short appendices devoted to standard elementary theorems, a bibliography with seventy-two entries, and a useful index. The chapter headings follow:

Chapter I. Complex Symmetric, Antisymmetric and Orthogonal Matrices
Chapter II. Singular Bundles of Matrices
Chapter III. Matrices with Nonnegative Elements
Chapter IV. Applications of the Theory of Matrices to the Study of Systems of Linear Differential Equations
Chapter V. The Routh-Hurwitz Problem and Related Questions.

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44[K].—JOSEPH BERKSON, "Tables for use in estimating the normal distribution by normit analysis," *Biometrika*, v. 44, 1957, p. 411–435.

In a quantal response assay a number of independent tests are made at each of a number of dose levels, and the result of each test is graded as "success" or "failure". If the probability of "success" at dose metameter value x is assumed to follow the "normal" law

$$P(x) = 1/\sqrt{2\pi} \int_{-\infty}^{(x-\mu)/\sigma} e^{-t^2/2}\, dt$$

the method of "normit analysis" is proposed by Berkson as a replacement for the familiar (iterative) method of "probit analysis" for estimating the parameters μ and σ.

Suppose that the dose metameter values used are $x_1, \cdots, x_k$, that n_i tests are made at level x_i, and that r_i of these tests result in success. Let

$$p_i = \begin{cases} 1/(2n_i) \text{ if } r_i = 0 \\ r_i/n_i \text{ if } 0 < r_i < n_i \\ 1 - 1/(2n_i) \text{ if } r_i = n_i, \end{cases}$$

$X_i = X(p_i)$, where $X(p)$ is defined by the relation

$$p = (1/\sqrt{2\pi}) \int_{-\infty}^{X(p)} e^{-u^2/2}\, du,$$

$$Z_i = (1/\sqrt{2\pi})\, e^{-X_i^2/2},$$

$$w_i = Z_i^2/p_i(1 - p_i).$$

The method consists of a weighted regression analysis, which is facilitated by tables which give for each p_i the corresponding values of w_i and w_iX_i.

In table 2 w_i and w_iX_i are given to 6D for $p = 0.001(0.001)0.500$. (For $p > \frac{1}{2}$, $w(p) = w(1 - p)$ and $wX(p) = -wX(1 - p)$.) For moderate n_i interpolation may be avoided by use of Table 1, which gives w_i and w_iX_i, also to 6D, for all combinations of r_i and n_i for which $1 < n_i \leqq 50$ and $0 \leqq r_i \leqq n/2$. (For $r > n/2$, $w(r, n) = w(n - r, n)$ and $wX(r, n) = -wX(n - r, n)$.) It is stated that the entries in both tables are correct to within ± 1 in the final digit.

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