

it seems there are numerous chances for disaster. The present status of the species, however, proves that these dangers are insignificant in their effect. I have seen the young of the Mourning Dove successfully reared in a nest located in a fallen willow which had lodged in another tree in a most precarious position. While not a prolific species, both parents are diligent workers in attending to nesting duties. They are not easily discouraged, enduring mishaps in a hardy manner, usually replacing a failure by a success. After examining their habits and considering the ecological conditions of the region, the future status of the species may be predicted as favorable.

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## REMARKS ON METHODS IN MEASURING BIRDS

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WHEN we look into the history and development of methods of measurements now current in Europe and in America we are forced to conclude that they have originated from the judgment of one or two ornithologists in each hemisphere. There does not seem to be evidence that either the European or the American systems are the result of deliberation on the part of the combined profession such as I have been assured is the case in engineering, which science is also dependent upon precision of measurement.

I have had the privilege of discussing with Mr. Robert Ridgway and others the history of measurements during the past fifty years. In the 'Manual of North American Birds,' 1887, p. 9, Mr. Ridgway in speaking of wing measurements writes as follows: "Length of wing is from the bend or carpal joint, to tip of longest primary, the rule being laid along the outer or convex side and the wing brought up close to it for its entire length." However, in his later work in the 'Birds of North and Middle America,' 1901, Part I, p. xv, we notice the change from the European method previously employed to the then established American method. When I asked Mr. Ridgway to give me information about methods formerly in use and why or when he had changed, he wrote and gave me

permission to quote him: "I am glad to comply with your request for information as to why I changed the method of measuring the wings of birds from that followed in the preparation of the 'Manual of North American Birds' when I took up the 'Birds of North and Middle America.' Unfortunately I cannot give you exact data on the subject. I thought it was a matter of record, but I have not been able to find anything in print substantiating that impression. However, I will state from definite recollection that at one of the meetings of the Committee on Classification and Nomenclature of the A. O. U.—which one I cannot remember—the subject of measurements was freely discussed and it was agreed that measurements should be taken according to the method which I adopted in 1894, namely, measuring the wing with dividers, and the tail by inserting one point of the dividers as close as practicable between the shafts of the middle pair of rectrices. I will add that while I approved the new method of measuring the tail, I did *not* approve of the new method of measuring the wing, which I agree with you in believing is far less accurate than the other method. In fact I changed the method only out of loyalty to the A. O. U."

Dr. Witmer Stone is one who, despite the change of American sentiment, has continued to use the European method of wing measurement which he, too, considers best.

When I asked Dr. C. E. Hellmayr what caused him to use the European method which he has always employed he stated that Count Berlepsch and his other predecessors had always used that method and he had seen no reason to change it.

At Tring I talked the matter over with Dr. Ernst Hartert who some years ago had written a paper on measurements and who is now not very hopeful concerning the adoption of a universal method of measuring.

Having spent the last six months abroad endeavoring to become better acquainted with South American birds, I have more than ever been struck not only with the importance of exactness but of uniformity of method in measuring the external parts of birds. At my headquarters in Munich, specimens from all the larger museums of Europe, such as Vienna, Berlin, Frankfort, Tring, and the British Museum were available for my use, and it was not unusual to have a series of seventy-five specimens for the more difficult problems.

I feel that a compromise could be made between the Old and New World systems of measuring. Most continental Europeans use a rule with which to measure the tail, the wing, and the culmen, whereas Americans use dividers for all three measurements. Could we not agree to measure the wing, straightened out, with a rule such as is generally used in England? This rule has a small piece of metal about half an inch high riveted across its left end. The wing is held against the metal which serves to align the wrist with the zero point of the rule. In using the dividers for the wing, as we do, the wing retains the curvature of its primaries as well as the bent position of the manus it has often taken in drying. If the feathers are not straightened, a shorter measurement results, whereas in placing the wing on the rule and flattening it, it assumes its full length. For this reason I believe the first compromise should be made by the Americans.

In measuring the tail the continental Europeans use an inaccurate method. A rule is inserted under the under tail coverts—surely not so precise as using the dividers. Because some continental ornithologists press out the tail along the rule, without searching for the base of the feathers, I soon learned to expect a difference of from 5–6 mm. between their measurements and mine. We might suggest that they adopt our method of measuring birds' tails from the base of the middle rectrices to the tip of the longest. That they will choose to embrace our procedure is uncertain. In any case tail measurements are of little value in helping us to determine subspecies, and especially so if we use methods which are not standardized.

As for the culmen, the varying form of birds' beaks precludes the possibility of having a single universal method of measurement. Measuring the exposed part of the culmen is usually inaccurate, inasmuch as the frontal feathers are often either missing or too readily pushed back with the dividers, thus making the exposed culmen longer. The English method of measuring the culmen from its tip back to its juncture with the skull, disregarding feathers entirely, is more precise than the method most in favor here of measuring the exposed culmen only. Such a measurement must of course be made with dividers. The term, length of culmen, for example, in a table of measurements is not sufficient to explain

the manner of attaining the result tabulated. Several standard designations, such as culmen from nostril, culmen from juncture of skull, culmen to base, would make plain the figures now found under the heading of "culmen."

Geographic distribution plus measurements certainly tell a significant story in systematic work. The less one writes about probable and possible differences and the more one can show by tables of measurements and diagrams, the more useful and intelligible are one's results. As in other branches of science, vague average measurements and general statements cannot be considered of equal value with detailed lists. This is no less true because, to some, such precise tabulations of locality, sex, and measurements are uninteresting.

My aim in this paper has been to help arouse ornithologists to establish uniformity in methods of measurements where possible and in any other cases to describe the manner in which the measurement was taken.

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## BIRD BANDING AND BIRD MIGRATION WORK AT ROSSITTEN ON THE BALTIC SEA.

BY THEODOR G. AHRENS.

### I. FOUNDATION, HISTORY AND OBJECTS OF THE STATION.

I. AT THE annual meeting of the German Ornithological Society (Deutsche Ornithologische Gesellschaft) in October 1900 in Leipzig, which was at the same time its fiftieth anniversary, Professor Thienemann made an address in which he demonstrated the great importance of the narrow peninsula known as the 'Kurische Nehrung' in East Prussia for the observation of bird migration. He described, how annually in the spring and autumn the Nehrung is traversed by countless thousands of birds on their migration. He then suggested that a bird station for the observation of the mysteries connected with bird migration should be founded at Rossitten. The Kurische Nehrung is 97 km. long from Kranz on the peninsula of Samland, to Memel, at which point it is cut