A COMMENT ON STATISTICS
By Jack P. Hailman

The useful summary, "Notes on Statistics" by Charles Blake (EBBA News, Vol. 31, pp. 53-57, 1968) carries with it some hidden restrictions that it may be well to make explicit. He has described correctly the descriptive statistics for expressing the central tendency (mean) and variability (standard deviation) of an array of observations when the underlying distribution is one of the well known types - Gaussian, Poisson or Bernoulli. The usefulness and appropriateness of these measures depend on two restrictions: that the measurements are of interval or ratio level and that the assumed distributions are, in fact, correct ones. (The latter is an especially important assumption when statistical tests are made that are based on the shapes of such distributions.)

The second restriction is obvious from Dr. Blake's paper, and I only wish to add one point. Data that are not normally distributed may often become approximately so by means of a simple transformation. For instance, the log-normal distribution is common in biological data. By merely taking the logarithm (conveniently to base 1o, but any base will do) of the numerical value of the variate x (in Blake's terminology), the data will conform to a Gaussian or normal distribution.

The first restriction may be more important, since it is commonly violated in the bird-banding literature, as I have pointed out elsewhere (Bird-Banding, 36: 14-20, 1965). Blake is writing about variates whose measurements are of the interval type (examples: weight, length, temperature). In the interval scale each successive unit is exactly equal to the last (or can readily be transformed to be so), such that the difference between 5 and 6 units on the scale is exactly the same as the difference between 6 and 7 units, or 1898 and 1899 units for that matter.

It often happens in bird-banding that we measure quantities more crudely than on an interval scale, by ranking them. Properly, we are then using an ordinal scale of measurement where rank 5 is smaller than rank 6 and where rank 6 is smaller than rank 7, but the two steps may not be exactly equal, nor even nearly equal. Examples of such data are fat class rankings on migrant birds and shades of color in feathers or soft parts. In such cases arithmetic averages, or means, are not correct statements of central tendency (in fact, the mean has no logical status in the ordinal scale). The appropriate measure is the median: the value above and below which exactly half of the observations fall. The mode, or the variate with the highest frequency, is another measure, though not so useful as the median.

The variability of ranked data may be expressed by use of percentiles; for example, the values of the variates that bracket the middle 50% of the observations. Standard deviations have no meaning.

A final comment and warning comes to mind. Measures of central tendency and variability are useful shorthands to describe unimodal, relatively symmetrical distributions, such as those illustrated by Blake. Other distributions are no so easily described by two common statistics, and when in doubt a graphic presentation of the data is always the best solution.

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SWAINSON'S WARBLER - FIRST NEW JERSEY RECORD
By William E. Savell

On May 23, 1968 at 8:00 am. we netted, banded, weighed, measured and photographed a Swainson's Warbler, at our Linwood station (just south of Atlantic City, N.J.). Dr. Ernest A. Choate, south Jersey's compiler for the new edition of "Bird Studies at Old Cape May" since the passing of Dr. Witmer Stone, was summoned and confirmed our identification.

We have been unable to find any previous sight or banding records for this species in the state of New Jersey and believe it is an ornithological first. We would appreciate hearing from anyone who may have additional information.

(Ed. Note: We believe this is the first record of any kind for this species in New Jersey. The above photographs are reproduced from Mr. Savell's color pictures which identify the bird conclusively. The nearest known area where Swainson's Warblers are commonly found is around Salisbury, Maryland on the Delmarva peninsula; but some New Jersey ornithologists believe that this species exists in southern New Jersey swamp forests but has yet to be found.)