vibrations of a clamped plate, a numerical example being given as an illustration. The author next develops what he needs of the theory of completely continuous operators on a Hilbert space and the spectral theorem for self-adjoint operators of that class. A further chapter is devoted to the Weinstein-Aronszajn method of approximating eigenvalues of completely continuous self-adjoint operators, the passage from the spectrum of one intermediary problem to the next being given in some detail. A short chapter on the problem of the vibrating plate illustrates the method. The book ends with a rather difficult chapter on the application of the method to general differential problems.

Although no special preparation is needed for the reading of the book, a mediocre student will find it quite difficult. He is required to absorb the fundamental concepts of the theory of Lebesgue integration, Hilbert spaces, completely continuous operators, Hilbert-Schmidt operators, reproducing kernels, functional and pseudo-functional completions, and systems of stable and unstable boundary conditions for differential problems. It is an ideal book to put in the hands of the graduate student whose interest in applied mathematics has led him to believe that mathematics itself (i.e. real variables, linear spaces etc.) is of no use to him. Besides providing an excellent introduction to the subject at the level where such an introduction is most needed, the book will also be useful as a readable survey of the study of eigenvalue problems for all who are unfamiliar with the subject.

Since this is a first printing, there are a number of rather obvious misprints which will not impede the reader; at two or three places in the text there are certain oversights in the arguments themselves which may delay a student somewhat, but in no case are these very serious.

WILLIAM F. DONOGHUE, JR.

Numerical analysis. By K. S. Kunz. New York, McGraw-Hill, 1957. 15+381 pp. $8.00.

This fine text book should be useful in a first course in numerical analysis given to students with backgrounds of calculus and elementary differential equations.

The first seven chapters cover the ABC's: Finite Differences, Interpolation, Differentiation and Integration, Roots of Equations. Included here is an interesting and useful chapter on summation of series, Euler's transformation, and various summation formulae. Then follow several long chapters devoted principally to three topics:

solution of ordinary differential equations, simultaneous linear equations, and elliptic partial differential equations via partial difference equations. These topics are covered adequately if not liberally as far as an introductory course would be concerned. Two final chapters on parabolic and hyperbolic equations and integral equations are perfunctory.

The text is liberally strewn with worked examples, and includes many problems, some theoretical, and some requiring numerical work with desk machines. Round-off, truncation, and instability, the three devils of numerical analysis, are introduced in such a way as to drive the student from the paradise of infinitely precise computation, without plunging him into the hell of infinitely precise error analysis. There is no direct treatment of electronic computers as such, but here and there are interpolated remarks to the effect that such and such technique is or is not well suited to automatic computers. There are a good many references to the recent literature on numerical analysis, and this way, the student should get the feeling that numerical analysis did not come to an end with Horner. On the other hand, these references are spotty; many references that one would like to see are not present, and this reviewer is left with the impression that the author was not clear how much to update his original notes of 1947–1949 in the face of the recent flux in the field.

PHILIP J. DAVIS

Primzahlverteilung. By Karl Prachar. Berlin, Göttingen, Heidelberg, Springer-Verlag, 1957. 10+415 pp. DM 55. Bound DM 58.

This treatise is a distinguished sequel to Landau's monumental *Handbuch*. It contains a skillfully presented, up-to-date and extensive account of that recondite branch of number theory—the analytic theory of the distribution of primes. Within its ten chapters are incorporated many remarkable new results never previously treated in any book. Above all, here may be found: Selberg's improvement of the Viggo Brun sieve technique; various interesting results of Erdös on the difference of consecutive primes; the theorem that almost every even integer is representable as the sum of two odd primes; Tatuzawa's proof of Rodosskii's theorem on the distribution of primes in "short" arithmetic progressions; the best known error term in the prime number formula; the theorems of Hoheisel, Ingham and Tatuzawa on the difference of consecutive primes; Rodosskii's proof of the celebrated theorem of Linnik on the smallest prime in an arithmetic progression.

Because of the enormity of his program the author reluctantly