REMARKS ON ALLEN'S RULE

By Charles H. Blake

To begin with, I commend Selden Spencer on giving both the means and standard deviations of his two chickadee samples (EBBA News 32:167). This enabled me to show that, in fact, there is no statistical difference between the mean wing lengths using the t-test and no statistical difference between the two standard deviations using the Chi-square test.

I think most of us now forget that in spite of the fact that Joel Asaph Allen was a fine ornithologist, he was primarily a mammalogist. It seems quite reasonable to suppose that short ears, snouts, and legs in mamals would decrease the heat loss since these parts have considerable circulation and, in the case of the first two, both thin skin and short hair. However, the situation is very different in birds. The part of the wing that we measure consists almost entirely of feathers which have no circulation. No one has ever measured the length or the area of the fleshy parts of wings to relate their size to Allen's Rule. Similarly, the beak and the exposed tarsi and toes have very little circulation, as compared with the corresponding parts in mammals. A number of years ago Dr. Charles P. Lyman pointed out that birds fall into two physiological groups; those with warm feet, such as the chicken; and those with cold feet, such as the gulls. The significant point here is that this difference depends on the temperatures at which the nerves in the exposed portions cease to perate. I do not have the exact figures, but certainly below about 40° the nerves in a chicken's leg or a mammaliam leg cease conducting whereas in the cold-footed birds the nerves continue to conduct down to temperatures below freezing.

Box 613, Hillsborough, N. C. 27278

A STATISTICAL NOTE ON COMPARING VARIATION IN WING-LENGTH

By Jack P. Hailman

Spencer (EBBA News, 32: 167-169, 1969) concluded that one population of chickadees was more variable in wing-lenth than another on the basis of differences in standard deviations (hereafter "SD"). There is a difficulty of interpretation with such comparisons that is worthy of attention, since it applies widely. The SD is a measure of the "absolute" variation, and as such it increases linearly with the value of the mean in most naturally occurring variables. Therefore, if two means are equal and the SD's differ, one can conclude that there is a difference in variability between the two populations; likewise when the larger SD is coupled with the larger mean alone, and not represent a greater relative variability.

Taxonomists, recognizing this problem in most linear measurements of animals, quite commonly adjust the variability measure by dividing by the