The probable error of a catalogue position for a fundamental star is less than 0″.1. For two thirds of the stars including the fainter stars in general the probable error of the 1950 position is 0″.3 or larger. The authors call attention to the need for reobservation of the larger part of the stars. They also suggest that many stars should be added to the list for the more uniform spacing required in photographic work.

One of the many valuable results of this work is that it makes possible the reduction of all star observations of the last two centuries on a uniform system.

The very large number of definitive proper motions all on a uniform basis will be of special value in many researches, and the catalogue will immediately meet a need in a wide field of statistical and positional investigations.

All those who have taken part in this production are to be heartily congratulated for a most excellent astrometric history of the brighter stars. The work is by far the most comprehensive and important of its kind ever undertaken, and it is a worthy monument to the genius and foresightedness of Professor Lewis Boss; to the zeal and ability of Professor Benjamin Boss and his collaborators; and to the generous support for over thirty years by the trustees of the Carnegie Institution of Washington.

H. R. MORGAN

QUANTUM MECHANICS

Principles of Quantum Mechanics. By A. LANDÉ. xii + 115 pp. New York: Macmillan Company. 1937. $2.25.

PAULI once said regarding quantum mechanics: "In analogy to the term relativity theory one could call modern quantum theory the theory of complementarity." The concepts of the fundamentals of quantum mechanics were clarified by Heisenberg's famous paper of 1927 on the uncertainty principle and Bohr's papers (1928–1930) on atomic theory and the description of nature. Landé's book tries to carry out the program of quantum theory as a theory of complementarity systematically. The great amount of material is covered in some 100 pages with great skill. The program of

the book is set forth in an excellent preface and an introductory chapter on observation and interpretation. It is followed in part I by the elementary theory of observation: the principle of complementarity. The first paragraph of this chapter deals with the analogy between mechanics and wave theory (a short remark on the history of these considerations, which started with Bernoulli and were fully developed by Hamilton, might be of interest in a future edition.) In this first part the view-points of the corpuscular and wave theory are clarified. The second part deals with the principle of uncertainty and its application to standard experiments. Classical and quantum mechanical pictures and their correlation are discussed. This leads to the third part dealing with the principle of interference and Schrödinger's equation. The following chapter is devoted to the principle of correspondence between mechanics and wave theory. The term principle of correspondence, however, is not used in the same sense as used by Bohr—asymptotic coincidence between quantum frequencies and classical frequencies—but it refers "to all analogies and asymptotic coincidences of quantum mechanics with both the classical theory of charged particles of matter and with the classical hydrodynamics of a continuous density serving as a medium for matter waves." The book closes with a short mathematical chapter on the theory of transformations and the principle of invariants.

While we have now-a-days a great number of texts available, to introduce the student to the technique of wave mechanics, this book of Landé's will be of great value to student and teacher alike for the clarification of the fundamental concepts, their logical development and the connection between the different fields of mathematical development. May we express the hope that a future edition will include also treatment of subjects omitted now, such as photo-effect, Raman effect (as a classical effect), and one of the typically wave mechanical phenomena, "the tunnel effect."

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SPECIAL ARTICLES

INHIBITION OF PARTURITION IN THE RABBIT BY THE INJECTION OF ESTROGENIC HORMONE

THE corpus luteum is essential to the maintenance of pregnancy in the rabbit. It has been shown that parturition can be delayed and in many cases prevented for a considerable length of time if new corpora lutea are induced in the ovaries in the latter part of pregnancy by the injection of a suitable gonadotropic

hormone, or if an active corpus luteum extract or progesterone, the pure corpus luteum hormone, are injected daily beginning a few days before term. It is well known that delivery occurs within 48 hours following removal of the ovaries at any time from the 20th to the 28th day of pregnancy. (Removal prior to the 20th day results usually in resorption rather than premature delivery of the foetuses.) One supposes, therefore, that in this species parturition is precipated,