

AMERICAN MUSEUM NOVITATES

Number 243

Published by
THE AMERICAN MUSEUM OF NATURAL HISTORY
New York City

Dec. 31, 1926

59.84,10

STRUCTURAL VARIATIONS IN THE SCOTERS

BY W. DEW. MILLER

In an article published in *The Auk* for July, 1916, the writer called attention to certain characters separating the Black Scoters (true *Oidemia*) from the other species commonly considered congeneric. These differences necessitated the generic separation of the latter as *Melanitta*, with two subgenera, *Melanitta* and *Pelionetta*.

In the ten years that have elapsed new facts have come to light that emphasize the distinctness of the two genera.

Of the differences among these unusually variable birds, the most remarkable is in the form of the trachea. The accompanying figures illustrate the wind-pipes of all but one of the six species of Scoters. The exception, the Asiatic *Melanitta carbo*, is closely allied to the American *M. deglandi* and the European *M. fusca*, these three species constituting the typical subgenus.

The figures of the two European species, *O. nigra* and *M. fusca*, are copied from Yarrell's 'British Birds' (IV, pp. 475 and 480). The three American species have been drawn from specimens in the collection of The American Museum of Natural History.

The most interesting facts to remark are, first, the decided difference between the trachea of *M. fusca* and that of the related *M. deglandi*; second, the marked resemblance between the former and *M. perspicillata* in this feature.

The European bird is distinctly intermediate between the two American species in the form of its trachea. Two adult males of *M. deglandi* have been examined and their windpipes are identical. A second figure of the windpipe of *M. fusca* in Eyton's 'Osteologia Avium' agrees with that in Yarrell's work. There is little doubt, therefore, that the differences are constant. These two species, at one time considered doubtfully separable, are thus very distinct, decidedly more so than are the two Black Scoters from each other.

An important difference, not heretofore recorded, between the two genera of Scoters is in the length of the intestinal cæca. In *Melanitta*

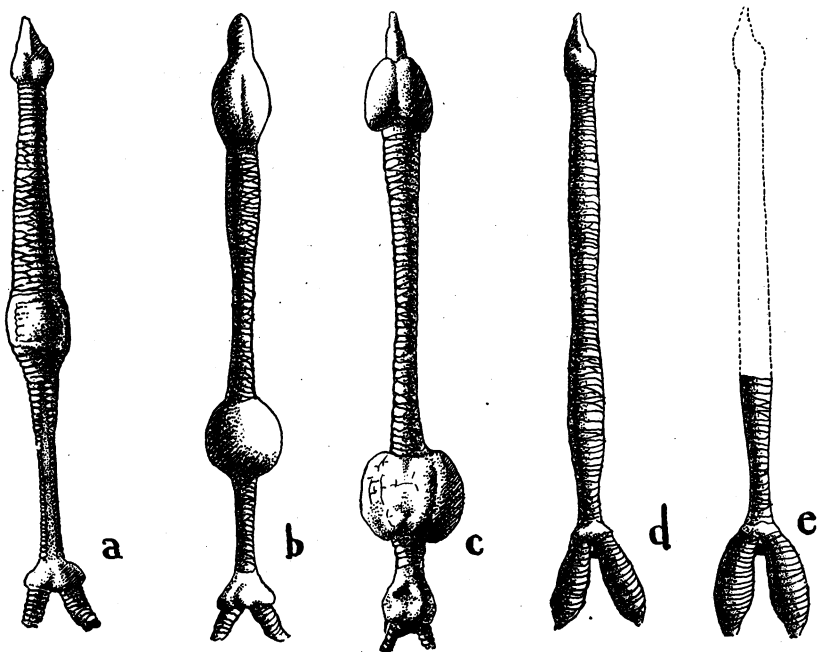


Fig. 1. Tracheas of adult male Scoters.

a. *Melanitta deglandi*.d. *Oidemia americana*.b. *Melanitta fusca*.e. *Oidemia nigra*.c. *Melanitta perspicillata*

One-half natural size.

these are long and slender, vermiform, as in most other ducks, including *Somateria*. In *Oidemia* they are greatly reduced in length, as is also the case in the Mergansers. They are, however, as thick as in *Melanitta* and are usually decidedly clavate.

The measurements of the cæca of sixteen individuals, summarized below, show a marked and constant difference between the two genera.

	CÆCA	BODY
<i>Oidemia americana</i> (5 males)	1.5- 2.4 cm.	16.8 cm.
<i>Melanitta perspicillata</i> (6 males, 1 female)	8. -12.3	16.1
" <i>fusca</i> (1)	9. -13	
" <i>deglandi</i> (3 males)	6.7-10	19.4

