6[K].—CHARLES W. DUNNETT, "Tables of the bivariate normal distribution with correlation $1/\sqrt{2}$," 1958, 28 cm. Deposited in UMT File.

The bivariate normal probability distribution,

$$L(h, k; r) = \frac{1}{2\pi\sqrt{1 - r^2}} \int_h^\infty \int_k^\infty \exp\left[-\tfrac{1}{2}\left(\frac{x^2 - 2rxy + y^2}{1 - r^2}\right)\right] dx\, dy,$$

has been tabulated by Karl Pearson [1] for $r = -1.0(.05)1.0$. The present tables were prepared to avoid the necessity of interpolating in Pearson's tables when $r = \pm 1/\sqrt{2}$. This case arises in certain double sampling procedures in which probability statements concerning X and $X + Y$ jointly are required, where X and Y are independent normal chance variables with the same variance.

The tables were computed on a Royal McBee LGP-30 electronic computer, by numerical quadrature, using the relation

$$L(h, k; r) = \int_h^\infty \left[1 - F\left(\frac{k - rx}{1 - r^2}\right)\right] f(x)\, dx$$

where $f(x) = (1/\sqrt{2\pi}) \exp(-x^2/2)$ and $F(x) = \int_{-\infty}^{x} f(x)\, dx$. The function is tabulated for $r = 1/\sqrt{2}$ in Table I and for $r = -1/\sqrt{2}$ in Table II for positive values of its arguments, h varying in steps of 0.1, and k varying in steps of $0.1\sqrt{2}$. All entries are given to six decimals and should be correct to this number of places.

The function can be determined for negative values of its arguments by using the relationships

$$L(-h, k; r) = L(-\infty, k; r) - L(h, k; -r)$$
$$L(h, -k; r) = L(h, -\infty; r) - L(h, k; -r)$$
$$L(-h, -k; r) = L(h, k; r) + 1 - L(h, -\infty; r) - L(-\infty, k; r)$$

where $L(h, -\infty; r) = L(-\infty, h; r) = 1 - F(h)$, which is the right-hand tail area of the univariate normal distribution. In order to avoid the necessity of consulting tables of $F(h)$, these values are included in the table.

Tables III, IV and V were computed from Tables I and II using these relationships. The error in the entries in Tables III and IV should be no greater than a unit in the sixth decimal place. The error in the entries in Table V should be no greater than two units in the sixth decimal place. All tables have been deposited in the Unpublished Mathematical Tables repository.

AUTHOR'S ABSTRACT

1. KARL PEARSON, *Tables for Statisticians and Biometricians*, Part II, Cambridge University Press, 1931.

7[L].—E. A. CHISTOVA, *Tablitsy funktsiĭ Besselia ot deĭstvitel'nogo argumenta i integralov ot nikh (Tables of Bessel functions of real argument and of integrals involving them)*, Izdatel'stvo Akademiĭ Nauk SSSR, Moscow, 1958, 524 p. + loose card, 28 cm. Price 45 rubles.

This important volume in the now familiar series of Mathematical Tables of the Computational Center of the Academy of Sciences was initiated by V. A. Ditkin.