completely additive functions on σ-fields and of the theory of Carathéodory.

The first chapter deals with the basic properties of additive and totally additive set functions, zero sets and complete fields, and the decomposition into regular and singular parts. Chapter II is devoted to the Carathéodory theory of measure. Special attention is paid to regular measures, and to n-dimensional Lebesgue measure. In the third chapter the author discusses the properties of measurable functions and sequences of such functions. The theory of integration is developed in Chapter IV by characterizing the indefinite integral as a new measure satisfying certain inequalities. A discussion of the approximation of integrals by sums, some mean value theorems, and convergence theorems, is followed by a section on product measures and the Fubini theorem. The last chapter deals with the Vitali covering theorem, the differentiation of measures and interval functions, and some applications to density and approximate continuity.

The book is carefully written and systematic. The proofs are given in great detail, a fact which may help many who wish to become acquainted with the fundamentals of measure theory.

HERBERT FEDERER

Sur les groupes classiques. By Jean Dieudonné. (Actualités scientifiques et industrielles, no. 1040; Publications de l'Institut de Mathématiques de l'Université de Strasbourg. VI.) Paris, Hermann, 1948. 82 pp.

The main purpose of this little book is to obtain the structural properties of the classical groups which can at present be obtained by purely algebraic methods. By skillful organization, complete mastery of his subject, and constant adherence to the "conceptual" point of view so fruitfully introduced into linear algebra in modern times, the author achieves this purpose with simplicity, efficiency, and elegance. The results are, with some exceptions, either old ones (to be found in the pioneering works of L. E. Dickson), or extensions of old ones to more general situations. But the long complicated matrix computations of the older literature, in which the ideas are frequently buried beyond recall, are here almost entirely replaced by conceptual arguments expressed in geometric language which brings out for inspection the intuitive geometric motivation in the proofs.

The classical groups are the full linear groups $GL_n(K)$, the symplectic groups $Sp_n(K)$, the orthogonal groups $O_n(K, f)$, and the unitary groups $U_n(K, f)$. The full linear groups over an arbitrary skew