EDITORIAL

NOTE ON THE COMPUTATION AND MODIFICATION OF MOMENTS.

For the purpose of this note we shall deviate from the usual practice in the calculus of finite differences and define

$$\Delta u_x = u_{x+1} - M \cdot u_x ,$$

where M is a constant. It follows that this generalized Δ and the symbol E are connected by the operator relation

$$\Delta = (E - M), \text{ so that}$$

$$\Delta^n = (E - M)^n, \text{ and therefore}$$

$$(1) \quad \Delta^n u_x = u_{x+n} - \binom{n}{1} M \cdot u_{x+n-1} + \binom{n}{2} M^2 \cdot u_{x+n-2} - \binom{n}{3} M^3 \cdot u_{x+n-3} + \cdots .$$

If the n-th unmodified moments about an arbitrary origin, and about the arithmetic mean, be designated by ν_n and $\bar{\nu}_n$, respectively, the usual relation may be written

$$(2) \quad \bar{\nu}_n = \nu_n - \binom{n}{1} M \cdot \nu_{n-1} + \binom{n}{2} M^2 \cdot \nu_{n-2} - \binom{n}{3} M^3 \cdot \nu_{n-3} + \cdots ,$$

where $M = \nu_1$ equals the distance of the mean from the provisional mean. From (1) and (2) it follows that

$$(3) \qquad \bar{\nu}_n = \Delta^n \nu_0 ,$$