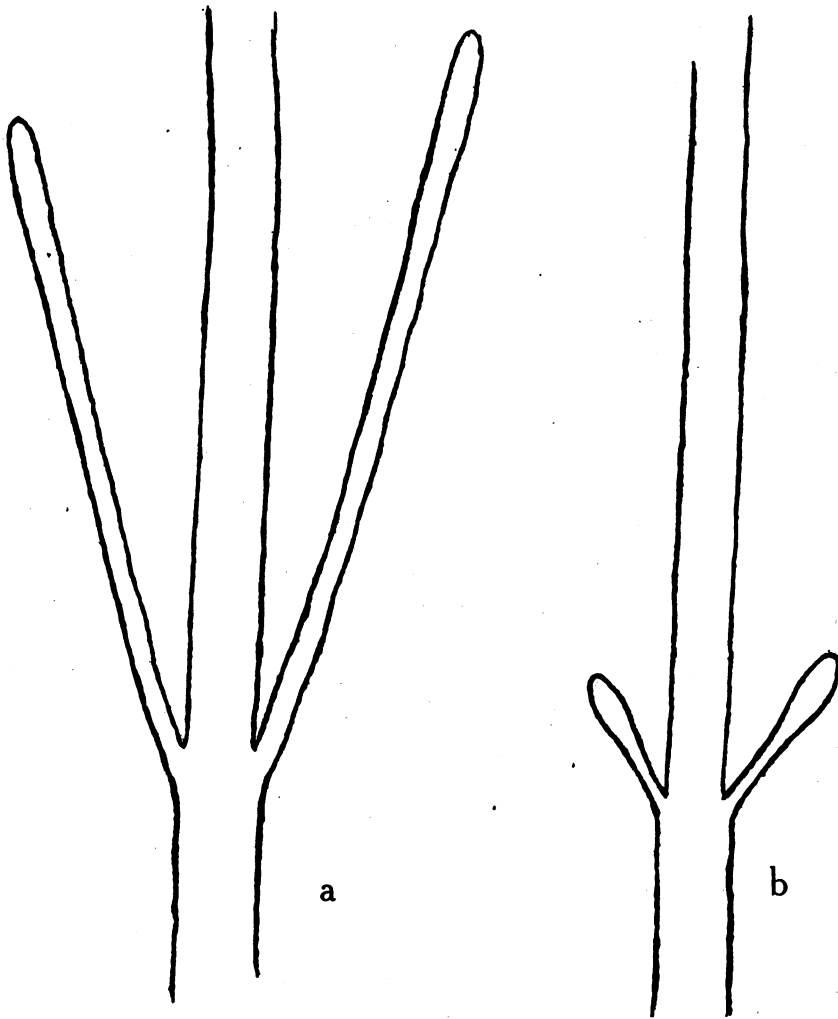


Fig. 2. Intestinal caeca of adult Scoters.

a. *Melanitta perspicillata*.

b. *Oidemia americana*.

Natural size.

The record of *M. fusca* is taken from Gadow's list in 'Das Tierreich.' The body measurements (length from head of coracoid to rear end of pubis) show the larger size of the Whitewinged Scoter. Its European representative, the Velvet Scoter (*M. fusca*), is of about the same size.

The only published records of the viscera of either species of *Oidemia* that I can find are those of McGillivray. He gives the cæcal length in *O. nigra* as eight inches, and in *O. americana* as nine inches. Whereas in the five specimens of the latter examined by me the cæca were only one-fourth to one-fifth as long as in *Melanitta*, McGillivray's figures make them twice as long as in the latter! This is surely erroneous and was probably caused by inadvertently copying twelfths of an inch as so many inches. When reduced to twelfths the equivalent in centimeters is found to be 1.7 for *O. nigra* and 1.9 for *O. americana*.

In *Oidemia* the intestines are rather shorter than in *Melanitta*. The gizzard of *O. americana* is fully as muscular as that of *M. perspicillata*, if not more so; while that of *M. deglandi*, judging by the single specimen in which this point was determined, is decidedly less muscular.

To the external characters recorded in my previous paper it may be added that the nostrils are larger and wider in *Melanitta* than in the allied genus. The tarsus and toes are relatively shorter in the former than in the latter. An interesting peculiarity of *Oidemia* is the character of the plumage of the head and neck. The submetallic violet-black feathers are narrow, their distal barbs converging to the tip, producing a striate or grooved effect in the plumage, recalling that of the neck in Geese of the genera *Anser* and *Chen*.

The more important features in which *Oidemia* and *Melanitta* differ may be summarized as follows.

Size, form and feathering of the bill. Length and shape of the tenth primary. Length and graduation of tail; number and shape of rectrices. Form of the trachea and bronchi. Length of the intestines and particularly of the colic cæca. Nature of head plumage. Color of bill, feet and iris. Coloration of head of the female.

M. perspicillata is *sui generis* in the form and feathering of its bill. It approaches *Oidemia* in the width of the outer primary, shape of the tail and form of the rectrices, but is decidedly nearer *M. deglandi* in these respects. In having 18 secondaries it agrees with *Oidemia*, while *M. deglandi*, due perhaps to its larger size, has 19. In the length of the cæca, however, the Surf Scoter differs from *Oidemia* even more than does the White-wing.

Further, *M. fusca* is intermediate between *deglandi* and *perspicillata* in the feathering of the bill, in the form of the trachea and in the length of the cæca.

An attempt to demonstrate numerically the relative amount of difference between these groups, arbitrarily assigning a value of from eight to ten points to each of the more important characters, gives these results: *Oidemia* differs from *M. deglandi* in 64 points, and from *M. perspicillata* in 53; *M. deglandi* differs from *M. perspicillata* in 26; *M. fusca* from *M. perspicillata* in 21.

This comparison does not include the differences between *Oidemia* and *Melanitta* in the color of the eye, bill, and feet, or in the plumage of the female, which are very significant of the degree of relationship.

The character of the intestinal cæca might in itself be considered of generic value, for I cannot recall any currently recognized genus in which the difference in this respect approaches that exhibited by the Scoters.

It is evident that *Oidemia* and *Melanitta* are strongly characterized genera and that *Pelionetta* (*perspicillata*) is far more nearly related to true *Melanitta* and better regarded as only subgenerically distinct.

