

La Mécanique Ondulatoire des Systèmes de Corpuscles. By Louis de Broglie. Paris, Gauthier-Villars, 1939. 6+223 pp.

Following the historical development of wave mechanics, the opening pages are devoted to an exposition of the analogies between the principles of classical mechanics and those of classical optics. After the general principles of quantum mechanics are formulated, the theory of first integrals is given a particularly extensive treatment. A short sketch of perturbation theory is given, followed by a discussion of the symmetric and anti-symmetric wave functions. "Spin" is then introduced and treated from a non-relativistic point of view. Pauli's exclusion principle is formulated and its experimental justification is discussed. In the last chapter applications are made to the theories of valences, of band spectra, and of the para- and ortho-spectra of hydrogen molecules.

There are a few trivial inaccuracies. The reviewer was greatly perplexed on page 133, until it occurred to him that c and d on line 12 were probably misprints for c^2 and d^2 .

Also the reviewer personally does not believe in the cogency of the arguments based on the analogies between optics and classical mechanics. In fact, even as the author himself points out (p. 32), these analogies can not be followed too closely in arriving at the Schroedinger wave equation, which is of the first order with respect to the time rather than of the second order.

These adverse criticisms are, however, of a very minor nature. The purpose of the book, as stated in the author's preface, is to give the reader a bird's eye view of the vast structure of modern non-relativistic wave mechanics. There is no pretension whatever of any new mathematical results or methods; and even for the physicist the work must probably be regarded as purely expository. As such it appears to the reviewer to be outstandingly successful.

D. C. LEWIS

Les Nouvelles Méthodes du Calcul des Probabilités. By L. Bachelier. Paris, Gauthier-Villars, 1939. 8+71 pp.

The reviewer finds it rather difficult to justify the title. In a book dealing with *new* methods in probability and published in 1939 the reader expects to find something about the recent developments (to mention but the new treatment of the law of large numbers), even if the book contains 69 pages only. As it is, it is devoted to results due to the author himself, many dating as far back as 1906. These results are merely stated, which is hard on the reader, unless he decides to