

CHANDRASEKHARAN, K., *Introduction to Analytic Number Theory* (Springer-Verlag, Berlin-Heidelberg-New York, 1968), viii + 140 pp., \$7.00.

This is volume 148 in the famous "Die Grundlehren der mathematischen Wissenschaften in Einzeldarstellungen" series. As one would expect, in the short space of 130 medium sized pages of text, a book containing 11 chapters cannot enter deeply into many topics. Nevertheless the book is written in a style that avoids any sense of packing; for example, three proofs are given of the unique factorization theorem, each involving the introduction of different sets of necessary basic ideas. The fact that the book is not of the type with exercises within and at the end of each chapter gives the author considerable freedom in the choice of material and in the choice of proofs. For example, after a fairly standard introduction to quadratic residues, the law of quadratic reciprocity is proved from the reciprocity property for generalized Gaussian sums. This of course assumes the fair amount of necessary complex variable theory and could not be given until a fairly late stage of an Honours course. The two main results proved are Dirichlet's theorem on primes in an arithmetical progression and the prime number theorem. For the first of these a fairly standard use of Dirichlet's L-functions is employed, all the necessary work on characters and Dirichlet series being described, and, for the second, a proof using the Wiener-Ikehara theorem is given in terms of Chebyshev's function  $\psi$ , all the necessary work on arithmetical functions and estimates on the distribution of prime numbers being given in earlier chapters. Two other chapters contain work on Weyl's theorems on uniform distribution and Kronecker's theorem and Minkowski's theorem on lattice points in convex sets. While the claim that the book is written for the non-specialist may not be entirely justified, nevertheless it is written in a most attractive style with interesting notes at the end and printed with the usual high standard associated with this series.

J. HUNTER

#### BRIEF MENTIONS

TURNER, E. M., *Teaching Aids for Elementary Mathematics* (Holt, Rinehart and Winston, New York and London, 1966), x + 149 pp., paperback.

A colourfully illustrated collection of puzzles, problems and recreations intended as teaching aids. Among the contents are cross-number puzzles, magic squares, the Möbius strip, game codes, the sieve of Eratosthenes, Venn diagrams; there is an answer section. Teachers in British schools might use some of the ideas at a very elementary level, though "Mathematical cookie-cutters" might need translation!

ADAMS, L. J. AND WHITE, P. A., *Analytic Geometry and Calculus*, 2nd edition (Oxford University Press, 1968), xiii + 975 pp., 102s.

A compendious textbook of the familiar American style and title, nicely produced, with a large number of examples and answers to the odd-numbered ones. Besides the usual calculus there are chapters on infinite series, approximate integration, conics, vectors and solid analytic geometry, differential equations. The first edition appeared in 1961.