BLACK-CAPPED CHICKADEE WING CHORD VARIATIONS
A RE-EXAMINATION OF ALLEN'S RULE
By Selden Spencer

According to Bergman's Rule, birds generally considered to be permanent residents of a given colder climatic area have larger bodies than their relatives living in warmer climates, and the similar Allen's Rule states that birds living in colder regions generally have relatively shorter beaks, legs and wings than their nearest relatives living in warmer regions (Welty, 1962). In this particular paper only Allen's Rule is considered, since the only measurements taken were wing chord lengths.

This report is a compilation of the results of three banders: Selden Spencer in Plainfield, Vermont during 1962-63 and New Paltz, New York, 1964-68; Mrs. Glen Metcalf, Plainfield, Vermont, 1964-68; and Mrs. Valerie Freer, Sullivan County, New York, 1965-68. The following measurements are Black-Capped Chickadee adults only, since there is frequently a difference of several millimeters between the wing length of a bird when young as contrasted to his adult size, as confirmed by all three banders. This species was selected because it is a relatively stable "permanent resident:" (it is conceded that some birds must migrate).

The following table summarizes the wing measurements taken by all three banders in the two states, with means and standard deviations computed below the table.

Wing chord measurements of adult Black-capped Chickadees banded at certain localities in North-central Vermont and the Mid Hudson Region of New York State, 1962 through 1968.

Wing Chord (mm)	Vermont 1962-68	New York 1965-68
71	0	1
70	0	4
69	3	2
68	6	3
67	8	13
66	18	11
65	14	4
64	13	15
63	16	10
62	11	6
61	9	1
60	3	1
59	1	1
58	0	2
57	0	0
56	0	1
Totals:	102	75

| Mean wing length: | 64.3 mm | 64.85 mm |
| Standard deviation: | 2.75 mm | 2.85 mm |

Mean wing length of the Vermont birds was 0.55 mm shorter than the New York birds, therefore giving a shred of support to Allen's Rule. Standard deviation comparisons show us that there is a greater variation in the birds living in New York State than in those found in Vermont. In fact, when a coded wing length was assigned during the standard deviation computations and rounding off was used, the mean lengths would differ by 1 mm (64 mm in Vermont as opposed to 65 mm in New York State).

While this variation is apparent by inspection of the preceeding table, the accompaning graph, interposing the distribution of Vermont chickadee wing lengths over those banded in New York, helps to emphasize the point.

From the data available it would seem, therefore, that with 3°11' difference in latitude (or about 170 miles) and 6.4°F difference in mean annual temperature between Ulster County, New York and Plainfield, Vermont (40.1 vs. 46.5°F) wing lengths of New York Black-capped Chickadees will tend to be not only slightly longer but more varied than those living in Vermont. This might lend support to the generalized ecological rule that more rigorous climates tend to reduce variations within a population of a given species as well as limiting the number of species of organisms found. As to Allen's Rule, it is only suggested and rather weakly supported.

Literature Cited

Bartholomew, John, and Son, Ltd. 1967. The Times stlas of the world. London: The Times Newspapers, Ltd. 272 p., plate 104.

Berger, Emil J., Jr. 1966. Finding a footpath in a forest of figures. EBBA News 29 (2): 57-63.

Welty, Joel Carl. 1962. The life of birds. Philadelphia: W.B. Saunders Co. 546 p., pp. 128, 412.

United States Department of Agriculture. 1941. Climate and Man: Yearbook of Agriculture. Washington, D. C.: U. S. Government Printing Office, 1248 p., pp. 707, 990, 1026.

55 DuBois Road, New Paltz, N. Y. 12561

Wing chord measurements of adult Black-capped Chickadees banded at certain localitites in North-central Vermont and the Mid-Hudson region of New York State, 1962 through 1968.