Table III consists of 5D values of $-\log [\frac{1}{2} - \Phi_0(x)]$, for $x = 5(1)50(10)100(50)$-500.

Table IV, comprising nearly two-thirds of the book, gives 7D values, without differences, of the tetrachoric functions

$$\tau_s(x) = \frac{(-1)^{s-1}}{\sqrt{s!}} \frac{d^{s-1}}{dx^{s-1}} \left(\frac{1}{\sqrt{2\pi}} e^{-(1/2)x^2} \right) = \frac{H_{s-1}(x)}{\sqrt{s!}} \frac{e^{-(1/2)x^2}}{\sqrt{2\pi}}$$

for $s = 2(1)21$, $x = 0(0.002)4$. The entries in this table were calculated from the recurrence relation

$$\tau_s(x) = xp_s\tau_{s-1}(x) - q_s\tau_{s-2}(x)$$

where $\tau_0(x) = \frac{1}{2} - \Phi_0(x)$ and $\tau_1(x) = \Phi_0'(x)$. The corresponding values of the coefficients p_s and q_s are given to 10D in Table V. The recurrence formula for the Hermite polynomials, $H_m(x)$, enables one to deduce that $p_s = 1/\sqrt{s}$ and $q_s = (s - 2)/\sqrt{(s(s - 1))}$. The reviewer has thereby discovered three minor errors in this table; namely, the terminal digits in the tabulated values of p_{20}, q_5, and q_{19} should each be decreased by a unit.

Table VI gives, in floating-point form, 10S values of the normalizing factor $\lambda_s = \sqrt{(s!)}$, for $s = 1(1)25$. Here, again, we find terminal-digit errors; namely, the tabulated values of λ_s corresponding to s = 4, 7, 9, 14, 20, 22 should be increased by a unit in the least significant figure, while those corresponding to s = 18, 21, 24 should be decreased by a like amount.

A critical table of coefficients to 3D for Bessel quadratic interpolation is appended for use with Table II. On the other hand, it is shown in the Introduction that linear interpolation suffices throughout Table I.

Acknowledgment is made of the use of the corresponding 15D NBS tables [1] as the basis for Table I. Furthermore, it is stated that Tables II and III were taken from statistical tables of Pearson and Hartley [2].

A significant contribution to tabular literature is to be found in Table IV. This represents the most extensive tabulation of the tetrachoric functions published to date. The various applications of these functions, particularly in mathematical statistics, are discussed and illustrated in the informative Introduction.

J. W. W.

1. NEW YORK W. P. A. MATHEMATICAL TABLES PROJECT, *Tables of the Probability Functions*, Volume II, New York, 1942. Reissued with corrections as *Tables of Normal Probability Functions*, NBS Applied Mathematics Series, No. 23, U. S. Government Printing Office, Washington, D. C., 1953.

2. E. S. PEARSON & H. O. HARTLEY, *Biometrika Tables for Statisticians*, Volume I, Cambridge University Press, Cambridge, 1954.

130[L, V].—OTTO EMERSLEBEN, *Die Strömungsbereiche bei zentrischer Überlagerung zweier Grundfunktionen doppeltperiodischer Parallelströmungen*, Anwendungen der Mathematik Nr. 11, Institut für Angewandte Mathematik der Universität Greifswald, Greifswald, 1964, 21 pp., 30 cm.

For a viscous flow in the z-direction, the velocity $v(x, y)$ satisfies the conditions:

$$(1) \qquad \Delta(x, y) = -C, \qquad v(x, y) = 0 \quad \text{on boundaries.}$$

The author considers the particular solutions of (1), given by

$$
(2) \qquad
\begin{aligned}
v(x, y) &= \frac{C}{4\pi^2} \cdot [Z_0 - R_k(x, y)], \quad \text{if} \geqq 0 \\
&= 0, \quad \text{otherwise}
\end{aligned}
$$

with

$$
R_k(x, y) = \frac{1}{1+k}\left\{ Z \begin{vmatrix} 0 & 0 \\ x & y \end{vmatrix} (2) + k \cdot Z \begin{vmatrix} 0 & 0 \\ x + \frac{1}{2} & y + \frac{1}{2} \end{vmatrix} (2) \right\}.
$$

Here $Z \left| \begin{smallmatrix} 0 & 0 \\ x & y \end{smallmatrix} \right| (2)$ is the Epstein zeta function of the second order. The solutions (2) are periodic in x and y, with period 1. The contour lines of $R_k(x, y)$ are drawn for $k = 2(1)9$ and 5.098. Choosing as Z_0 in (2) the value of a contour line, the domain of flow (the region where $v > 0$) can be obtained from the graphs. This domain of flow can consist of several homeomorphic components. The connectivity of the component depends on k and ϵ. Here ϵ, the porosity, is the ratio of the area of domain of flow to the total area. This connectivity is shown for $0 \leqq \epsilon \leqq 1$ and $1 \leqq k \leqq 9$; it is either 1, 2 or ∞.

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131[L, X].—HAROLD T. DAVIS, *Tables of the Mathematical Functions*, The Principia Press of Trinity University, San Antonio, Texas, 1963, Vol. I, xiii + 401 pp.; Vol. II, xiv + 391 pp., 26 cm. Price $8.75 each.

These two volumes constitute a revised edition of the work originally entitled *Tables of the Higher Mathematical Functions*, which was published in two volumes in 1933 and 1935, respectively. A third volume [1], which first appeared in 1962, has been reviewed in this journal.

The first volume has now been revised and enlarged by the inclusion of two tables (12A and 12B) giving, respectively, log $\Gamma(x)$ to 12D for $x = 100(1)3100$ and $1/\Gamma(x)$ to 25D or 25S for $x = 1(1)100$. In the table of contents (p. viii) the range of the first of these tables is erroneously given as identical with that of the second.

A valuable feature of this work is the inclusion in Volume I of an elaborate introductory section of 172 pages, entitled Tables and Table Making, which contains detailed information on: the classification and history of mathematical tables; modern mathematical instruments of calculation (such as, Taylor's theorem, analytic continuation, Laurent series, asymptotic series, methods of saddle points and of steepest descent); and interpolation (including tables of interpolation coefficients and derivative coefficients, generally to 10D). A selected bibliography of more than 300 titles concludes this section of the book.

The remainder of the first volume is devoted to a detailed discussion of the properties of the gamma function and its logarithmic derivative, the psi function, together with extensive tables of these functions. The 12 tables in the original edition have been retained, with a number of known errors corrected. Herein $\Gamma(x)$ and its common logarithm are tabulated to from 10D to 20D over the interval