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FILICOLLIS BOTULUS N. SP., WITH NOTES ON THE  
CHARACTERISTICS OF THE GENUS\*

By H. J. VAN CLEAVE

Lühe<sup>1</sup> founded the genus *Filicollis* (1911:30) upon the characteristics of the species formerly known as *Echinorhynchus anatis* Schrank, of which he considered *E. filicollis*, Rud., *E. polymorphus* Bremser, and *E. lævis* vonLinst. as synonyms. In this species, *F. anatis* (Schr.), the female has a peculiarly modified proboscis at the end of a slender neck. Only a portion of the surface of the large inflated proboscis carries hooks. This characteristic was incorporated into Lühe's definition of the genus. Regarding the development of the proboscis in *Echinorhynchus filicollis* Rud., which as indicated above Lühe accepted as a synonym for *Folicollis anatis*, de Marval<sup>2</sup> (1905:267) has given a complete account of the changes in form accompanying advance in age of the female. His figures 103, 104, and 106 indicate in the development of the female a gradual change from an ovoid proboscis slightly larger than the neck in very young forms to the inflated, spherical form characteristic of the fully mature female. These three figures have been copied by the writer in the present article as figures 1, 2, and 3. In order to evaluate this point of structure fairly it should be borne in mind that these changes in the form of the proboscis occur after the individual has found lodging in the final host. To the writer it seems within the bounds of reason that such a characteristic as the shape of the proboscis appearing near the end of the development of the individual carries with it but slight phylogenetic significance. Consequently it could signify nothing more than a specific character and no longer should be considered as diagnostic for the genus.

The writer has found individuals belonging to a new species which agree in all essential details with the description of the genus *Filicollis* except in the lack of this inflated proboscis of the female. The creation of a new genus for such a minor variation would necessitate the separation of forms which are evidently closely related.

\*Contributions from the Zoological Laboratory of the University of Illinois, No. 63.

<sup>1</sup>Lühe, M. 1911. Die Süßwasserfauna Deutschlands, Heft 16, Acanthocephalen. Jena; 116 pp.

<sup>2</sup>Marval, L. de 1905. Monographie des acanthocéphales d'oiseaux. Rev. suisse de Zool., 13:195-387.

To avoid this confusion the description of the genus should be modified so that the species *F. botulus*, described later in this article, may be included within its limits. In view of the fact that this adds but one more species to the genus the writer does not feel justified in offering a complete emendation of Lühe's definition but offers as a suggestion that until more is known of members of this genus the original definition (Lühe 1911:30) should be qualified by adding the statement: "The proboscis of the female *may* be dilated, or in some species the proboscis of the female may assume the same form as that described for the males of the genus."

*Filicollis botulus* n. sp.

Description. Body both sexes cylindrical, large, thick, sausage shape; about 20 mm. long; about 4 mm. in diameter. Neck long, naked, retractable; 0.76 mm. long; 0.38 mm. diameter at posterior end. Proboscis sheath 2 mm. long. Body of male spined short distance back from neck, spines about 0.012 mm. long. Mature female with no distinct spines in this region, cuticula of anterior part of body in minute elevations. Proboscis ovoid, 0.65 mm. long, 0.57 mm. in diameter, armed with sixteen longitudinal rows of seven or eight hooks each. Hooks practically uniform in size, basal hooks 0.060 to 0.062 mm. long, apical hooks slender, basal hooks without distinct roots. Embryos elliptical, with three concentric membranes; 0.071 to 0.083 mm. long, 0.030 mm. broad. Type host *Somateria dresseri*, in intestine. Type locality Maine, U. S. A. Cotypes in collection of Bureau of Animal Industry, Washington, D. C., catalog number 2080; and in collection of the writer at Urbana, Illinois.

The material upon which this specific description is based was collected by Mr. Albert Hassall in Maine during the month of April, 1892. There are fifty specimens in the collection examined by the writer. In addition to this material the collections of the Bureau of Animal Industry contain several hundred specimens of this species from the type host and from *S. mollissima* [*S. m. borealis?*]

Acanthocephala of this general form from American ducks of various species frequently have been assigned by earlier workers to the species '*Echinorhynchus polymorphus*.' The confusion of

the species *E. polymorphus* Bremser, *E. anatis* Schrank, and *E. filicollis* Rudolphi of the early workers has been very general. After various investigators had attempted to solve the problem of the relationships of these species Lühe (1911; 27 and 30) has finally made a careful analysis of the characteristics of these species through which he was led to establish two independent genera, *Filicollis* and *Polymorphus*. The addition of another species to the genus *Filicollis* furnishes support to the contention for the validity of this genus, which is very clearly a natural group in the classification of the Acanthocephala.

## EXPLANATION OF FIGURES

All original figures were drawn with the aid of a camera lucida. A projected scale indicating the magnification accompanies each drawing.

