

Two remarkable infestations by *Lernaeocera* spp. (Copepoda parasitica)

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Fishermen have drawn my attention to two unusual infestations by *Lernaeocera* spp. One specimen of these blood-feeding parasites was found on the tail of the host, instead of the normal anchoring place in the gill chamber. Another showed the occurrence of *Mytilus edulis* L. as an epizootic organism.

The anchoring of a *Lernaeocera* specimen to the tail of the host was observed on a 26 cm bib (*Gadus luscus* L.), caught in the Dutch coastal waters in November 1971. The parasite was very remarkable in its appearance as a red-coloured appendage in the region between the second anal fin and the caudal fin (Fig. 1). There was a slight local swelling in the tissues of the bib at the place of the penetration and attachment. Nevertheless, the anchoring of the parasite was not perfect, as was shown by the fact that one of the cephalic antlers had perforated the skin of the bib and was situated outside in the centre of an open wound. The parasite was in the reproductive stage with the egg strings present and had a total length of 1.5 cm. The length of the neck was 5 mm with a diameter of 0.8 mm near the head and 0.9 mm near the transition to the trunk. The neck dilated rather gradually into the trunk and formed an angle

with the anterior part of the trunk of about 125°. The flexure of the genital segment had an angle of about 135°. The cephalic antlers were furcated and rather bluntly shaped, with a length of about 3 mm. Though the dimensions of the parasite can be influenced by the abnormal way of attachment, it seems, based on the general morphological character (Schuurmans-Stekhoven, 1936), that the species most likely to be involved is *Lernaeocera lusci* Basset-Smith, 1896. This species is described mainly as a parasite of the gills of some fish-hosts and the anchoring to the tail of the host can be considered therefore as remarkable.

The other peculiarity observed was the occurrence of *Mytilus edulis* L. as an epizootic organism upon *Lernaeocera branchialis* L. The parasitic copepod was attached in the usual way to the gill chamber wall near the last gill arch of a 37 cm cod (*Gadus morhua* L.), also caught in the Dutch coastal waters in 1971. The *Lernaeocera* was bearing two mussels, of which the large one was attached directly by means of the byssus threads to the main part of the trunk and the genital flexure of the parasite. The other *Mytilus* used the shell of the former as its attach-



Figure 1. Attachment of *Lernaeocera lusci* near the tail of a bib, *Gadus luscus*.

ment surface. The dimensions of the mussels were length 33 mm, maximum breadth 17 mm and length 21 mm, maximum breadth 10 mm respectively. The cod showed no deformations of the hard parts of the gill chamber. But the closure of the operculum was imperfect due to the protuberance of the mussels. The soft parts of the gill region on the contrary were seriously deformed by the irritating contact of the mussels (Fig. 2). About half of each gill arch was badly affected and many of the filaments were missing.

The occurrence of a specific gill-parasite (as *Lernaeocera lusci* is usually described) on the body surface of the host suggests at first an abnormal attachment. Furthermore there is very little information on this phenomenon. Slinn (1970) described three instances of *L. lusci* attached to the body of wild bib caught in Manx and Aberdeen waters and also two observations of experimentally infected bibs. These examples suggest that the body attachment, although rather rare, lies within the biological range of this parasitic copepod and that *L. lusci* is not therefore such an obligate gill-parasite as is generally believed.

Slinn (1957) has described mussels epizootic upon *L. branchialis* and has discussed the rarity of this phenomenon. The attachment of epizootics on *Lernaeocera* are of interest in estimating the life span of the adult female *Lernaeocera*. If the growth of the mussels was not influenced by the unusual habitat of the gill chamber and was mainly determined by the environmental conditions in Dutch coastal waters, it is very likely that the age of the largest mussel was about 9–12 months (Havinga, 1929). Slinn (1957) concluded on the basis of his data on smaller epizootic mussels that the life span of the *Lernaeocera* gadoid phase would be at least 6–7 months and possibly as much as 9–10 months. The specimen from the Dutch waters suggests that the longer period may be correct.

References

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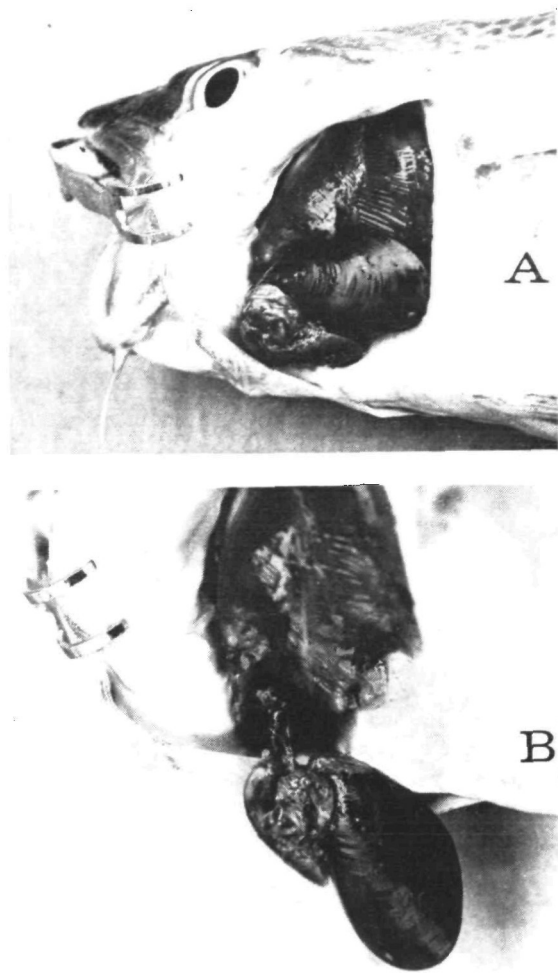


Figure 2. The occurrence of *Mytilus edulis*, attached to *Lernaeocera branchialis*, in the gill chamber of a 37 cm cod, *Gadus morhua*. A, gill cover pulled away. B, mussels pulled out to show the gill damage.