parts of mathematical machinery needed later. The second chapter introduces wave mechanics and the third chapter takes up simple examples of energy eigenfunctions, ending with the angular functions for a spherically symmetric potential and the properties of the angular momentum operator. This last material is used, in the fourth chapter, as an example to illustrate the discussion of general quantum principles, of operators, of the uncertainty principle and commutability.

The fifth chapter deals with the matrix formulation of quantum mechanics and the sixth applies this to a general discussion of the angular momentum operators for systems of particles. Here the Pauli spin operator is introduced, several examples of the addition of angular momenta are worked out and the Pauli principle for identical particles is discussed.

The seventh chapter gives an elementary discussion of perturbation theory and the eighth chapter takes up collision problems, introducing the integral equation formulation, the Born approximation and the time-dependent approach. The last chapter is an introduction to group theoretical ideas and their application to spin operators and to the formulation of selection rules. At the end of each chapter are a dozen or so problems, with answers discussed at the back of the book. There are an appendix listing vector formulas, a short bibliography, and a 2½-page index.

The style is easy and understandable. Conceptual and mathematical difficulties are pointed out and, where they are not discussed thoroughly, reference is made to more complete treatments. Although many subjects, not included here, should be in an introductory course in quantum mechanics, this text can provide the appropriate order and the basic framework for such a course. This reviewer considers it the best of the recent batch.

The Elements of Probability Theory and Some of its Applications. By Harald Cramér. 281 pp. (Almqvist & Wiksell, Sweden) John Wiley & Sons, New York, 1955. $7.00. *Reviewed by Harold W. Kuhn, Bryn Mawr College.*

This book is an introduction to probability theory; it has been planned with great care for the reader who has some working knowledge of analytic geometry, calculus, and determinants, but who is not prepared for more advanced treatises such as Feller's *Probability Theory* (Vol. I, John Wiley & Sons, 1950) or Cramér's own *Mathematical Methods of Statistics* (Princeton University Press, 1946). The treatment emphasizes the statistical applications without losing sight of the fact that the mathematics of statistics is but a part of the mathematical theory of probability.

The volume is divided into three parts: foundations; random variables and probability distributions; applications. Although this arrangement is reminiscent of the author's *Mathematical Methods*, the content differs both in level and in subject matter. The first part traces the historical development of the concept of probability and exposes in a lucid style the author's view that it is "a mathematical model for the description and interpretation of phenomena showing statistical regularity". Probabilities are only defined for events attached to some random experiment which can be repeated several times under uniform conditions. The remainder of this section is devoted to deriving the elementary rules for calculating probabilities and some simple applications.

The second part provides the bridge between probability theory and statistics. It treats the basic properties of random variables and discusses in some detail the more common distributions. In proving various theorems (for example, the central limit theorem) the author settles for a proof of a special case and states more general results with appropriate references to the literature.

The third part of the book deals with statistical practice. Although the space is limited (107 pages), the topics chosen for treatment are handled with great clarity. The reviewer found the last chapter, which discusses the theory of errors, regression problems, analysis of variance, sampling, and quality control, to be particularly distinguished.

Numerous problems, appended to each chapter, enhance the value of the book as a textbook, as do the well-chosen historical references. Tables of the $\mathbf{X}^2$, normal, t and F distributions are included.

Proceedings of the Northwestern University Conference on the Training of College Physics Laboratory Assistants. Edited by C. J. Overbeck. 168 pages. Northwestern University, Evanston, Ill. 1954. Paperbound. *Reviewed by E. C. Watson, California Institute of Technology.*

The problem of improving the quality of laboratory instruction in the general physics courses is engaging the attention of most college physics departments at the present time. The problem is most acute in the larger institutions in which hundreds of students must be accommodated in the general laboratory and graduate assistants must be used.

A nationwide conference to study this problem, planned and organized by S. C. Brown of the Massachusetts Institute of Technology, C. J. Overbeck of Northwestern University, and C. N. Wall of the University of Minnesota, and supported by a grant from the National Science Foundation, was held at Northwestern University on June 25 and 26, 1954. It was attended by more than forty of the physicists who have the responsibility for directing the general physics laboratory work at their respective institutions. The publication under review is a full and carefully edited account of this conference.

While the whole report should be read if full justice is done to the conference, the main results were summarized by a Committee on Conclusions under the following headings: