SOME OBSERVATIONS ON THE MONOGENETIC TREMATODES FROM THE GILL FILAMENTS OF SOME INDIAN FRESHWATER FISHES

INFECTION from dactylogyrid parasites (Trematoda : Monogenea) is very common among Indian freshwater fishes. Out of 517 specimens of fishes examined by the author during 1952–1957, 170 were found infected. The fishes examined belong to 37 species and 16 piscine families. The results of systematic investigation have been published elsewhere (Jain[1-5]). In this note are recorded some observations on their feeding, locomotion and survival in artificial media. The only other study on locomotion is that of Mizelle,[6] which is confined to North American forms. The fish selected for the present study was *Wallagonia attu* (Bloch.). It has been found to have an infection of 50% and harbours the following four species of parasites : *Haplocleidus gomtius* (0·9–0·96 mm.), *Thaparocleidus wallagonius* (0·85–0·92 mm.), *Mizelleus indicus* (0·58–0·73 mm.) and *Sprostonia wallagonia* (0·55–0·72 mm.).

Dactylogyrids are known to feed on the blood contained in the thin capillaries of the branchial region. There is never an arrangement of cutting plates or any other puncturing apparatus in any form known. There is, however, a specialised apparatus, *haptor*, for adhering on to the tissues. Once the posterior attachment is secured the parasite has free anterior end to search for food. On examining live parasites in a drop of clean water, it was found that the pharynx was always protruded

(Fig. 1). It is probable that the parasites use the suction pump method in obtaining blood which passes out of thin membranous walls of the capillaries.

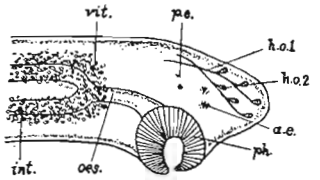

FIG. 1

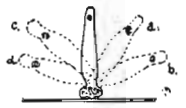

FIG. 2

FIG. 3

FIG. 4

FIG. 1. Diagrammatic sketch of a typical dactylogyrid, seen laterally with protruded pharynx, ventrally *a.e.*, anterior eye-spots, *h.o.* 1 and 2, head organs 1 and 2, *int.*, intestine, *oes.*, oesophagus, *p.e.*, posterior eye spots, *ph.*, pharynx, *vit.*, vitellaria.

FIG. 2. Diagrammatic sketch of a dactylogyrid 'smelling' for food.

FIGS. 3 and 4. Two methods of a dactylogyrid locomotion presented diagrammatically.

There is some sort of selection of food source possessed by the parasites. The head organs (*h.o.* in Fig. 1) seem to be responsible for 'smelling'. Figure 2 shows a diagrammatic presentation of the 'smelling' behaviour of a parasite, the haptoral attachment remaining fixed. The first position of the parasite is drawn in line while the subsequent positions, *a*, *b*, *c*, *d*, are drawn in dotted lines.

The parasites show two types of wriggling movements. *First*, the parasite adheres firmly by the haptor and then extends the body as far as possible, then fixes itself by pharynx and releases the haptor to come near the anterior end. This process is repeated again. *Second*, the parasite attaches firmly by the haptor, extends the body and fixes the pharynx at a second point, then releases the haptor, body remaining attached to substratum by pharynx, and then attaches it to a third point. The two methods of progression are illustrated in Figs. 3 and 4.

No study seems to have been made before about the period of survival of dactylogyrids in artificial media. In the present study fishes from the morning catch (5 to 6 a.m.) were examined at about 10 a.m. It was surprising that even after 4 to 5 hours of the death of the fish, the parasites were largely found alive. The study of such microscopic parasites was only possible after their release from mucus which took another 5 to 7 minutes. It was observed that the parasites showed slow wriggling movements under a high power binocular microscope for another 10 to 15 minutes. For a more reliable estimate of survival, some parasites were taken afresh from small aquarium fish, *Mystus vittatus* (Bloch.) and examined. It was found that they showed wriggling movements for another 10 to 18 minutes. Thus it appears that the survival in clean freshwater is almost the same whether the fish has been dead for 4 to 5 hours or only 5 minutes.

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