

$$- \sum_1^{\infty} \frac{\lambda_n \cos nx + \mu_n \sin nx}{n^2}$$

and then “convolves” the series (22) with that of a testing function in the appropriate manner.

We have recounted all this with a view to suggesting that it would not be easy to decide what the general innovations in the present work are, analytical and even conceptual, and that it is in order to appraise the value of the book by its specific results, such as we have extracted above; and of such let the author produce many more, by all means.

S. BOCHNER

*Tables relating to Mathieu functions. Characteristic values, coefficients, and joining factors.* Prepared by the Computation Laboratory of the National Applied Mathematics Laboratories, National Bureau of Standards. New York, Columbia University Press, 1951. 48+278 pp. \$8.00.

Since its foundation (January 1938) the New York Unit of the Computation Laboratory of the National Applied Mathematics Laboratories, a division of the National Bureau of Standards—until July 1947 it was called the Mathematical Tables Project—has been very active in producing extensive and accurate numerical tables of important mathematical functions. Besides a series of tables of the elementary transcendents, they have published almost a dozen tables relating to the higher transcendents such as sine, cosine, and exponential integrals, probability functions, Bessel functions, Legendre functions. No matter how high-speed electronic calculating machinery may be further developed, applied mathematicians will always owe a great debt to these and other table-makers.

This particularly holds for the fascinating tables under review. As Professor Erdélyi emphasizes in the foreword, the comparatively slender numerical material available for Mathieu functions shows the urgency of the task undertaken by the National Bureau of Standards. The more so, since several important problems of applied mathematics and theoretical physics involving Mathieu functions have so far received only little attention because of lack of adequate numerical data. These problems include all types of vibrational, wave and diffusion problems connected with ellipses or elliptic cylinders, as well as stability investigations of various mechanical systems, the theory of frequency modulation, and loud-speaker theory.