the solution in a form which will be readily usable in practical work. The graphs are good to 3D at the most, and are valuable in those places where high accuracy is not required.

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[1] VON A. BUSEMANN, "Drücke auf kegelförmige Spitzen bei Bewegung mit Überschallgeschwindigkeit." *Z. f. angew. Math.*, v. 9, 1929, p. 496–498.

[2] F. BOURQUART, "Aerodynamique—Ondes balistiques planes obliques et ondes coniques application à l'étude de la résistance de l'air." Acad. d. Sci., Paris, *C.R.*, v. 194, 1932, p. 846–848. Also *Mém. d'Artill. Franç.*, v. 11, 1932, p. 135f.

[3] G. I. TAYLOR & J. W. MACCOLL, "The air pressure on a cone moving at high speeds," R. Soc. London, *Proc.*, v. 139A, 1933, p. 278–311.

MATHEMATICAL TABLES—ERRATA

References have been made to Errata in the article "A New Approximation to π (conclusion)"; RMT **451** (Schulze), **452** (Müller, Rajna & Gabba), **453** (Prokeš), **463** (Ziaud-Din, Kerawala & Hanafi), **464** (NBSCL), **465** (Col. Univ. Press), **466** (Reiz), **469** (Hage), **473** (U. S., H. O.), **475** (M. I. T.); UMT **63** (Hayashi, Brandenburg).

118. C. GUDERMANN, "Theorie der potenzial- oder cyklisch-hyperbolischen Functionen," *Jn. f. d. reine u. angew. Math.*, v. 8–9, 1832.

In the course of reading proofs of the new Chambers' 6-figure tables the logarithmic values of sinh, cosh and tanh for the range $k = 2(.001)3(.01)6$ were compared with the first six decimals of Gudermann. The following errors were noted:

	Page	k	Function	*For*	*Read*
v. 8,	195	2.018	sinh	2345	6345
		2.036	tanh	1940	1949
	196	2.063	sinh diff	4445	4485
		2.081	sinh	9189	9188
	198	2.169	tanh diff	266	226
	199	2.248	cosh diff	33	23
	200	2.258	cosh diff	4279	4249
		2.258	tanh	50 6	5036
		2.284	tanh diff	980	180
	201	2.301	sinh	6.693	0.693
	202	2.353	cosh diff	4205	4265
		2.377	sinh	529	5293
	203	2.414	sinh	69	59
		2.415	tanh	4628	0628
		2.445	tanh diff	310	130
	204	2.489	cosh	9190	9100
		2.498	Argument	489	498
	205	2.506	tanh	2272	2172
	209	2.701	sinh	6.870	0.870
	210	2.759	sinh diff	4477	4377
	212	2.854	cosh	999	939
		2.882	cosh	9679	9676
		2.893	sinh diff	4399	4369
		2.898	Argument	889	898
		2.898	sinh diff	4379	4369
	304	3.061	cosh	.029	1.029
	306	3.159	sinh diff	4458	4358
	307	3.202	sinh diff	4375	4357
	308	3.251	sinh diff	4356	4355
		3.298	Argument	289	298
	313	3.506	cosh	1.122	1.221
	314	3.598	Argument	589	598
	316	3.659	sinh diff	4448	4348

	Page	k	Function	*For*	*Read*
v. 9,	96	4.460	cosh	653	635
	193	4.500	tanh	8828	8928
	197	4.721	tanh	.9990	.9999
	199	4.828	sinh		95
	203	5.01	sinh	7600	7660
		5.22–5.26	sinh diff	43432	43431
	204	5.75	tanh	612	912

L. J. C.

Editorial Note: These Gudermann tables of log sinh k, log cosh k, log tanh k, for k = [2(.001)5; 9D], [5(.01)12; 10D], occupy p. 261–336 of the reprint, *Theorie der Potential- oder cyklisch-hyperbolischen Functionen*. Berlin, 1833. Except for $k = 4.828$, all of the above mentioned errors are preserved in this reprint. It may be noted that in our copy of "Crelle," v. 8, and the reprint, for $k = 2.258$, log tanh k, the 3 in 5036 is faint but recognizable; so also for $k = 2.377$.

In checking the L. J. C. errata list with the copy of Crelle 8 in the Columbia University Library we made the interesting discovery that in this copy, five of the above-mentioned errata do not appear, namely those listed above on p. 304, 307, 308 (l.2), 314, 316; also on p. 313, 1.122 has been changed to 1.222; however, inspection of the table shows that the change should have been to 1.221. It is well known that early volumes of Crelle have been reprinted, but we have never before noticed a record of corrections having been made before reprinting. Can any reader inform us as to when the reprint was made? In the reprint of pages 293–320, at least, the type was evidently reset since it differs from the original of 1832.

119. Harvard University, Computation Laboratory *Annals*, v. 4: *Tables of Bessel Functions . . .*, 1947, see *MTAC*, v. 2, p. 261.

$J_3(72.10)$, *for* −0.07253 46394 8768 415, *read* −0.07253 46394 87568 415. It seems that even an electromagnetic typewriter can err, and that the necessity for proofreading is not entirely eliminated.

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120. E. Jahnke & F. Emde, *Tables of Functions*, 1909 ed., p. 65–66; 1933, p. 122; 1938, 1941, 1943, 1945 eds., p. 49. [See also *MTAC*, v. 1, p. 391–399; v. 2, p. 26, 47, 350.]

