coefficients of the best polynomial approximations (in the sense of Chebyshev) to certain trigonometric functions and their inverses. This information was extracted from the publications of Hastings [1] and of succeeding workers in the field of polynomial approximation, to which specific reference is made in the bibliography.

Chapter IV consists of brief descriptions of algorithms used for computing elementary functions on several Soviet computers, namely, Strela, BESM, M-2, M-3, and Ural.

The first appendix consists of an exposition of the definitions, mathematical properties, and various expansions of the gudermannian, harmonic polynomials, the hypergeometric function, and orthogonal polynomials (including those of Legendre, Chebyshev, Laguerre, and Hermite). This appendix is concluded with the tabulation to 6D of the zeros of the following polynomials: $P_n(x)$, $n = 1(1)40$; $L_n(x)$, $n = 1(1)15$; $H_n(x)$, $n = 1(1)20$; and $h_n(x)$, $n = 1(1)22$.

The second appendix consists exclusively of pertinent mathematical tables. Table 1, entitled Coefficients of Certain Series, gives for $n = 1(1)10$: n^{-1} and $\sum_{h=1}^{n} k^{-1}$ to 5D; exact values of $n!$, $(2n - 1)!!$, $(2n)!!$ and their reciprocals to from 5 to 11D; $n!/(2n - 1)!!$, $2^n n!/(2n + 1)!!$, $(2n - 1)!!/2^n n!$, all to 5D; $(2n - 1)!!/2^n n!(2n + 1)$, 6–7D; $(2n - 1)!!/2^{n+1}(n + 1)!$, 5–7D; and $(2n - 1)!!/2^{n+1}(n + 1)! \cdot (2n + 3)$, 6–8D. Table 2 gives to at most 8S the binomial coefficients $\binom{n}{m}$ for $n = 1(1)50$, while Table 3 gives the exact values of these coefficients $\binom{\nu}{m}$ for $m = 1(1)6$, $\pm\nu = \frac{1}{2}(1)\frac{7}{2}, \frac{1}{3}, \frac{2}{3}, \frac{4}{3}, \frac{1}{4}(\frac{1}{2})\frac{5}{4}$, and $-\nu = 1(1)5$. Table 4 gives sums $\sum_{k=1}^{n} k^r$ for $r = 1(1)5$, $n = 1(1)50$. In Table 5 the gudermannian, $\mathrm{gd}(x)$, is given to 5D for $x = 0(0.01)5.99$ and to 6D for $x = 6(0.01)9$. The inverse gudermannian $\arg \mathrm{gd}(x)$ is given in Table 6 to 5D for $x = 0(0.01)1.57$, and to 3D for $x = 1.47 \cdot (0.001)1.57$. Table 7 consists of 4D values of $P_n(x)$ for $n = 2(1)7$, $x = 0(0.01)1$. The normalized Laguerre polynomials $(1/n!)L_n(x)$ are tabulated to 4D in Table 8, corresponding to $n = 2(1)7$, $x = 0(0.1)10(0.2)20$. Finally, in Table 9 there are listed 4D values of the Hermite polynomials $(-1)^n h_n(x)$ for $n = 2(1)6$, $x = 0(0.01)4$.

In summary, this handbook constitutes the most complete compilation of formulas extant for the computation of the elementary mathematical functions, attractively arranged in a very convenient and accessible form. It can be recommended as a valuable accession to the libraries of all individuals and laboratories whose work involves numerical mathematics.

J. W. W.

1. C. Hastings, J. T. Hayward & J. P. Wong, *Approximations for Digital Computers*, Princeton Univ. Press, Princeton, N. J., 1955. See *MTAC*, v. 9, 1955, pp. 121–123, RMT **56**.
2. I. M. Ryshik & I. S. Gradstein, *Tables of Series, Products, and Integrals*, VEB Deutscher Verlag der Wissenschaften, Berlin, 1957. See *Math. Comp.*, v. 14, 1960, pp. 381–382, RMT **69**.

