usefulness of the book for beginners. More specialized readers may find it quite useful.

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The Confluent Hypergeometric Function. BY HERBERT BUCHHOLZ. Springer-Verlag, New York (1969). 238 pp.

The book under review is the English translation of the original German edition which appeared in 1952. Since that time the text has become recognized as the standard treatise in the field. One of the more noteworthy features of the text is the emphasis placed on the physical applications of confluent hypergeometric functions to problems in mathematical physics, in particular the wave equation in parabolic coordinates. The author's viewpoint is basically that of Whittaker and hence aside from a few basic definitions and relationships for Kummer's function the text is devoted to the study of Whittaker functions.

Chapter 1 is concerned with the differential equations satisfied by the Whittaker and related functions, with applications to the wave equation. In Chapter 2 integral representations are obtained and used in Chapter 3 to derive asymptotic expansions. Chapter 4 is devoted to the derivation of a wide variety of series and integrals involving various special cases of the Whittaker functions. In Chapter 5 series of polynomials related to the Whittaker functions (such as those of Laguerre, Hermite, Charlier, etc.) are examined. In Chapter 6 integrals with respect to various parameters are discussed and applications are made to problems in wave propagation. Chapter 7 is concerned with the zeros of the Whittaker functions and to eigenvalue problems arising in physical applications. Included is a discussion of the Green's function for the reduced wave equation in a region bounded by confocal paraboloids of revolution. The book concludes with a summary of special cases of the Whittaker functions, which include cylinder functions, the incomplete gamma function, parabolic cylinder functions, the error and Fresnel integrals, Hermite and Laguerre polynomials, and many others.

The English translation of this important text is more than welcome and the reviewer feels it should occupy a prominent place on the bookshelf of every applied mathematician.

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Lie Theory and Special Functions. BY WILLARD MILLER, JR. Academic Press, New York (1968). xv+338 pp.

On the beginner, the theory of special functions makes the impression of a chaos of formulae which are not connected with each other by some general ideas. A

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