In addition to the lapses in accuracy mentioned, it seems proper to call attention to the fact that this book shares with other introductory works on analysis the fault of creating an illusion of simplicity, facility, and even completeness. The addition of a thoroughgoing treatment of some fundamental topic as an example of the nature of a rigorous discussion would improve the work.

It is usual for authors of works of this sort to introduce the elementary transcendental functions for purposes of illustration in advance of their theoretical treatment. While this method undoubtedly adds to the interest of the discussion it seems likely that the student will eventually fail to distinguish clearly between the material which is logically presented and that which is illustrative. This can be avoided by an obvious rearrangement of subject-matter. This rearrangement is much to be preferred if the reader's interest can be sustained.

E. W. CHITTENDEN

Wahrscheinlichkeitsrechnung und ihre Anwendung in der Statistik und Theoretischen Physik. By Richard von Mises. Leipzig and Wien, Franz Deuticke, 1931. 574 pp.

Aside from its usefulness in technical applications, the theory of probability has recently taken on a significance secondary to that of very few mathematical issues. Philosophers have come to study it with a view to investigate its logical implications, and physicists have recently been accustomed to regarding it as the foundation of their science. Their acceptance of probability doctrines has frequently been uncritical, and it is safe to say that many difficulties in connection with the present status of quantum dynamics are consequences of an incomplete understanding of the basic probability postulates. In the midst of this situation the appearance of a book like that of von Mises is indeed a fortunate event.

It is well known that the author's views concerning the axioms of the probability theory are specific and exclusive, that they are disputed in several quarters. Nevertheless, in the opinion of the reviewer their value in applications, such as those made in the exact sciences, is unique, and it is gratifying to observe that, in this book, von Mises' frequency theory has been carried through consistently in a manner that is detailed and complete.

The book is the first volume of a series of treatises on applied mathematics. Continuations, dealing with hydromechanics, practical analysis, and applied geometry, are announced in the author's preface. The present volume contains four principal sections; the first two are concerned with the theoretical elements of the theory, the third is an application of probability to statistics and the theory of errors, the last discusses in a lucid fashion the foundation of physical statistics. Numerous problems of historical and practical interest are treated in the text, and to each section is appended a set of problems to be solved by the reader. The book is intended as a textbook. In conformity with this aim, the author has succeeded in making his exposition clear and concise. The treatment is more extended than is customary in American texts, but the greater length makes for easy reading. Indeed its reading is distinctly less difficult than that of most similar treatises, in spite of the complete logical rigor of the

presentation. This fact is particularly noteworthy in view of the circumstance that the development is built on axioms which are, in a sense, novel and unconventional.

The enormous wealth of the subject matter makes it impossible for the reviewer to pass individual judgment on detailed matters. As would naturally be expected, the author's illustrations center largely about his own researches. But this is felt to be no loss, since they are so extensive and varied as to impress no bias upon the general discourse.

Readers who are unwilling to work through the total volume, but desire information about specific topics, may use the book with considerable profit. The different sections, while logically and pedagogically related, can be understood fairly well without a thorough study of the preceding ones, and the alphabetical index is complete.

The printing is agreeable to the eye, and the number of misprints is remarkably small.

Criticism can be levelled at most against the author's philosophical stand, but this is likely to be quite pleasing to scientists. Only toward the end of the book, where the author deals excellently with the ergoden hypothesis, and with transition probabilities, the physicist feels that it would have been extremely desirable if the analysis had been extended to the more troubling problems encountered at present in quantum physics.

HENRY MARGENAU

Infinite Series. By Tomlinson Fort. Oxford University Press, 1930. iv+253 pp.

Professor Fort has written an excellent book of the type that he set out to write. The proofs are in general clean cut and clear, and it is evident that the work has been prepared with much care and thought.

The book is less comprehensive in scope and thus better adapted to the needs of the beginner than the well known treatises of Bromwich and Knopp. The exercises are sufficiently numerous and are well selected, thus adding to the value of the volume from the point of view of instruction. It is a matter of regret, in the opinion of the reviewer, that these advantages are somewhat counterbalanced by the form of exposition that has been chosen by the author. All results appear as numbered theorems with little or no suggestion as to their relative importance. It would require a considerable amount of perspicacity on the part of the unsophisticated reader to locate without assistance what might be termed the central features of the theory. For example, the fundamental necessary and sufficient condition for the convergence of a sequence appears as Theorems 15 and 16 (necessary and sufficient condition, respectively), with no particular indication of its unusual importance from the theoretical standpoint. We might remark in passing that the proof of the sufficient condition is more involved than need be.

The reviewer agrees in general with the selection of material and the relative amount of space allowed for various topics. He would prefer to see some of the more recondite parts of the theory of series, such as quasi-uniform convergence and similar topics, omitted, and more space devoted to such an important type of series as Fourier series. Likewise, he would advocate a different apportionment of space among the various methods for summing divergent