- Fig. 1. *Filicollis anatis*, fully mature female redrawn from deMarval 1905, fig. 103.
- Fig. 2. *F. anatis*, young form. Redrawn from deMarval 1905; fig. 104.
- Fig. 3. *F. anatis*, very young form. Redrawn from deMarval 1905; fig. 106.
- Fig. 4. *F. botulus* n. sp., male. Neck retracted. Body spines not shown. Arrow indicates posterior limit of spined region.
- Fig. 5. Cuticular body spines from anterior region of body of male shown in fig. 4.
- Fig. 6. *F. botulus* n. sp., female. Tip of proboscis slightly inturned.
- Fig. 7. *F. botulus*. Proboscis and part of neck of female.
- Fig. 8. Profile, ventral surface, of proboscis shown in fig. 7.
- Fig. 9. *F. botulus*. Embryos from body cavity of female.

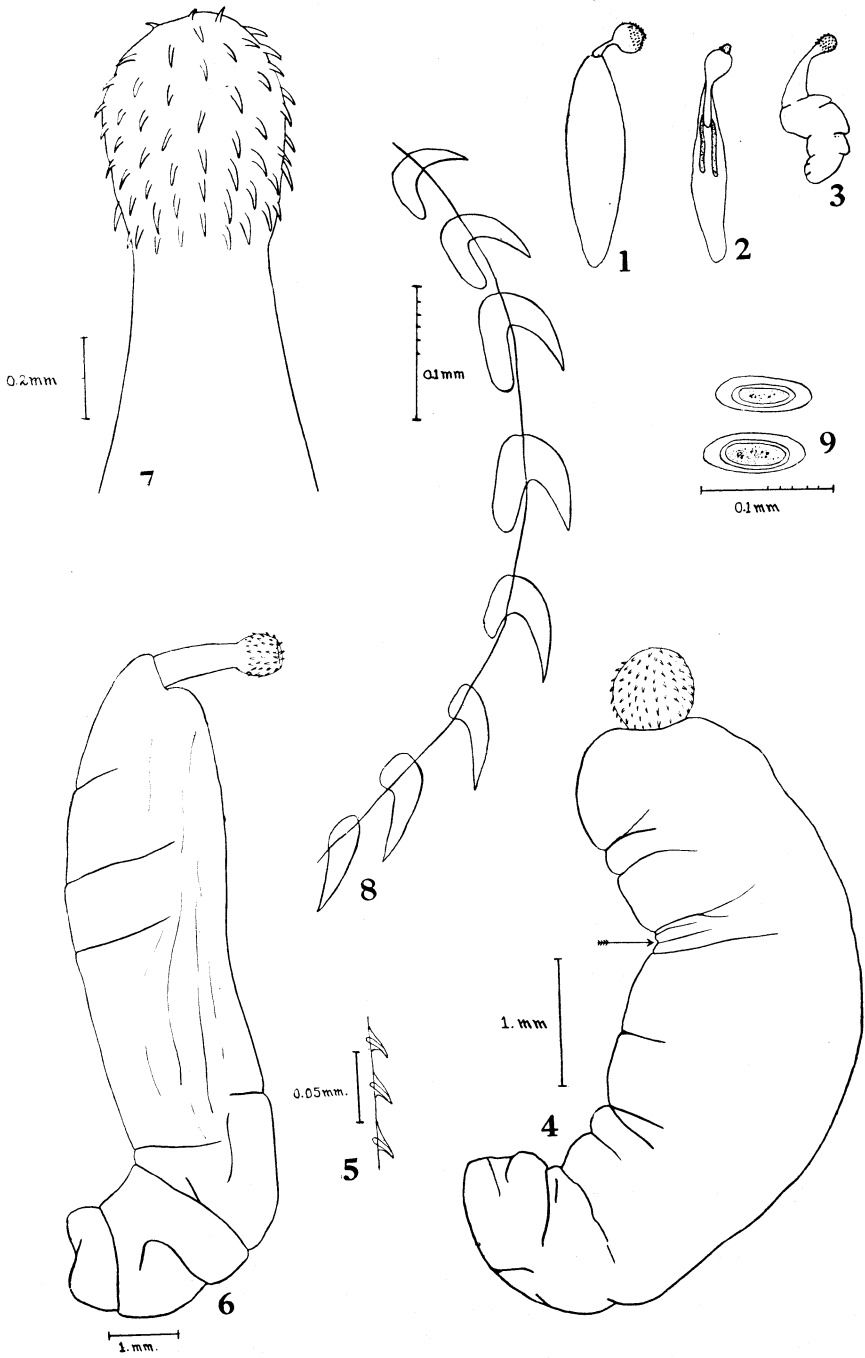


PLATE XVIII