65[C, D].—L. A. Lyusternik, Editor, *Ten-Decimal Tables of the Logarithms of Complex Numbers and for the Transformation from Cartesian to Polar Coordinates*, Pergamon Press, New York, 1965, ix + 110 pp., 25 cm. Price $7.50.

This set of tables, constituting Volume 33 of the Mathematical Tables Series of Pergamon Press, is a reprint, with a translation by D. E. Brown, of *Desi͡atiznachnye tabli͡tsy logarifmov kompleksnykh chisel i perekhoda ot Dekartovykh koordinat k* *poliarnym*, originally published in Moscow in 1952 by the Academy of Sciences of the USSR and reviewed in this journal [1].

The following four functions are herein tabulated to 10D, each at interval 0.001, together with first and second differences:

$$\ln x,\ 1 \leqq x < 10; \qquad \tfrac{1}{2}\ln(1 + x^2),\ 0 \leqq x \leqq 1;$$

$$\arctan x,\ 0 \leqq x \leqq 1; \quad \text{and} \quad (1 + x^2)^{1/2}, \qquad 0 \leqq x \leqq 1.$$

A supplementary loose sheet contains: a 4D table of $x(1 - x)/2$ for $x = 0(0.001)0.5$ to facilitate quadratic interpolation; a 12D table of $\ln 10^n$ for $n = 1(1)25$; and 10D values of $\ln(-1)$ and $\ln i$.

Regrettably no attempt appears to have been made to correct in this reprint the 16 known errors [2] in the original tables. This unfortunately common practice of reprinting mathematical tables without proper attention to previously published errata cannot be condoned.

A further adverse criticism is the complete absence of any bibliographic references. A good list of such references is to be found in the fundamental double-entry conversion tables [3] of the Royal Society.

It seems appropriate here to point out that the first 90 pages of the total of 110 pages comprising the present tables are devoted to the tabulation of $\ln x$, which has been adequately tabulated to 16D—however, without differences—for an interval of 10^{-4} in the argument over the same range in the well-known NBS tables [4].

Despite these defects, the present tables constitute one of the most useful working tables for conversion from rectangular to polar coordinates.

J. W. W.

1. *MTAC*, v. 8, 1954, p. 149, RMT **1206.**
2. *MTAC*, v. 11, 1957, pp. 125–126, MTE **253.**
3. E. H. Neville, *Rectangular-Polar Conversion Tables*, Royal Society Mathematical Tables, v. 2, Cambridge Univ. Press, Cambridge, 1956. (*MTAC*, v. 11, 1957, p. 23, RMT **3.**)
4. NBS Applied Mathematics Series, No. 31, *Table of Natural Logarithms for Arguments between Zero and Five to Sixteen Decimal Places*, U. S. Government Printing Office, Washington, D. C., 1953. (*MTAC*, v. 8, 1954, p. 76, RMT **1167.**) NBS Applied Mathematics Series, No. 53, *Table of Natural Logarithms for Arguments between Five and Ten to Sixteen Decimal Places*, U. S. Government Printing Office, Washington, D. C., 1958. (*MTAC*, v. 12, 1958, pp. 220–221, RMT **86.**)

66[D].—W. K. Gardiner & E. B. Wright, *Five-Figure Table of the Functions* $1/(1 - \tan\theta)$ *and* $1/(1 - \cot\theta)$ *for the Range* $-90°(1')90°$, NRL Report 6362, U.S. Navy Research Laboratory, Washington, D.C., 1965, 50 pp., 26 cm. Price \$2.00. Copies available from Clearinghouse for Federal Scientific and Technical Information (CFSTI), 5285 Port Royal Road, Springfield, Virginia 22151.

According to the introduction, this table was prepared to facilitate the application of the method of Ivory [1] to determine the Seebeck coefficients of various sample materials with respect to given thermocouple materials.

In their prefatory remarks the authors state that the tabular entries were obtained by rounding to 5S the corresponding results obtained on an IBM 1620 computer, using a word length of 13 decimal digits. Errors of transcription were minimized by printing the tables from punched-card computer output, followed by