central q-distribution with the power function of Lord's [2], [3] central t-test (u-test). This is done by tabulating $q_{.05}$ against an approximation to it which is based on the power function of Lord's u-test. The comparison is made for combinations $m = 1, 2, 4$ and $n = 3, 4, 6, 8, 10$. For each of the fifteen combinations a value of K_p is chosen such that α(error of first kind) $= \beta$(error of second kind) $= .05$, approximately. Values of $q_{.05}$ corresponding to these K_p are compared with the approximated values as a rough check on the tabulated values of q_α.

In conjunction with the tables of percentage points, twelve figures are given which show the relation (almost linear) between q_ϵ and K_p for p ranging from .001 to .20 (extended to .50 in some figures). For each value of ϵ and m, the relationship is shown for various values of n from 3 to 12. These graphs make possible the determination of q_ϵ for other than the six tabulated values of p.

Several examples are given which demonstrate the application of the non-central q-test in industrial sampling inspection. These illustrations indicate that the non-central q-test and corresponding tables of percentage points can be very useful in such work.

JOHN VAN DYKE

1. N. L. JOHNSON & B. L. WELCH, "Applications of the non-central t distribution," *Biometrika*, v. 31, 1940, p. 362–389.
2. E. LORD, "The use of range in place of standard deviation in the t-test," *Biometrika*, v. 34, 1947, p. 41–67.
3. E. LORD, "Power of the modified t-test (u-test) based on range," *Biometrika*, v. 37, 1950, p. 64–77.

79[L].—S. L. BELOUSOV, *Tables of Normalized Associated Legendre Polynomials*, Pergamon Press, Ltd., Oxford, distributed by The Macmillan Company, New York, 1962, 379 p., 26 cm. Price $20.00.

This is a republication in an attractive binding of Russian tables of normalized associated Legendre polynomials previously reviewed in this journal (*MTAC*, v. 11, 1957, p. 276, RMT **115**).

For convenience the contents are here summarized again. The polynomials $\bar{P}_n^m(\cos\theta)$ considered are related to the associated Legendre polynomials P_n^m by the normalizing factor $\left[\frac{2n+1}{2}\frac{(n-m)!}{(n+m)!}\right]^{1/2}$, so that $\int_{-1}^{1}[\bar{P}_n^m(x)]^2\,dx = 1$, and are herein tabulated to 6D for $m = 0(1)36$, $n = m(1)56$, and $\theta = 0(2°.5)90°$. No tabular differences are given.

The introduction has been translated into English by D. E. Brown.

These useful tables remain the most extensive of their kind published to date.

J. W. W.

80[L].—O. S. BERLYAND, R. I. GAVRILOVA, & A. P. PRUDNIKOV, *Tables of Integral Error Functions and Hermite Polynomials*, Pergamon Press, Ltd., Oxford, England, distributed by The Macmillan Co., New York, 1962, 163 p., 26 cm. Price $15.00.

This volume of the Pergamon Mathematical Tables Series is an English translation by Prasenjit Basu of original tables of integral error functions and Hermite polynomials published in Minsk in 1961 by the Byelorussian Academy of Sciences.

The authors separately tabulate I_n erfc $x = A_n\, i^n$ erfc x, where $A_n = 2^n\Gamma\left(1 + \frac{n}{2}\right)$, and $H_n^*(x)$, which is defined in terms of the standard Hermite polynomials by the relations $H_{2n}^*(x) = H_{2n}(x)/B_{2n}$ and $H_{2n-1}^*(x) = H_{2n-1}(x)/B_{2n}$, where $B_{2n} = (-1)^n(2n)!/n!$, so that $H_{2n}^*(0) = 1$.

In a separate table I_0 erfc $x \equiv$ erfc x is given in floating-point form to 6S for $x = 0.01(.01)3.50$. On succeeding pages appears the tabulation of I_n erfc x for $n = 1(1)30$, at an interval of 0.01 in x. The precision ranges from 6S initially to 2S near the end of the table. The upper limit to the argument x depends upon n, and varies monotonically from 3.50, when $n = 1$ and 2, to 1.00 when $n = 26$–30. A preliminary table of A_n to 9S is given in floating-point form for $n = 0(1)30$; this has terminal-digit errors, beginning with A_1, which is simply the well-known constant $\sqrt{\pi}$. The table of I_0 erfc x is seriously infested with errors, which apparently arose from the retention of a fixed number of significant figures instead of a fixed number of decimal places. This loss of accuracy was also observed in the table of I_n erfc x, $n \geqq 1$. Moreover, the table-user will be annoyed to discover that certain columns have been filled out with zeros, with an attendant loss of all significant figures in those tabulated data.

Following this is a table of the coefficients B_{2n}, which are given exactly for $n = 0(1)9$ and are truncated (without rounding) to 9S for $n = 10(1)15$. The value for B_{22} contains a more serious error; namely, the sixth most significant figure is given as 0 instead the correct digit, 5.

The second principal table gives 6S values of $H_n^*(x)$ for $n = 1(1)30$, $x = 0(.01)10$. The floating-point format is retained for the entries in this table.

An introduction describes the fundamental properties of the tabulated functions, the methods used in calculating the tables, and their arrangement and use. A list of ten references includes papers by Hartree and by Kaye that contain related tables of i^n erfc x.

It is regrettable that the accuracy of these extensive tables does not match the very attractive appearance of the binding.

J. W. W.

81[L].—L. K. Frevel & J. W. Turley, *Tables of Iterated Bessel Functions of the First Kind and First Order*, The Dow Chemical Company, Midland, Michigan, 1962. Deposited in UMT File.

The authors have continued their study and tabulation of iterated functions, which has included the iterated sine (*Math. Comp.*, v. 14, 1960, p. 76), the iterated logarithm (*ibid.*, v. 15, 1961, p. 82), the iterated sine-integral (*ibid.*, v. 16, 1962, p. 119), and now this report on the iterated Bessel function of the first kind and first order.

Two tables of decimal values of $J_1^n(x)$ are presented, as computed on a Burroughs 220 system, supplemented by Cardatron equipment to permit on-line printing of the final format.

Table 1 consists of 15D values of $J_1^n(x)$ corresponding to $n = 1(1)10$ and $x = 0(0.2)10$. Table 2, comprising the bulk of the report, gives 12D values of $J_1^n(x)$ for $n = 0(0.05)10$, $x = 0.2(0.2)1.8$, and for $n = 1(0.05)10$, $x = 2(0.2)10$.