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Because of their wide geographical distribution through arctic and subarctic regions of the northern hemisphere, the eider ducks offer some unusual opportunities for the study of distribution and host relations of their parasites. When the Acanthocephala from eider ducks were first studied, the fauna of each continent was regarded as distinct, because it had been reasonably well established that the majority of species of these parasites encountered in the United States were distinct from those found in central Europe. This belief failed to take into account the fact that in the arctic the usual distributional barriers to both the definitive and the intermediate hosts are lacking. Recent studies in northern Europe, especially by Lundström (1941, 1942), and new collections on the American continent have added significantly to an understanding of this fauna. The new evidences make it seem apparent that for water birds of the arctic region the acanthocephalan parasites are very widely distributed geographically. This statement does not contradict the generalization that migratory birds have little influence on inter-continental distribution of acanthocephalan parasites. It seems more probable that suitable intermediate hosts for Acanthocephala are widely dispersed in the arctic and subarctic regions and that local bird populations, even though they may have undergone subspecific or specific differentiation, are by food habits and habitat exposed to infection by identical species of parasites on the two continents. This condition of birds under ecologically similar conditions is a direct parallel to that described for fishes of the same regions where numerous species on the two continents serve as definitive hosts for *Neoechinorhynchus rutili* (Mueller) as demonstrated by Van Cleave and Lynch (1950).

Field studies in Alaska (by Rausch) have furnished the first collection of Acanthocephala from the Pacific eider, *Somateria v-nigra* Gray and additional material from the king eider, *Somateria spectabilis* (Linn.). The writers are

under obligation to Mr. Harold C. Hanson of the Illinois State Natural History Survey for a collection of *Polymorphus arcticus* (Van Cleave) from *Somateria spectabilis* which he took from Perry River, Northwest Territories, within the Canadian arctic during the summer of 1949.

Two species of Acanthocephala have been recorded previously from the eider ducks of North America. *Polymorphus botulus* (Van Cleave, 1916) was based upon specimens taken from the intestine of the American eider *Somateria mollissima dresseri,* from off the coast of Maine and at the time the species was described other specimens were available from the northern eider, *Somateria mollissima borealis,* from the North Atlantic coast of North America. At a later date, a second species, *Polymorphus arcticus* (Van Cleave, 1920) was described from the king eider, *Somateria spectabilis,* of the Canadian arctic fauna in the vicinity of Bernard Harbour, Northwest Territories. Both of these species were originally assigned to the genus *Filicollis,* but Meyer (1931) proposed *Profilicollis* as a new genus to accommodate them. However, this generic concept proved untenable and Witenberg (1932) was the first to suggest that these species be assigned to the genus *Polymorphus.* Van Cleave (1947) gave a full morphological analysis of the distinctions between *Filicollis* and *Polymorphus* which fully supported the proposal of Witenberg.

The writers have been unable to find any reference to Acanthocephala as parasites of the Pacific eider, *Somateria v-nigra.* However, as mentioned in the introduction of the present paper, Rausch examined a specimen in Alaska which carried a mixed infection. Of these, five large individuals have been identified as *Polymorphus arcticus* (Van Cleave) and five very small specimens as *Corynosoma mergi* Lundström. This is the first account of the occurrence of *C. mergi* on the American continent as well as in an eider duck.

In the original description of *Corynosoma mergi,* Lundström called attention to the fact that spines around the genital opening are lacking in the males but are found in some females, both juvenile and adult. This condition is the opposite of that which usually maintains in the species of *Corynosoma.* Consequently, a close study was made of the genital regions of the specimens from *S. v-nigra.* Unfortunately, genital spines could not be demonstrated in either sex but the females were gravid and the presence of large numbers of eggs made the trunk spines difficult to observe, except on the margins of the body. Since it is known (Van Cleave, 1945) that for many species of *Corynosoma* the posterior region of the male becomes introverted to form a genital vestibule, the males were closely examined but no vestibule could be demonstrated and no spine could be seen within the body.

At the time *P. botulus* and *P. arcticus* were described they were both known from the North American continent only, and these were the only two species of Acanthocephala reported from eiders of the new world. In Europe, the Acanthocephala from the eider ducks had been very unsatisfactorily treated. As early as 1774, Phipps recorded a worm from *Somateria mollissima,* under the name *Sipunculus lendix.* Although this form has been given recognition as presumably an acanthocephalan, no one has ever been able to recognize the species from the original description.

