estimates stemming from Carleman for operators having an imaginary part lying in a p-ideal. The latter results make extensive use of the theory of analytic functions and especially of entire functions.

The principal application of these results in this volume is to the completeness problem of root spaces. Approximately one-third of the book is devoted to this problem along with a study of the various kinds of bases which can exist in Hilbert space and the notion of expansion appropriate to each. The early and fundamental results of M. V. Keldys in this area are presented in complete detail. A rather thorough presentation of this area is given with various techniques being illustrated. Lastly, various asymptotic properties of the spectrum of weakly perturbed operators are given.

In summary this book is a thorough and complete treatment along with many worthy contributions of some important but relatively neglected areas of abstract operator theory with applications to more immediate and concrete problems. We eagerly await the remaining two volumes.

RONALD DOUGLAS

Introduction to analytic number theory, by K. Chandrasekharan, Springer, 1968; *Arithmetic functions*, by K. Chandrasekharan, Springer, 1970; *Multiplicative number theory*, by Harold Davenport, Markham, 1967; *Sequences*, by H. Halberstam and K. F. Roth, Oxford University Press, 1966.

Recent years have seen an explosion in the number of books in most branches of mathematics and this is true of number theory. Most books contain little that is new, even in book form. This is the case of 8/3 of the four books in this review. They are well written and make good textbooks and pleasant reading but they are not revolutionary. The remaining 4/3 books are new in book form and we will spend most of the review on these.

We begin this review with a discussion of Chandrasekharan's *Introduction to analytic number theory*, which is a translation with some slight revisions of the author's *Einführung in die analytische Zahlentheorie* (Springer lecture notes series number 29). This book presupposes the usual knowledge of functions of a complex variable (i.e. Cauchy's theorem) but virtually no knowledge of number theory. Indeed, the book begins with the unique factorization theorem and in the early chapters moves through (among other things) congruences, the law of quadratic reciprocity and several standard arithmetical functions. The later chapters include Weyl's theorems on uniform distribution, Minkowski's convex body theorem, Dirichlet's theorem