BOOK REVIEWS

Bibliography on Orthogonal Polynomials. By J. A. Shohat, Einar Hille, and J. L. Walsh. Washington, D. C., National Academy of Sciences, 1940. 9+203 pp. $3.00.

This bibliography is concerned principally with Hermite, Legendre, Laguerre, Jacobi, Tchebycheff, and related polynomials. These polynomials, which enter into many phases of pure and applied mathematics, happen to be both important and interesting. Since the time of Legendre (1752–1833) new applications have been requiring new advances in the theory of the polynomials, and new advances in the theory have been finding new applications. Hence it is inevitable that the literature of the subject has grown to vast proportions and will continue to grow. One who, by reason of preference or necessity, wishes to become acquainted with the whole theory or with some part of it is embarrassed not only by the extensiveness of the literature but also by the fact that so many different persons have made contributions in so many different books and periodicals. It is fortunate that the National Research Council of the National Academy of Sciences has collaborated with the three authors to bring forth this bibliography.

The book begins with an alphabetical list of complete titles of 332 periodicals. These periodicals are thereafter referred to by number. This necessitates repeated reference to the list of titles, but it eliminates confusion which results from abbreviations.

The second part of the book gives a code index. Some Roman capitals represent special classical orthogonal polynomials (OP); for example H represents Hermite OP. Other Roman capitals specify the domain of orthogonality and the character of the weight-function. Lower case Greek letters refer to topics, properties, applications, etc.; subheadings are lower case Roman letters and then Arabic numbers. For example α refers to general properties of OP; αd to zeros of OP; Hαd to zeros of Hermite OP; and Hαd4 to bounds for the zeros of Hermite OP. The symbol β refers to expansions of functions; βa1, βa2, $\cdots$, βa19 refer to 19 different classes of functions (L, L^2, L^p, continuous, bounded variation, etc.) to be expanded; and βb1, $\cdots$, βb19 refer to properties of expansions. For example βb14.1, $\cdots$, βb14.9 refer to 9 different types of convergence of expansions such as uniform, absolute, almost everywhere, and in mean; and βb15.1, $\cdots$, βb15.6 refer to summability of expansions. The symbol γ refers to general series of OP not necessarily resulting from expan-