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:

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

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

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 photographic reproduction. The maximum error in any entry is claimed to be less than 0.50005 in units of the least significant figure.

The tabular data are arranged quadrantally for each sexagesimal minute in floating-point format, the values for each successive pair of degrees appearing on a single page. Thus, the tabulated values of the functions $1/(1 \pm \tan \theta)$ are read from the top to the bottom of each page, while those of the functions $1/(1 \pm \cot \theta)$ are read in the reverse direction, using the indicated complementary angles. In this manner the range of argument stated in the title is covered.

The table user is further assisted by a composite graph of the tabulated functions, which immediately precedes the tables.

This unique table should be a useful addition to the extensive tabular literature devoted to the trigonometric functions.

J. W. W.

1. J. E. IVORY, "Rapid method for measuring Seebeck coefficient as ΔT approaches zero," *Rev. Sci. Instr.*, v. 33, 1962, pp. 992–993.

67[D, P, R].—L. S. KHRENOV, *Tables for Computing Elevations in Topographic Levelling*, translated by D. E. Brown, Pergamon Press, New York, 1964, vii + 200 pp., 26 cm. Price $10.00.

This translation of *Tablitsy dlya vychisleniya prevyshnii*, originally published in Moscow, constitutes Volume 31 of the Pergamon Preess Mathematical Tables Series.

We are informed in the Preface that topographic levelling is used to determine elevations when the horizontal distances between points to be levelled are known either through direct measurement or by trigonometric calculations.

The main table (Table I) permits elevations h ($= d \tan \alpha$) in meters to be read off directly to 2 decimal places for the angle of elevation $\alpha = 1'(1')5°50'$ and the distance $d = 1(1)350$ meters. Flexibility in the use of the table is attained by virtue of the fact that d (in meters) and α (in minutes of arc) can be interchanged, with a resultant error in h not exceeding 0.047 m., as demonstrated on p. 193, in the section entitled "Theoretical Basis and Description of Tables I and II."

Furthermore, this range in d and in α can be doubled, as the author points out, by use of the formula $h = h' + \Delta h$, where $h' = 2d \tan \alpha/2$ and $\Delta h = \frac{1}{4} d\alpha^3 \sin^3 1'$. The necessary correction, Δh, is included in the right margins of Table I.

Table II simply consists of values of $1000 \tan \alpha$ to 5 significant figures for $\alpha = 11°(1')31°$.

Table III (Slope corrections ΔD for distances measured by tape) gives $\Delta D = 2D \sin^2 \alpha/2, D = 40(10)90, 200, 300$, 3 dec.; $D = 1000$, 2 dec.; $\alpha = 0°(10')30°$.

The following table (Reductions to horizontal of slopes measured by tape) gives $D \cos \alpha, D = 60(10)90, 400, 500$, 2 dec.; $D = 100(100)300$, 3 dec.; $\alpha = 1°(1°)30°$.

For the same range in α, Table V (Corrections D for slopes of distances measured by range-finder) gives $D \sin^2 \alpha$ to 1 dec. for $D = 100(100)900$.

The same ranges in α and D and the same precision appear in Table VI (Reductions to horizontal of slope distances measured by range-finder) which tabulates $D \cos^2 \alpha$.