In the table of log q there are the following five errors in each of these six editions: $\alpha = 2°55'$, *for* $\bar{5}.2096$, *read* $\bar{4}.2096$; $\alpha = 3°55'$, *for* $\bar{5}.4658$, *read* $\bar{4}.4658$; $\alpha = 4°55'$, *for* $\bar{5}.6635$, *read* $\bar{4}.6635$; $\alpha = 5°55'$, *for* $\bar{5}.8246$, *read* $\bar{4}.8246$; $\alpha = 37°50'$, *for* $\bar{5}.4693$, *read* $\bar{2}.4693$.

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121. N. S. Koshlîakov, [On the calculation of integrals to infinite limits by means of formulae of mechanical quadratures], Akad. N., Leningrad, *Izvestiîa*, s. 7, *Otdelenie matem. i estestvennykh Nauk*, v. 7, 1933, p. 802. See *MTAC*, v. 1, p. 361.

The zeros (x_i) and Christoffel numbers (A_i) for the Laguerre polynomial of the fifth degree are here given to 7D. The following corrections should be noted:

	For	*Read*		*For*	*Read*
x_1	0.2635581	0.2635603	A_1	.5217595	.5217556
x_2	1.4134042	1.4134031	A_2	.3986673	.3986668
x_3	3.5964256	3.5964258	A_3	.0759361	.0759424
x_4	7.0858108	7.0858100			
x_5	12.6408013	12.6408008	A_5	.0000233	.0000234

A_4 is given correctly as .0036118.

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EDITORIAL NOTE: All of these corrections agree with the 8D values given in SRE/ACS 82, RMT **252**, *MTAC*, v. 2, p. 31. The corresponding 7D values which Koshlîakov gives for $\log x_i$ and $\log A_i$ must also be amended; for example: *for* $\log x_1 = 9.4208764$, *read* 9.4208800; *for* $\log A_1 = 9.7174704$, *read* 9.7174672. Similarly for the 5D table of $A_i f(x_i)$, where $f(x) = x/(1 - e^{-2x})$.

122. WILLIAM SPENCE, *An Essay on the Theory of the Various Orders of Logarithmic Transcendents*, London and Edinburgh, 1809. Also in Spence, *Mathematical Essays*, 1819 and 1820. See *MTAC*, v. 1, p. 457–459; v. 2, p. 180.

On p. 63 of the 1809 edition and p. 64 of the 1819 and 1820 editions is a table of the values of the function $C_1(x)$ which is apparently the first table of $\tan^{-1} x$; $x = [1(1)100; 9D]$. Comparison with the NBSMTP *Table of Arc Tan x* reveals the following errors in Spence: $x = 38$, *for* 1.54448 7135, *read* 1.54448 6609; $x = 43$, *for* 1.54754 4702, *read* 1.54754 4703; $x = 61$, *for* 1.54440 4352, *read* 1.55440 4352. Since Spence did not round off his tables, the corrected values are not rounded off.

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123. J. W. WRENCH, JR., *Values of Steltjes' sums* $S_k = \sum_1^\infty n^{-k}$.

In the table of the final 7-digit terminal figures in 37D values of S_k, $k = 2(1)33$, *MTAC*, v. 2, p. 138, Dr. Wrench has erred in the value 6043727 given in connection with S_{21}. I find beyond the 30th digit 6043730 459. With this correction, the checking relation (using 37D values of S_k) now yields a discrepancy of only 0.5×10^{-37} instead of the previously noted (p. 138) 3.5×10^{-37}.

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UNPUBLISHED MATHEMATICAL TABLES

63[A, B, D, E].—J. W. WRENCH, JR., *A New Table of* $\pi^n/n!$ Manuscript in the possession of the author, 4711 Davenport St., N. W., Washington 16, D. C.

The present table consists of values to 205D of $\pi^n/n!$, for $n = 1(1)160$. The first 110 entries were calculated from my table[1] of $\pi^{\pm n}$, $n = 1(1)110$, 205S, at least, using appropriate data from UHLER's tables[2] of $n!$ and $1/n!$. Beyond $n = 110$ each entry was calculated from its predecessor, and every fifth number was calculated independently as a check.

The table as a whole was checked by computing therefrom 205D approximations to $\sin \pi$ and $\cos \pi$. The respective values found were -2×10^{-205} and $-1 - 2 \times 10^{-205}$. Other data immediately obtainable were 205D values for $e^{\pm\pi}$, $\sinh \pi$, and $\cosh \pi$. The product of the approximations to e^π and $e^{-\pi}$ was found to equal $1 - 7.036 \times 10^{-205}$, nearly, indicating an additive correction to the calculated value of $e^{-\pi}$ of about 3.04×10^{-206}, which was subsequently confirmed by a second calculation of $e^{\pm\pi}$ using data carried to about 210D. Comparison of my values of these constants was made with the corresponding data published to 138S by UHLER,[3] and complete agreement to that degree of accuracy was found.

Then the tabular entries were collated with HAYASHI's table[4] of $\pi^n/n!$, $n = 1(1)16$, 14–40D, and one error was detected therein, namely, in the 20th decimal place of π. It should be mentioned that Hayashi's decimals are not rounded. Six terminal digit errors ranging in magnitude from one to three units, and corresponding to $n = 6$, 10, 11, 12, 13, and 14, were discovered in the companion table of π^n.