In the special case $m = k$ and for a symmetrical initial distribution with mean zero, the following equations hold

$$ {}_m\alpha = \alpha_k = \alpha_m; \qquad {}_mu = -u_k = -u_m . \tag{13}$$
$$ {}_m\Phi = 1 - \Phi_k = 1 - \Phi_m; \qquad {}_m\varphi = \varphi_k = \varphi_m . \tag{13'}$$

and the bivariate distribution of the mth values from the bottom ${}_mx$, and from the top x_m, is

$$ \mathfrak{w}_n({}_mx, x_m) = {}_mf({}_mx)\cdot f_m(x_m), \tag{14}$$

where

$$ {}_mf({}_mx) = f_m(-x_m) \tag{14'}$$

is the expression used in the beginning of article [1]

It follows from (11) that the mth observation in ascending order, and the kth observation in descending order, may be dealt with as independent variates provided that n is large, the ranks m and k are small, and that the initial continuous unlimited distribution is of the exponential type as defined by equations (3).

REFERENCES

[1] E. J. Gumbel, "Ranges and midranges," *Annals of Math. Stat.*, Vol. 15 (1944), pp. 414–422.

[2] E. J. Gumbel, "Les valeurs extrêmes des distributions statistiques" *Annales de l'Institut Henri Poincaré*, Vol. 4 (1935), pp. 115–158.

[3] Maurice G. Kendall, *The advanced theory of statistics*, London, 1945, p. 219.

A NOTE ON SAMPLING INSPECTION

By Paul Peach and S. B. Littauer

North Carolina State College and *Newark College of Engineering*

In designing an industrial sampling plan conformable to the Pearson-Neyman approach, the operating characteristic is made to pass as nearly as possible through two predetermined points. Wald [1] has used this method for setting up sequential sampling plans.

A similar type of single sampling plan can be designed by using tables of the incomplete Beta function. Unfortunately, tables of this function are not generally available, and the existing tables do not cover the range for large sample sizes.

An approximate solution of the problem for single sampling can be based on the widely available tables of percentage points of the chi-square distribution. This is equivalent to assuming a Poisson distribution of defectives in the sample, utilizing the well known fact that for even degrees of freedom the chi-square distribution gives the summation of a Poisson series.

We use the following well established notation: