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 series, although the total number of pages devoted to this topic (forty-five) seems to be adequate for an introductory treatise.

In the chapter on multiple series the author follows Jordan in defining convergence in such a manner as to include only absolutely convergent series. The case of conditional convergence, usually designated as convergence in the Pringsheim sense, is relegated to one of the exercises. Both definitions go back to Cauchy, although the latter seems to have been unaware of the fact that they were not co-extensive. The distinction between them was pointed out in an article by Stolz, entitled *Ueber unendliche Doppelreihen*, which appeared in 1884 in volume 24 of the Mathematische Annalen. The detailed studies of the case of conditional convergence made later by Pringsheim have caused the latter's name to be associated with this type of convergence. It is true that absolutely convergent multiple series have certain useful properties not possessed by series that are only conditionally convergent. An analogous situation occurs, however, in the case of simple series, and there seems to be no adequate reason for restricting the definition of convergence for multiple series in such a manner as to rule out conditional convergence. Such a restriction is certainly not in harmony with general usage among modern researchers in the field of multiple series.

In view of the prevailing tendency, even in elementary instruction, to stress the importance of acquiring historical background in connection with the study of mathematics, one is surprised at the scant number of references to the literature of the subject that are found in the book. The reviewer thinks that when a student has reached the point where he is ready and willing to study such a topic as infinite series, he should begin to appreciate, if he has not previously done so, that mathematics is a living and growing science. He should be made to realize that any treatise which he studies is in the main an organization of results that have been discovered by various mathematicians of greater or lesser eminence, and he should learn the names of some of them. He should feel that, in addition to the direct knowledge gained, he is acquiring an avenue of approach to a far richer supply of related results, and in some cases at least, putting himself in a position to add to the stores of knowledge in the field in question. The book under review is not designed materially to help the student to any such realization.

Having registered dissent with the author's decision as to the manner in which he chose to present his material, the reviewer hastens to add that he nevertheless regards the book as a useful addition to the available literature on infinite series.

C. N. MOORE

Leopold Kronecker's Werke. Volume 3, Part 2. Edited by K. Hensel. Leipzig, B. G. Teubner, 1931. 216 pp.

This volume completes the edition of Kronecker's mathematical papers; it contains 9 papers, including the very important series of communications on modular systems and the theory of general complex numbers. Then follow applications of this theory, and two papers on the reduction of systems of quadratic forms. Hensel has added a few explanatory footnotes and a short list of misprints.

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