The tables were designed in collaboration with the Navy Department, Bureau of Ordnance, and the computations carried out on the Automatic Sequence Controlled Calculator, under contract with the Bureau of Ordnance.

E. L. KAPLAN

Naval Ordnance Laboratory
Whiteoak, Maryland

MATHEMATICAL TABLES—ERRATA

In this issue references have been made to Errata in "*Guide* to Tables in Elliptic Functions" (Airey, Bertrand, Dale, Dwight, FMR, Gauss, Glaisher, Gossot, Greenhill, Hancock, Hayashi, Heuman, Hippisley, Innes, Jahnke & Emde, Kaplan, Legendre, Lévy, Meissel, Merfield, Moore, Nagaoka & Sakurai, Pidduck, Plana, Potin, Rosenbach, Whitman & Moskovitz, Runkle, Samoĭlova-Îakhontova, Schlömilch, Spenceley, Verhulst, Wayne), and in RMT **554** (Gifford), **557** (Yarden & Katz), **558** (Akushskiĭ & Ditkin, Ditkin, Lîûsternik), **568** (Legendre), **571** (De Morgan, Hammer, Soldner, Weigand), **575** (France), **577** (Harvard).

138.—E. P. ADAMS, *Smithsonian Mathematical Formulae* . . . First reprint, Washington, D. C., 1939. See also *MTAC*, v. 1, p. 191; v. 2, p. 46, 353.

P. 10, under 1.272, *for* $a_0x^4 + a_1x^3 + a_2x^2 + a_3x + a_4 = 0$, *read* $a_0x^4 + 4a_1x^3 + 6a_2x^2 + 4a_3x + a_4 = 0$.

OLIVER K. SMITH

Northrop Aircraft Co.
Hawthorne, California

139. L. J. COMRIE, *Chambers' Four-Figure Mathematical Tables.* 1947. See *MTAC*, v. 3, p. 86–87.

The following error was found during the reading of the proofs for the new Chambers' six-figure table.

Page 64, left column, line 29. Equivalent for 1 calorie, *for* 1.363×10^{-6} K. W. H., *read* 1.163×10^{-6} K. W. H.

L. J. C.

140. G. H. HARDY & E. M. WRIGHT, *An Introduction to the Theory of Numbers.* Oxford, 1938.

On p. 71–72 the authors state that the direct converse of Fermat's theorem is false; it is not true that, if a is a prime and $a^{m-1} \equiv 1 (\text{mod } m)$, then m is necessarily a prime. To illustrate that the cases in which this converse is false are "rather rare," they list what they believe to be all "composite values of m below 2000 for which $2^{m-1} \equiv 1(\text{mod } m)$," as "$341 = 11 \cdot 31$, $561 = 3 \cdot 11 \cdot 17$, $645 = 3 \cdot 5 \cdot 43$, $1387 = 19 \cdot 73$, $1729 = 7 \cdot 13 \cdot 19$, $1905 = 3 \cdot 5 \cdot 127$."

Another value of m, not here listed, is $1105 = 5 \cdot 13 \cdot 17$.

JOHN W. WRENCH, JR.

4711 Davenport St., N.W.
Washington 16, D. C.

141. E. JAHNKE & F. EMDE, *Tables of Functions*, 1933 (fig. 92, p. 192), all later editions (fig. 67, p. 126). See *MTAC*, v. 3, p. 41.

This figure is a relief of $J_p(x)$, for $x = 0(1)20$, $p = 0(1)10$. In my paper "Variation of bandwidth with modulation index in frequency modulation," Inst. of Radio Engineers, *Proc.*, v. 35, Oct. 1947, p. 1015, the relief of $J_p(x)$, for $x = 0(1)20$, $p = 0(1)15$ (fig. 4) shows that the Jahnke & Emde relief is inaccurate near the origin.

MURLAN S. CORRINGTON

Radio Corporation of America
Camden, N. J.

142. NBSCL, *Tables of the Bessel Functions* $Y_0(x)$, $Y_1(x)$, $K_0(x)$, $K_1(x)$, $0 \leqslant x \leqslant 1$, 1948; see *MTAC*, v. 3, p. 187–188, 203.

Certain remarks in the "Foreword" of this book, on page v, are so misleading that they must be classed as erroneous.

It is stated that "In this range the British Association Tables of $K_0(x)$ and $K_1(x)$ are rather inaccurate, since both functions are singular at $x = 0$. In order to avoid the necessity for laborious interpolation in the British Association Tables when neutron distributions in graphite were needed, it was felt advisable to have a table of functions $K_0(x)$ and $K_1(x)$ for those small values of x, which, while not contained adequately in the British Tables, are very often used in neutron computations." In the first place, it is claimed on p. xi of the "Description . . ." in BAASMTC, *Mathematical Tables*, v. 6, *Bessel Functions, Part I, Functions of Orders Zero and Unity*, that the final digit in any value tabulated is within 0.52 of a unit of the true value, and this claim is still maintained by the Editor of the volume and by the Committee. Secondly, the general 8-figure accuracy of the book is maintained, and even slightly increased, even when approaching the singularity of $K_0(x)$ and $K_1(x)$ at $x = 0$. Thirdly, special auxiliary functions are given so that interpolation is readily possible, though admittedly with about twice the work, right up to the singularity.

