

1. L. N. OSIPOVA & S. A. TUMARKIN, *Tables for the Calculation of Toroidal Shells*, Akad. Nauk SSSR, Moscow, 1963. (See *Math. Comp.*, v. 18, 1964, pp. 677-678.)
2. S. A. TUMARKIN, "Asymptotic solution of a linear nonhomogeneous second order differential equation with a transition point and its application to the computations of toroidal shells and propeller blades," *Prikl. Mat. Meh.*, v. 23, 1959, pp. 1083-1094; English transl., *J. Appl. Math. Mech.*, v. 23, 1959, pp. 1549-1565.
3. MILTON ABRAMOWITZ & IRENE A. STEGUN, Editors, *Handbook of Mathematical Functions with Formulas, Graphs and Mathematical Tables*, Applied Mathematics Series No. 55, U. S. Government Printing Office, Washington, D. C., 1964. (See *Math. Comp.*, v. 19, 1965, pp. 147-149.)
4. Y. L. LUKE, *Integrals of Bessel Functions*, McGraw-Hill, New York, 1962. (See *Math. Comp.*, v. 17, 1963, p. 318-320.)
5. R. S. SCORER, "Numerical evaluation of integrals in the form $I = \int_{x_1}^{x_2} f(x)e^{i\psi(x)}dx$ and the tabulation of the function $G_i(z) = 1/\pi \int_0^\infty \sin(uz + u^3/3) du$ ", *Quart. J. Mech. Appl. Math.*, v. 3, 1950, pp. 107-112. (See *MTAC*, v. 4, 1950, p. 215.)
6. M. ROTHMAN, "The problem of an infinite plate under an inclined loading with tables of the integrals of $A_i(\pm x)$ and $B_i(\pm x)$," *Quart. J. Mech. Appl. Math.*, v. 7, 1954, pp. 1-7. (See *MTAC*, v. 8, 1954, p. 162.)
7. M. ROTHMAN, "Tables of the integrals and differential coefficients of $G_i(x)$ and $H_i(-x)$," *Quart. J. Mech. Appl. Math.*, v. 7, 1954, p. 379-384. (See *MTAC*, v. 9, 1955, pp. 77-78. On the latter pages are descriptions of further tables related to Airy functions and their integrals. See also [3].)
8. HARVARD UNIVERSITY COMPUTATION LABORATORY, *Annals*, Vol. 2, *Tables of the Modified Hankel Functions of Order One-Third and Their Derivatives*, Harvard Univ. Press, Cambridge, Mass., 1945. (See *MTAC*, v. 2, 1946, pp. 176-177.)
9. K. SINGH, J. F. LUMLEY & R. BETCHOV, *Modified Hankel Functions and their Integrals to Argument 10*, Engineering Research Bulletin B-87, The Pennsylvania State University, University Park, Penn., 1963. (See *Math. Comp.*, v. 18, 1964, p. 522.)

39[L, X].—F. TÖLKE, *Praktische Funktionenlehre*, Band II: *Theta-Funktionen und spezielle Weierstrasssche Funktionen*, Springer-Verlag, Berlin, 1966, vii + 248 pp., 28 cm. Price DM 84.

This is the first part of a monumental work on theta functions and elliptic functions. It contains an incredible wealth of formulas and theorems involving the elliptic theta functions and those of Weierstrass' elliptic functions which have periods 1 and $i\kappa$ or 1 and $\frac{1}{2} + i\kappa/2$. Four future volumes will treat the Jacobi elliptic functions, special Weierstrass Zeta and Sigma functions, elliptic integrals and Jacobi elliptic functions in the complex domain, general Weierstrass elliptic functions and derivatives with respect to the parameter, integrals of Theta functions and bilinear expansions. The final volume will contain numerical tables.

The present volume consists of four chapters and altogether 107 sections. Everything that can be expected to be helpful to the applied mathematician is derived briefly and stated in full detail, including approximation formulas for the parameter functions which are correct up to the fifth decimal. Partial differential equations, derivatives, values for specialized arguments and addition theorems for the Theta functions are given in great detail. Many expansions are given with a large number of numerical coefficients. The Weierstrass elliptic integrals in normal form (of the 2nd and 3rd kinds) are expressed in terms of the logarithms of the Theta functions. There are 765 numbered formulas, but many of them are groups of formulas. To the best of the knowledge of the reviewer, nothing comparable in completeness and abundance of details exists in the literature.

There is no index, but the table of contents provides a very good orientation. The list of references consists of 147 entries; however, the *Handbook of Elliptic Integrals for Engineers and Physicists* by P. F. Byrd and M. D. Friedman, Springer, Berlin, 1954, is missing, probably because it has little in common with the present work.

This is certainly no textbook, but it is a very valuable source of information for

anyone who needs detailed knowledge of these functions for problems in physics and technology. (The algebraic aspects, e.g. the transcendental solution of the generic equation of fifth degree in terms of Theta functions seem to have been excluded entirely.) However, there is one more aspect of the book which should be mentioned since it may appeal to a large number of mathematicians of all professional denominations. The behavior of several functions, in particular of Weierstrass' \wp -function in the complex domain is illustrated by numerous magnificent drawings. Of these, the figures on pp. 168, 169, 175, 177 and 199 deserve special mention.

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40[P, T, VI].—JERRY DEAN PEARSON & ROBERT C. FELLINGER, *Thermodynamic Properties of Combustion Gases*, The Iowa State University Press, Ames, Iowa, 1965, xv + 213 pp., 24 cm. Price \$7.50.

The book is a collection of tables of the equilibrium thermodynamic properties of the products of combustion of a hydrocarbon fuel at high temperatures. The fuel must be of the type $C_K H_{2K}$ where K is any integer.

The tables give the enthalpy, entropy, molecular weight, specific heat ratio, and sonic velocity of the combustion products as a function of the total pressure and temperature of the gas mixture in various percentages for stoichiometric oxygen. The pressures range from .01 to 25 atmospheres and temperatures from 1500°K to 3500°K.

The book should be of use primarily to mechanical or aeronautical engineers interested in combustion problems.

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41[P, W, X, Z].—LÁSZLÓ KALMÁR, Editor, *Colloque Sur les Fondements des Mathématiques, les Machines Mathématiques, et Leurs Applications*, Gauthier-Villars, Paris, 1965, 317 pp., 24 cm. Price \$8.00.

This volume contains a selection from the lectures presented at the Colloquium "Foundations of Mathematics, Mathematical Machines and Their Applications", held at Tihany, Hungary, September 11–15, 1962. The papers presented are grouped into seven categories:

1. Foundations of Mathematics and Mathematical Logic. This section contains papers by the following authors: J. Bečvář, A. Church, H. B. Curry, Gy. Graetzer, K. Haertig, H. Hermes, M. Makkai, G. H. Mueller, H. Rasiowa, E.-J. Thiele, V. Vučkovič, S. Watanabe.

2. Abstract Theory of Automata and Computers. Papers by: T. Frey, M. A. Gavrilov, L. Kalmár, R. Péter.

3. Circuit Theory. Papers by: A. Ádám, Ya. Barat, M. Coroi-Nedelcou, I. Fenyoe, H. Rohleder.