.

This book is a translation from the French of *Théorie des Groupes en Physique Classique et Quantique,* Dunod, Paris, 1960. The contributions of several authors are more fully described as follows: Preface (pp. v-xvi) by Théo Kahan, Maître de Recherches (apparently all authors' affiliations are with the University of Paris); Part I (pp. 1-195), "Theory of Groups and Axiomatized Mathematics for the Use of Physicists," by P. Cavaillès, Attaché de Recherches, and Théo Kahan; Appendix to Part I (pp. 196-206), "Some Notions on Integration Over the Topological Groups," by G. Lochak, Chargé de Recherches; Part II (pp. 207-255), "The Inhomogeneous Lorentz Group," by T. D. Newton, Chalk River Laboratories, Atomic Energy of Canada Ltd.; Part III (pp. 257-318), "Theory of Abstract Groups," by R. Gouarné, Chargé de Recherches; Part IV (pp. 319-352), "Elementary Theory of the Representations of a Group," by G. Rideau, Maître de Recherches; Part V (pp. 353-399), "Permutation Group," by G. Rideau; Part VI (pp. 401-458), "Theory of Groups and Axiomatics of Quantum Mechanics," by Théo Kahan; Part VII (pp. 459-558), "Group of Rotations," by R. Nataf, Professor (Sorbonne); Index (pp. 559-566).

In the reviewer's opinion, Part I suffers from starting at too general a level—almost equivalent to starting with the postulates of the real number system. If one knows the contents of Part I, he does not need it; and if one does not know it, he is unlikely to learn it from the general presentation contained therein. Unfortunately, there are in this part, as well as in later parts, a number of misprints, mislabeled figures, and omissions, as well as outright errors (such as referring to the set of positive integers, but including zero).

Part II is a clear and helpful presentation of its topic, as is Part III. It seems to the reviewer that Part IV draws heavily on Murnaghan, *The Theory of Group Representations,* and Part V draws heavily on Littlewood, *The Theory of Group Characters.* These parts may have been very helpful to readers of the original French version of this book, but their value to English readers is lessened by the availability in English of books upon which this book evidently draws heavily. Part VI is a straightforward exposition of the conceptual structure of quantum mechanics in the manner of Dirac.

The reviewer found Part VII the most interesting and valuable in the collection; in some parts it parallels rather closely Wigner's *Group Theory and Its Application to Quantum Mechanics of Atomic Spectra.* It is marred by the introduction of substitution operators for the permutation group in a way which leads to the transpose of the representation matrix as usually defined (p. 552). The notation for permutations differs in Parts V and VII, with that in Part VII being more familiar to most physicists.

The reviewer is at present teaching a course in group theory, using Wigner's *Group Theory* (referred to above), and Weyl's *The Theory of Groups and Quantum Mechanics,* as texts. Considerations of cost entirely apart, he much prefers the latter two books to the one being reviewed here.

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About the Reviewer: Dr. Schweinler is a member of the staff at ORNL and, in addition, teaches in the University of Tennessee Graduate Program at Oak Ridge. His academic training was at the Carnegie Institute of Technology and at MIT. He served at the Metallurgical Laboratory, University of Chicago, during wartime. The current research interests of the reviewer include studies of semiconductors, the energy loss of charged particles in nonmetals, interstitial diffusion, and optical absorption.