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## Medusæ as Hosts for Larval Trematodes.

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With Figure 1 in the Text.

THE larval form (late cercaria stage) of *Pharyngora bacillaris* (Molin) has been recorded by Nicoll (1910) from Plymouth as occurring free in the coarse-meshed tow-nettings in August. The adult is a common parasite of the mackerel, and the above is the only record of its larval stage.

Whilst examining tow-nettings at Plymouth in 1915 it was found that certain medusæ were at times abundantly infected with a trematode which proved to be the larval form of *Pharyngora bacillaris*. As it also occurred free, although almost certainly having originally come from the medusæ, it is obviously the form recorded by Nicoll, who expected the host to be a crustacean and unsuccessfully examined copepods in order to find it.

The medusæ found to contain the trematode were *Obelia sp.*, *Cosmetira pilosella*, and *Turris pileata*. *Cosmetira pilosella* was the commonest host in the early summer when *Pharyngora* was most abundant, but in the later summer *Obelia* was found to contain it frequently, *Cosmetira* not occurring at those times in the tow-nettings. *Phialidium hemisphericum* was also a host in the later summer and autumn. Even in December it still occurred, though very rarely. A ctenophore may also serve as host for this trematode, as it is occasionally found clinging to the inside of the stomach of *Pleurobrachia pileus*.

The parasite is generally to be found clinging to the manubrium or stomach wall of its host, but sometimes it occurs underneath the umbrella wall, so that it looks as if it were on the top, the wall being so transparent; on further examination, however, it is seen to be underneath. It seems to be undoubtedly a case of parasitism as so many of the medusæ were infected, sometimes every specimen in a haul, and, with the exception of an occasional ctenophore, none of the other animals in the same haul contained them or had them clinging to them.

From these observations it seems that there is no encysted stage in this species, the period passed in the medusa serving the same purpose. Probably this period is very short, the mackerel swallowing the host soon after the entry of the parasite, and for this reason an encysted stage is not necessary.

Nothing is at present known of the early stages in the life history of *Pharyngora*, although it is to be inferred that a mollusk is the first host.

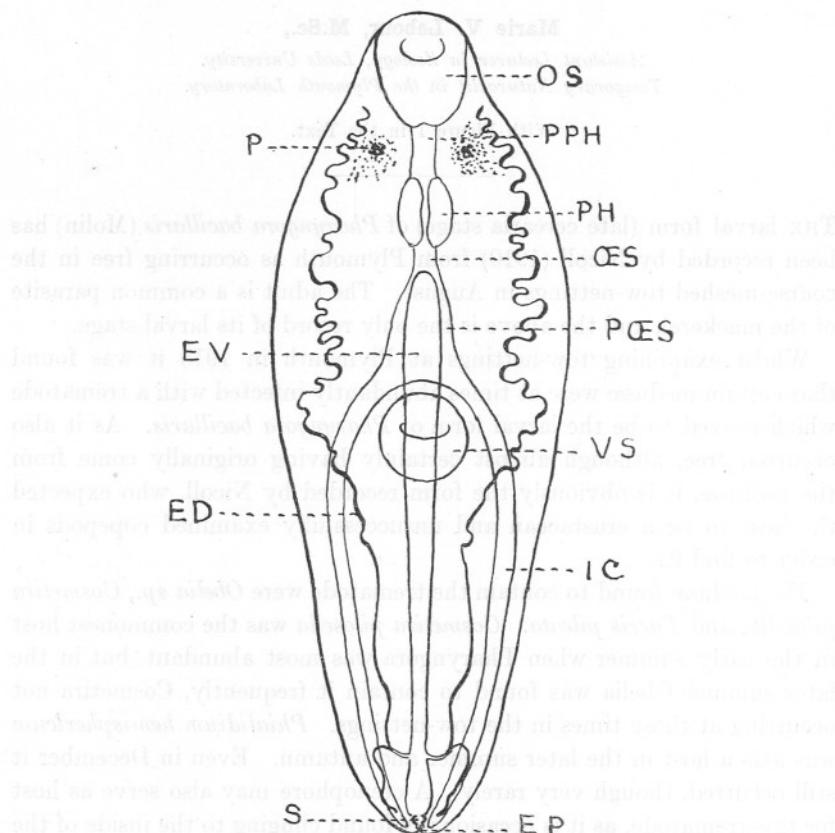


FIG. 1.—*Pharyngora bacillaris*.  $\times 120$ . ED, excretory duct; EP, excretory pore; EV, excretory vesicle; IC, intestinal cæcum; CES, oesophagus; OS, oral sucker; PH, pharynx; PPH, prepharynx; PES, pseudo-oesophagus; VS, ventral sucker.

The larval worm is very like the adult, but without reproductive organs (see Fig. 1), and bears a close resemblance to Nicoll's figure (Plate XXIX, Fig. 5). The body is covered with minute spines; the curiously shaped oval sucker is conspicuous; ventral sucker, prepharynx, pharynx, oesophagus, pseudo-oesophagus, and intestinal cæca all agree with the

adult form. The body in this stage, however, is crowded with gland cells along the sides reaching from the pharynx to well behind the ventral sucker. The pigment spots anteriorly are very well developed. The excretory vesicle is long and narrow, just as Nicoll describes it, its ducts in the larval form showing particularly clearly. At the hind end is a strong sphincter guarding the opening posteriorly; in front of this the main excretory branches are given off which send one branch backwards and a much convoluted branch forwards. The flame cells are particularly well seen in the living larval forms. As Nicoll's description does not enter into the details of the excretory system a figure of the larva is given, showing the main points.

#### REFERENCE.

1910. NICOLL.—On the Entozoa of Fishes from the Firth of Clyde. Parasitology, Vol. III, No. 3.