metric functions; T. 39 for sine, cosecant and cotangent for an angle $0(0'.1)2°12'$ and T. 40 all six functions for an angle $0(1')90°$, Δ.

This volume has a neat blue cover with two gold lines around the edge of the front cover; it is well printed on a good grade of white paper. It seems likely that a person who uses the table frequently will grow to be very fond of the book.

CHARLES H. SMILEY

Brown University

EDITORIAL NOTE: On p. 79, heading, *for* Tab. 39, *read* Tab. 30.

MATHEMATICAL TABLES—ERRATA

In this issue references have been made to Errata in RMT **579** (Uhler), **580** (France), **584** (Kariakin), **596** (Jahnke & Emde), **605** (Ugarov), **606** (Guldhammer); **N96** (Pitiscus).

145.—G. F. BECKER & C. E. VAN ORSTRAND, *Hyperbolic Functions*, Fifth reprint, 1942. See *MTAC*, v. 2, p. 311 and v. 3, p. 200.

Using the NBSCL, *Tables of the Exponential Function* e^x, second edition, 1947, I find the following values:

tanh 0.174 = 0.17226 50005 13, cosh 0.911 = 1.44446 49997 49,
tanh 0.932 = 0.73152 49994 56, tanh 1.381 = 0.88117 49957 43,
tanh 1.986 = 0.96302 50028 60.

The roundings of these values to five decimals had been left in doubt in MTE **129.** These results indicate the following three "errors in excess of 5 units in the next succeeding place of decimals" in *Hyperbolic Functions*:

page	*u*	function	*For*	*Read*
109	0.174	tanh *u*	.17226	.17227
124	0.932	tanh *u*	.73153	.73152
145	1.986	tanh *u*	.96302	.96303

E. G. H. COMFORT

Illinois Institute of Technology

146.—R. A. FISHER, "On the 'probable error' of a coefficient of correlation deduced from a small sample," *Metron*, v. 1, no. 4, 1921, p. 3–32. On p. 26–27 is a table of $\tanh^{-1} x = \frac{1}{2}[\ln(1+x) - \ln(1-x)]$, $x = [0(.01).9(.001)1; 7D]$, δ^4.

On checking this table with a 9D table recently computed in this Laboratory we found only a single small error. In $\tanh^{-1}$ .918, *for* 1.576 159 6, *read* 1.576 159 5; our 9-place value is 1.5761 59504.

THEODORE SINGER

Computation Laboratory
Harvard University

EDITORIAL NOTE.—In this same paper of FISHER there is a table, p. 28, of $\tanh^{-1}\overline{(x - 2/x)} = \frac{1}{2}\ln(x-1)$, for $x = [1(1)100; 7D]$. This table is not listed in FMR, *Index*, although SPEIDELL's tables, 1622, of $\frac{1}{2}\ln x$ and of $\frac{1}{2}\ln(1/x)$, for $x = [1(1)1000; 6D]$, are noted.

147. M. Kraitchik, *Recherches sur la Théorie des Nombres*, v. 1, Paris, 1924.

On p. 216–265 of this volume there is a table of the indices of the first 25 primes, modulo N, for all primes $N < 10^4$. The following errata were noted by E. Jacobsthal:[1]

p. 256	$N = 8191$	$q =$ 17	29	31	47	53	89
	for	ind $q =$ 716	4129	6704	6589	2527	3918
	read	ind $q =$ 2693	2152	491	376	550	1941
p. 260	$N = 9137$	$q =$ 17	43	59	71	97	
	for	ind $q =$ 3099	2373	8781	427	2454	
	read	ind $q =$ 3098	2372	8780	428	2453	

Another error on p. 256 may be noted, *for* $N = 5387$, *read* 8387.

D. H. L.

[1] E. Jacobsthal, "Correction de quelques erreurs dans la table d'indices de M. Kraitchik," K. Norske Viden. Selskab, *Fordhandlinger*, Trondhjem, v. 19, 1946, p. 1–2.

148. William Oughtred (1574–1660), *Table of Ln x*. 1618.

Napier's *Mirifici Logarithmorum Canonis Descriptio* was published in 1614 and the first edition of the English translation by Edward Wright (1558?–1615) was published by his son Samuel Wright in 1616. In 1618 there appeared a second edition in which the main text was identical with the first, but a new title-page was supplied, and also a remarkable anonymous 16-page appendix by William Oughtred (1574–1660). This Appendix was completely reprinted by J. W. L. Glaisher in his very notable article "The earliest use of the radix method for calculating logarithms, with historical notices relating to the contributions of Oughtred and others to mathematical notation," *Quart. Jn. Math.*, v. 46, April 1915, p. 125–197.

The reprinted Table on p. 142 gives what is equivalent to $10^6 \ln x$, $x = [1(1)10(10)100(100)1000(1000)10000(10000)100000(100000)900000;\ 6D]$. Glaisher pointed out that there was a misprint of 6 for 8 in the third decimal of ln 3, but the third decimal of ln 50 should be 2, not 1 and the first decimal of ln 20000 should be 9, not 8. Apart from these major misprints for the 54 values of x there are 51 last figure errors of from 1 to 6 units: 3 of 6 units; 8 of 5; 8 of 4; 15 of 3; and 9 of 2. There is also a supplementary table giving $\ln x$ for 18 values $x = 1.1(.1)1.9$ and $1.01(.01)1.09$ each to 6D. These are correct except for 10 unit errors in last decimal places.

Such was the extent of the equivalent of the first table of $\ln x$, although there was at that time no thought of exponents or bases as they were later conceived. Those desiring to understand the exact setting of the table in the mathematical thought of the time will naturally turn to Glaisher's study.

R. C. A.

UNPUBLISHED MATHEMATICAL TABLES

75[K].—Univ. of California, Statistical Laboratory, Berkeley, *Tables of the Bivariate Normal Distribution.*

This Laboratory has just completed work on a table of the Bivariate Normal Distribution. The quantity tabled is

$$L(h,k,r) = \frac{1}{2\pi\sqrt{1-r^2}} \int_h^{+\infty}\int_k^{+\infty} \exp\left\{-\frac{x^2 - 2rxy + y^2}{2(1-r^2)}\right\} dxdy.$$

A table of this kind was originally computed and published by Karl Pearson in the volume he edited, *Tables for Statisticians and Biometricians*, part II. 1931, p. 78–137, lii–lxxix. In this publication the arguments h and k are tabled for $0(.1)2.6$. The argument r is for $-1(.05)+1$. Values are given to 6D.