Kostylev (1922) recorded *P. botulus* (Van Cleave) from *Somateria mollissima* of Spitzbergen, the Murman Coast and various other localities within the Eurasian arctic. In the same paper, he described *Polymorphus phippsi* as a presumably new species from the same host but it seems highly probable that this is a direct synonym of *Polymorphus minutus,* which is widely distributed geographically and has very broad host adaptations among water birds. Previously,

Baylis (1919) had recorded *P. minutus* from *Somateria mollissima* of the Murman Coast.

Later, Kostylev (1925) reported that specimens of *Echinorhynchus polymorphus* from the European eider, which von Linstow (1901) had identified in the collections of the Zoological Museum of Science of U R S S were, upon reexamination, found to be *Filicollis botulus* Van C. (*P. botulus*). These collections were from Spitzbergen and Katharinen Hafen of the European Arctic Ocean.

von Linstow (1905) gave the name *Echinorhynchus pupa* to specimens taken from *Somateria mollissima* by the Russian Polar Expedition on Taimyr Peninsula but because the species was inadequately described it has been the subject of great confusion. Kostylev (1922) expressed the belief that *E. pupa* is probably identical with *P. arcticus* but this seems to be untenable. Meyer (1931), in reviewing the Acanthocephala of the Arctic fauna, differed radically from the interpretation of Kostylev when he assigned *E. pupa* to the genus *Prosthorhynchus* as *Prosthorhynchus pupa* (von Linstow). The description given originally is too inadequate to permit of definite generic assignment. However the shape of the trunk and the "cylindrical" proboscis mentioned by von Linstow would definitely exclude the species from identity with *Polymorphus arcticus,* and thus eliminate the possibility of establishing *E. pupa* as having priority over *P. arcticus.*

In his survey of the Acanthocephala of the Swedish avian fauna, Lundström (1942: 47) found *P. botulus* in *Somateria mollissima mollissima,* the European eider, but found this species in no other host. He likewise recorded two unidentified species of *Polymorphus* from the European eider, one of which, represented by a single immature female specimen, he regarded as a new species although he assigned no name and gave no significant description. The other unnamed specimens of *Polymorphus* from the eider were wholly undescribed. In his host tabulation (page 215) he records as a new record an unidentified species of *Corynosoma* but does not mention this in his tabular survey of his examinations of *Somateria* (page 47).

In an earlier paper, Lundström (1941) described *Corynosoma mergi* as a new species from *Mergus serrator* and later (1942: 215) recorded it also from *Phalacrocorax carbo* but he did not find it in any of the other ducks or water birds of the northern European fauna which he investigated.

By way of summary, as information on the acanthocephalan parasites of the eider ducks becomes expanded, evidences of acanthocephalan faunas with continental limitations disappear. *Polymorphus botulus,* first described from *Somateria mollissima dresseri* and *S. m. borealis* of North America, has been more recently recorded from *Somateria mollissima mollissima* of the Eurasian arctic.

Polymorphus arcticus, originally described from *Somateria spectabilis* of the Canadian arctic, has been found again in a different region of the Canadian arctic and has likewise been recorded from the Pacific eider, *Somateria v-nigra* in Alaska.

Corynosoma mergi previously known from *Mergus serrator* and *Phalacocorax carbo* of Sweden is herein reported from *S. v.-nigra* of Alaska.

Polymorphus minutus, known for some time from *S. m. mollissima* of the Eurasian arctic, is known to occur in ducks of the United States but has not yet been found in eiders of North America.

Echinorhynchus pupa, named by von Linstow from *S. m. mollissima,* remains an unrecognizable species although different authors have expressed conflicting explanations as to its identity.

Similarly, *Sipunculus lendix* of Phipps, 1774, from *S. m. mollissima* remains unrecognizable as either a distinct species or as a synonym and cannot be assigned with assurance to any present day genus.

List of the Acanthocephala reported from eider ducks, by host species

Somateria mollissima mollissima (Linn.)
Polymorphus minutus (Goeza, 1782)
(? = *Polymorphus phippsi* Kostylev, 1922)
Polymorphus botulus (Van Cleave, 1916)
(*Echinorhynchus pupa* von Linstow, 1905, unrecognizable)
(? = *Prosthorhynchus pupa* (von Linstow, 1905) of Meyer, 1932)
(*Sipunculus lendix* Phipps, 1774, unrecognizable)

Somateria mollissima borealis (Brehm)
Polymorphus botulus (Van Cleave, 1916)

Somateria mollissima dresseri Sharpe
Polymorphus botulus (Van Cleave, 1916)

Somateria spectabilis (Linn.)
Polymorphus arcticus (Van Cleave, 1920)

Somateria v-nigra Gray
**Polymorphus arcticus* (Van Cleave, 1920)
**Corynosoma mergi* Lundström, 1941

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* New host record.