ries rather than individual theorems, the state of affairs in the theory of algebras permitting this luxury. Such an attitude is not possible with respect to groups of linear transformations; the essential reason is perhaps that algebras have been studied as representatives of a few large types, whereas groups are in many cases individuals or representatives of small families. Correspondingly, the essentials of the theory which Deuring covers are contained in comparatively few papers, whereas van der Waerden had to incorporate explicitly a host of individual investigations. If one should examine the Fortschritte der Mathematik, say since 1900, one would hardly find a paper related to the subject not mentioned in his book (excepting papers on continuous groups which were reserved for another report in the same collection).

Whatever the abstract algebraic method can do in the line of unification has been done, as in the theory of the classical linear groups (like the orthogonal groups, and so on), or the theory of representations of general classes like hypercomplex systems, finite groups, bounded representations of arbitrary groups; but in fields like groups of given degree (2, 3, 4), or the representation of individual groups (like modular groups), the special character of the problem necessitates a special treatment.

MAX ZORN

Mécanique Statistique Quantique. By Francis Perrin. (Traité du Calcul des Probabilités et de ses Applications, vol. 2, no. 5.) Paris, Gauthier-Villars, 1939. 224 pp.

This book forms a complete introductory outline of modern statistical mechanics. The first part (five chapters) deals with the rudimentary notions of classical statistical mechanics of Hamiltonian systems, ergodic theory, canonical ensembles, equipartition, coupled systems, thermostats, the thermodynamic quantities and laws, with applications to perfect gases and radiation. The second part (four chapters) introduces the rudiments of the quantum theory and extends to systems obeying its laws many of the considerations of the first part. The third part (entitled *Statistique Quantique des Systèmes Indiscernables*, eight chapters) forms the main body of the work, to which the earlier parts form a sort of introduction. The principles of indistinguishability and exclusivity are introduced and the Bose-Einstein and Fermi-Dirac schemata established. The three laws of thermodynamics are then derived from the statistical theory, and applications are made to the chemical constants, gaseous degeneres-