21[L].—EARL D. RAINVILLE, *Special Functions*, The Macmillan Co., New York, 1960, xii + 365 p., 24 cm. Price $11.75.

This aptly titled, interesting, extremely well written book is based upon the lectures on Special Functions given by the author at the University of Michigan since 1946. The author's aim in writing the book was to facilitate the teaching of courses on the subject elsewhere. As an instructor in such a course, the reviewer feels certain that this most welcome text is to be accorded a warm reception on many college campuses.

More than fifty special functions receive varying degrees of attention; but, for the sake of usefulness, the subject is not approached on the encyclopedic level. Many of the standard concepts and methods which are useful in the detailed study of special functions are included. There is a great deal of emphasis on one of the author's favorite subjects: generating functions. Two interesting innovations are I. M. Sheffer's classification of polynomial sets and Sister M. Celine Fasenmyer's technique for obtaining recurrence relations for sets of polynomials. Functions of the hypergeometric family hold the center of the stage throughout a major portion of the text. The book concludes with a short current bibliography which should enable the reader to begin a more detailed study of the field.

There are twenty-one chapters in all, and the book may be roughly divided into four distinct parts:

(1) Two short preliminary chapters, 1 and 3, deal separately with infinite products and asymptotic series, respectively.

(2) Chapter 2 treats the gamma and beta functions, and chapters 4, 5, 6, and 7 are devoted to the hypergeometric family: the hypergeometric function, generalized hypergeometric functions, Bessel functions, and the confluent hypergeometric function, respectively.

(3) Chapter 8 is concerned with the generating function concept, as a preparation to chapters 9, 10, 11, and 12, which consider orthogonal, Legendre, Hermite, and Laguerre polynomials, respectively. Chapter 13 contains I. M. Sheffer's classification of polynomial sets; chapter 14 contains Sister M. Celine Fasenmyer's technique for obtaining recurrence relations for polynomials; and chapter 15 contains symbolic relations among classical polynomials. There follow three polynomial chapters: 16, 17, and 18, on Jacobi, ultraspherical and Gegenbauer, and other polynomials, respectively.

(4) The concluding three chapters, 19, 20, and 21, are devoted to elliptic functions, theta functions, and Jacobian elliptic functions, respectively.

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22[L].—L. J. SLATER, *Confluent Hypergeometric Functions*, Cambridge University Press, New York, 1960, x + 247 p., 29 cm. Price $12.50.

This is a valuable treatise on the subject, and the first of its kind in English. Tricomi [1] and Buchholz [2] have previously written books on the subject in Italian and German, respectively. Tricomi used the notation derived from the theory of hypergeometric functions, and this also is the principal notation employed in the Bateman Manuscript Project [3]. Buchholz uses the notation introduced by Whit-