use of the recursion formula for such polynomials employed in the backward direction. On p. 120, he says that the scheme is "unbeknownst to many wizards of numerical analysis." The author seems unaware that the principle is far more general than the one he gives. He presents no references to original papers, and the round-off error problem of computing with recursion formulas is not even mentioned.

The volume is divided into two parts. Part I—Theory, is composed of three chapters—introduction, orthogonal functions and orthogonal polynomials. Part II—Applications—is also composed of three chapters—numerical analysis, partial differential equations, and probability theory and random processes.

If some one must seek information on the topics covered in this book, I believe he has the wrong book.

Y. L. L.

1. I. S. GRADSHTEYN & I. M. RYZHIK, *Tables of Integrals, Sums, Series and Products* (in Russian), 4th ed., Moscow, 1963. (See *Math. Comp.*, v. 20, 1966, pp. 616-617 and references given there.)

2. Y. L. LUKE, *The Special Functions and Their Approximations*, Vols. 1 and 2, Academic Press, 1969. (See *Math. Comp.*, v. 26, 1972, pp. 297-299.)

40[7].—HARRY E. RAUCH & AARON LEBOWITZ, *Elliptic Functions, Theta Functions, and Riemann Surfaces*, The Williams and Wilkins Co., Baltimore, Maryland, 1973, xii + 292 pp., 24 cm. Price $20.—.

According to the preface, this volume is designed as a text for advanced undergraduate students and graduate students who have had an introductory course in complex variable theory. The authors also have in mind readers interested in self-study, applied workers and researchers in pure mathematics.

The subject matter of the text is aptly described by its title. The material is quite classical and is divided into four chapters—I. Riemann Surfaces and Elliptic Functions, II. Theta Functions and Elliptic Functions, III. Elliptic Integrals of Second and Third Kinds and the Representation of Elliptic Functions, IV. Transformation Theory. There are also seven appendices spread throughout the text.

There is no dearth of material from which mathematical courses can be developed. Fundamental courses aside, it is subject matter of current research interest which for the most part dictates the contents of a course. The topics covered by the volume at hand are classical and have been thoroughly worked over. As far as I know, except for numerous mathematical tables of functions, there is little research done on the subjects. The authors claim in the preface that there is a revival of interest in theta functions of several variables, and as a consequence believe treatment of the single variable case useful. However, there are no references to back this statement. Indeed, except for a few references to books (and these are mostly classical and not easily inaccessible to most readers), there are but two references to original papers

and these are dated 1957 and 1965. References to mathematical tables and related data are absent. It is unfortunate that a number of references to books and papers dating from about 1956 which are accessible to most readers are not noted.

There are no exercises and this coupled with our above comments suggests that the volume is not likely to be used as a text. On the other side of the ledger, the tome is quite readable and contains much information of value to applied and pure research workers.

Y. L. L.

41[7].—L. S. SRINATH, K. R. SARMA & S. V. PATANKAR, Editors, *Basic Engineering and Mathematical Tables,* Tata McGraw-Hill Publishing Co., Bombay and New Delhi, 1971, x + 136 pp., 24 cm. Price $9.95.

This compact set of mathematical and engineering tables has been designed primarily to meet the needs of students of engineering and science for such information.

The first part, subtitled Mathematical Tables, contains a total of 14 numerical tables consisting, respectively, of 4S or 5S values of the standard elementary functions, zeros of the Bessel function of the first kind, and the normal distribution function. In addition, this part includes sets of formulas from algebra, geometry, trigonometry, analytic geometry, calculus (including tables of 174 indefinite and 80 definite integrals), complex variables, vector analysis, operational calculus, and statistics. Also included is a table of 35 physical quantities (with dimensions and units), as well as related tables of the principal physical atomic constants, and a useful list of conversion factors.

The latter part of the book, subtitled Engineering Tables, consists of a total of 74 engineering tables, arranged under the broad headings of analytic mechanics; mechanics of solids; and physical, mechanical, electrical, and thermal properties of substances.

Careful examination has revealed that several of the tables contain erroneous entries. For example, on p. 22 last-place errors occur in the values of e^{-x} for $x = .04$ and .06, in e^{x} for $x = .47$ (where only a 4D approximation appears), in $\sinh x$ for $x = 5.2$ and 5.3, and in $\cosh x$ for $x = 5.2$. More serious errors occur on p. 60 in the 3D table of the first nine positive zeros of $J_p(x)$ for $p = 0(1)5$, where half the entries require correction. The source of this table can be traced ultimately to the table of Bourget, whose errors are discussed and corrected in the FMRC *Index* [1].

Furthermore, the table of the normal distribution function (pp. 68–69) contains a total of 16 errors, all in the last decimal place except for the entry corresponding to $z = 1.82$, where one should read .9656 in place of .9556. On p. 102 this reviewer discovered through recalculation a total of 15 errors in the table of $e^{u\theta}$.