

*The Quantum Theory.* By Fritz Reiche. Translated by H. S. Hatfield and Henry L. Brose. New York, Dutton, 1930. viii+218 pp.

Messrs. H. L. Brose and J. E. Keyston here present a second edition of the original English translation of Professor Reiche's well known book. Since they have made few changes, we need add little to the comment of Professor H. B. Phillips in his review of the first edition (this Bulletin, vol. 26 (1922), p. 69). The first nine chapters trace the development of the quantum theory from the time of Planck's initial discovery to the heyday of the Bohr-Sommerfeld theory. The tenth chapter, added by the translators "at the request of the author and various colleagues," provides in twenty-four pages a very rapid historical and bibliographical survey of the wave mechanics and equivalent theories. The book is in no sense an adequate introduction to the physical theories now widely held, since it develops neither the physical and metaphysical principles nor the mathematical techniques which characterize the prevailing doctrines. Distinguished as it is by clear exposition and careful documentation, the book retains its full value as an aid to the student interested in the recent history of physics.

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*Gruppenbilder.* By W. Threlfall. Leipzig, S. Hirzel, 1932. iv+59 pp.

In the introduction to this brief volume its author remarks that the representations of discrete groups as groups of movements which transform surface elements or line complexes into each other has thus far not yielded in general a deep insight into the structures of these groups. In certain cases it has however led to proofs which are simpler and more elegant than those based on calculations, and hence, like the closely related method of representing groups by permutations, it is useful in the study of certain features of group theory.

No special knowledge of the subject is presupposed on the part of the reader so that the beginner in group theory will find here very interesting material relating both to the use of this subject in geometry and also to the use of geometric concepts in the development of group theory. In particular, the well known geometric representations due to Dyck and to Dehn are skilfully illustrated and some fundamental theorems in topology are proved. In its original form this memoir was accepted in 1927 as a "Habilitationsschrift" at the Technische Hochschule, Dresden, Germany.

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