The position is described fairly in Dr. Lowan's "Introduction," where it is stated that the values given in his tables were, in fact, derived from the British Association Tables.

J. C. P. MILLER

143. J. T. PETERS, *Zehnstellige Logarithmentafel, Erster Band, . . . Anhang*, by Peters & Stein, 1922. See *MTAC*, v. 1, p. 57–59; v. 2, p. 164.

In addition to the errors already noted in this *Anhang*, I have recently discovered that the 84D value of log 127 derived on p. XXVII, is too large by nearly 5.35×10^{-84}. My calculations of both log 127 and ln 127 were carried to 115D, and subsequently my value of ln 127 was compared with an estimate of that number to 110D, communicated to me by Professor UHLER. The agreement between the two approximations to 110D was perfect. Futhermore, the 54D value of ln M (p. 7) is correct to only 50D (*for* 63431 9772, *read* 63432 0083); and in the 61D value of log 1009 (p. 160) the 59th figure should be 2, instead of 3. [Given correctly by P. & S., p. 162, l. 1.—ED.].

JOHN W. WRENCH, JR.

4711 Davenport St., N.W., Washington 16, D.C.

144. U. S. HYDROGRAPHIC OFFICE, *Publication* no. 214, v. 4, 1940. See *MTAC*, v. 2, p. 182–183.

In MTE 93 the statement was made that "though the sample examined is a small one, it is believed that it is fairly representative of the accuracy to be expected of H.O. 214." Information has been recently received in a letter from the U. S. Hydrographic Office indicating that v. 4 is not typical of H.O. 214. Quoting from this letter:

"It is unfortunate that most reviews of H.O. 214 have dealt with v. 4. It is true that this volume was entirely recomputed at the time the W.P.A. project was in progress at Philadelphia. working under the technical supervision of this office. Photostat copies of these computations are available in this office. Since the volume was at first set up at the Government Printing Office, it was thought impossible to insert all the corrections on the original plates without their resulting mutilation. To replate the volume would have cost $15,000 or more. Funds available did not justify this additional expenditure. It was thought that by correcting all altitudes that were in error by more than .3′ and all azimuths in error by more than .4° the tables would be serviceable and that the remaining smaller errors, which were numerous, would result in no ill effects to the practical navigator. Errors of greater magnitude now appearing in the volume, if such exist, were apparently overlooked by the person in comparing the original printing with the later computed manuscript. Thus, the entire set of tables, excluding v. 4, are considered accurate and to contain fewer errors than most such tables, involving a multiplicity of computations and resulting figures. V. 4 is believed to be sufficiently accurate for general use.

"All latitudes were computed in duplicate by the W.P.A. project excepting latitude 20°, which had been computed and largely checked on machines in what was then the Division of Research of the Hydrographic Office. As you perhaps know the project was organized to spread work and hence the use of calculating machines was practically forbidden. The computations were made by two separate groups, the results compared, and where differences occurred the computation was redone. This explains the high degree of accuracy to be expected throughout the other 8 volumes."

In the light of this new information, it is clear that a more accurate statement would be that the Errata mentioned earlier may be considered as typical of v. 4 rather than as typical of all 9 volumes of H.O. 214.

CHARLES H. SMILEY

Brown University

UNPUBLISHED MATHEMATICAL TABLES

72[F].—H. E. SALZER, *Representation Table for Squares as Sums of Four Tetrahedral Numbers.* MS in possession of the author, NBSCL.

This table shows for each square, $m^2 \leq 10^6$, a set of four tetrahedral numbers, i.e. numbers of the form $n(n+1)(n+2)/6$ whose sum is m^2. The author conjectures that every square is the sum of four such numbers. See *MTAC*, v. 1, p. 95, UMT **8**.

73[K].—WILFRED JOSEPH DIXON (1915–), *Table of Normal Probabilities for Various Intervals.* Completed in 1945 at Princeton University. Manuscripts in possession of the author, University of Oregon, and of the Library at Brown University. 4 sheets of text 19.5 × 26.7 cm. 10 sheets of tables, 36 × 26.2 cm.

Prof. Dixon writes: "The table is useful for the investigation of many of the problems in order statistics. A discussion of order statistics is given in Amer. Math. Soc., *Bull.*, Jan. 1948, by S. S. WILKS. Several of the distribution functions he gives there are such that it is necessary to evaluate them numerically."

Let for $l > 0$

$$g(x, l) = (2\pi)^{-\frac{1}{2}} \int_{x-\frac{1}{2}l}^{x+\frac{1}{2}l} e^{-\frac{1}{2}t^2} dt.$$

The present tables give values to 6D of $g(x, l)$ for $x = [0(.1)5]$ and $l = [0(.1)10]$. The rows of the double-entry table correspond to fixed values of x, the columns to l. There are 49 rows and 10 columns per sheet. Let

$$\phi(x) = (2\pi)^{-\frac{1}{2}} \int_{-\infty}^{x} e^{-\frac{1}{2}t^2} dt.$$

Then $g(x, l) = \phi(x + \frac{1}{2}l) - \phi(x - \frac{1}{2}l)$. The present table was computed in this way from the tables of $\phi(x)$ given by L. R. SALVOSA (*Annals Math. Statistics*, v. 1, 1930, p. 191 f.). Since the latter is only to 6D it is clear that the last digit of the present tables is not reliable.