282–285: $z = w^2$, $z^2 = w$, $z = 1/w^2$, $z^2 = 1/w$.
286–288: $z = (1 + w^2)/w$, $z = 2w/(1 + w^2)$, $z = 1/w$.
289–290: $(1 + z^2)/z = w$, $z^2 = 1 + w^2$.
291–293: $z^2 = 1/(1 + w^2)$, $2z/(1 + z^2) = w$, $1/(1 + z^2) = w$.
294–295: $z = e^w$, $z + \log z = w$.
296–298: $z = \sin w$, $z = \operatorname{cosec} w$, $z = \tan w$.
299–301: $z^2 = e^w - 1$, $e^z = w$, $\exp (1/z) = w$.
302–304: $2z = w + e^w$, $2z = w^2 + \log (w^2)$, $e^z = 1 + w^2$.
305–308: $e^z = \sin w$, $e^z = \tan w$, $\sin z = e^w$, $e^z + e^w = 1$.
309–311: $\sin z = w$, $\tan z = w$, $\operatorname{cosec} z = w$.

It will be noticed that the transformations include several well known in applied mathematics; for example, flow due to two-dimensional point source superposed on uniform stream (p. 295) and edge effect for a parallel plate condenser (p. 302).

At first sight one tends to regret the lack of numerical scales along definite axes, as in some similar diagrams in various editions of Jahnke and Emde, but this reaction appears on consideration to be hardly justified. In many cases the same diagram may be used to illustrate several slightly different functional relationships. Thus the diagram on page 296 may be used, as stated on the page, for

$$z = \sin w\,, \quad z = \cos w\,, \quad z = \sinh w\,, \quad z = \cosh w\,.$$

For the sake of conciseness, the reviewer has listed only one equation (chosen somewhat arbitrarily) for each diagram, but in fact the author's 30 diagrams relate to 92 stated equations.

Where a diagram relates to more than one equation, the user may visualize the axes in the manner appropriate to whichever equation he chooses. In most cases, consideration of the positions of singularities and other special points is sufficient to determine the positions of the axes and the scale, and to enable a few of the level curves to be quickly identified. It then remains only to note that, as explained on page 312, the intervals in u and v are normally $\frac{1}{4}$; but if one of u and v is an angle, both are taken at interval $\pi/18$ ($= 10°$), and small meshes continue to appear approximately square.

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24[7].—ALBERT D. WHEELON, *Tables of Summable Series and Integrals Involving Bessel Functions*, Holden-Day, San Francisco, Calif., 1968, 125 pp., 24 cm. Price $8.50.

The present volume is divided into two parts as is clearly suggested by the title. Part I, by A. D. Wheelon, comprises 14 chapters and is a short glossary of sums of series. The introductory chapter notes several techniques for finding sums of series. Further, each chapter gives historical comments on the series and illustrates how the sums might possibly be evaluated in closed form. The material on methods of summing series is not extensive. In a glossary, perhaps, this is to be expected. On the other hand, certain well-known procedures are not even mentioned; for instance, use of the ψ-function, the logarithmic derivative of the gamma function, to sum series of the form $\sum f(n)/g(n)$ where $f(n)$ and $g(n)$ are co-prime polynomials in n, such that the degree of g exceeds that of f by at least 2. Connections with hypergeometric series are not noted.

If a sum does not depend on a parameter and is known in terms of a named mathematical constant (e.g., π, e), this is given. In any event, 8D values are presented. If a sum depends on a parameter and can be expressed in terms of standard special functions, this is usually given. Here, also, the sum of the series is given for 1 and sometimes 2 values of the parameters to 8D. The first 6 chapters deal with $\sum h_n f(n)/g(n)$, $h_n = 1$ or $(-)^n$ and $f(n)$ and $g(n)$ as described above where the degree of $g(n)$ does not exceed 6. Chapters 7, 8 and 9 give series containing factorial, exponential and logarithmic functions, respectively. Chapters 10 and 11 give series containing trigonometric and inverse trigonometric functions, respectively. Series containing Bessel functions and Legendre polynomials are found in Chapters 12 and 13, respectively. Some double sums are delineated in Chapter 14 which concludes Part I. The glossary no doubt will be useful to some readers, but as it comprises but 57 pages, it is clear that the glossary in no way can be considered extensive.

Part II is a short glossary of integrals involving Bessel functions by A. D. Wheelon and J. T. Robacker. It is a slightly revised version of a previous report published in 1954 which was reviewed in these annals; see *Math Comp.* v. 9, 1955, p. 223. In connection with the previous reviewer's remarks, the condition of validity for formula 11.306 has been added and formula 1.207 has been omitted in the present edition. The previous reviewer's note concerning formula 11.201 on p. 46 is confusing as formula 11.201 is on p. 36 while formula 112.01 is on p. 46. On pp. 105, 106, the formulas for 3.701 and 3.702 are incorrect. Correct forms can be deduced from formula 3.401 on p. 100. But for no choice of the parameters does this reduce to the stated results. Also, the value of the integral in 4.501 on p. 112 should read $\frac{1}{2}\pi[\ln (a/2) - \gamma]$. The denominator parameters for the ${}_3F_2$ in 64.302 on p. 124 are $3/2$ and $\mu + 3/2$.

As noted by the previous reviewer, the work on developing the 1964 report was halted when the authors learned of the similar but more extensive work which was then under preparation and available since 1954 as *Tables of Integral Transforms*, by A. Erdélyi et al., McGraw-Hill Book Co., Inc., New York, 1954 (see *Math Comp.*, v. 10, 1956, pp. 252–254). Most of the integrals in the present edition can be found in the above reference or in *Integrals of Bessel Functions* by Y. L. Luke, McGraw-Hill Book Co., Inc., New York, 1962 (see *Math. Comp.* v. 17, 1963, pp. 318–320). A virtue of the compilations by Wheelon and Robacker is their indication of sources for the formulas. In this connection, the authors of the present edition note on p. 64 that the references by Erdélyi et al. and Luke appeared after the collection was completed and consequently no explicit references to formulas in these sources are given. The statement seems incongruous as explicit references to formulas in the well-known *Handbook of Mathematical Functions* edited by M. Abramowitz and I. Stegun which first appeared in 1964 (see *Math. Comp.*, v. 19, 1965, pp. 147–149) are given.

Y. L. L.