SHORT COMMUNICATION

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OBSERVATIONS ON THE PREDATORY BEHAVIOUR OF A FRESHWATER LEECH *GLOSSIPHONIA WEBERI* (BLANCHARD) [ANNELIDA : GLOSSIPHONIDAE]

While studying the breeding biology of some freshwater leeches, the authors observed the predatory behaviour of *Glossiphonia weberi* (Blanchard) on a species of freshwater snail, *Lymnaea luteola*, which forms the basis of this communication.

Observations on the predatory behaviour of *G. weberi* have been made on several occasions in the laboratory and in their natural habitat. Small museum jars measuring 20 × 10 cm and two aquaria measuring 35 × 20 × 20 cm were used for observing the same in the laboratory. Both juvenile and adult leeches, single or in batches, were offered prey snail, one to several each time, of different size groups, for the purpose of study. It has been observed that the freshly hatched and juvenile leeches were incapable of preying upon this snail. Adult leeches (over 15 mm in length) were found to attack and overpower prey snails, preferably below 12 mm shell size. Normally, the adult leeches "eat out" or/and suck up the whole prey, while in case of larger prey, only a portion of the foot is left. But, the remaining portion of the foot may be seen to devour by other leeches present thereupon. Larger snails are sometimes attacked by 2-3 leeches whereas for the smaller ones, "one predator one prey" is the usual phenomenon. Furthermore, the leeches are also attracted to snails supplied after removing the shell or freshly killed, and start eating "flesh" from somewhere except foot. However, no part of the body other than foot is left unconsumed. The leeches are never found feeding on decomposed prey-matters.

The prey-catching behaviour of leeches involved intricate mechanisms and instinctive movements. It proved impossible to interpret the coordination and sequence of prey-catching actions in exact details. The leeches are apparently able to 'feel' the presence of prey animals even from a distance. Normally, a leech swims greedily towards the prey and attaches itself on the shell of the prey or sometimes to the substratum nearby wifh the help of posterior sucker. Then it pulls and glides its head up and down, to and fro, in every possible ways, pointing its oral sucker towards the prey's head. It tries repeatedly to have a bite on the soft part of the exposed oral end, but not to muscular foot. As soon as it takes a bite, the snail reacts violently to sever the leech from biting. The snail gives the leech a swift shake by making the shell rotates to nearly 360°, clockwise and anti-clockwise, alternately and uninterruptedly. The speed of the rotation sometimes helps the snail to sever the leeches but swinging of the shell continues for a little while, even after severing the leech. But the larger leeches are rarely observed to be severed while they are on the shell of smaller preys.

The predation is mostly restricted to feeding hours (between 6.00 pm to 10.00 pm) only while the snails are actively moving with foot and buccal mass stretched open outside the shell. Generally, a leech attacks a snail at

a particular point, keeping the pulmonary opening a target, through which the oral sucker is being inserted deep inside the pulmonary chamber. It gives the prey a "precise penetrating bite" somewhere inside the pulmonary chamber or otherwise in the visceral mass, in some cases, which probably paralyzes the prey partially, and thus, the snail looses its hold with the substratum. The snail now floats in water with "shell down and foot up" posture with the leech attached to the body. In this posture the snail rotates its foot instead of rotating the shell. This lasts so long the prey ceases all escaping movements. After a while, the snail is finally calmed down and gets dropped at the bottom along with the leech, retracting its foot and the buccal mass deep inside the shell cavity. Sometimes the prey snails are held float by the leech attached to a substratum with the help of its posterior sucker. In this case, the leech tries to raise and adjust the prey animal to rest on the substratum so that it can push its oral sucker further inside and relish eating "flesh" or sucking fluids until the whole prey (or except the foot) is consumed. It takes about 2-4 hours to complete the whole preying-feeding operation.

The Glossiphoniid leeches are known to prey on freshwater snails, reaching into the retracted animal and sucking it out (Elliot, 1917 ; Dorier, 1951 ; Michaelson, 1957). However. nothing is known about the mechanism and sequence of prey—catching action by the leech and the pattern of resistance it gives to the predator. According to Harding (1910), *Glossiphonia complanata,* common in British Islands, is parasitic chiefly upon *Lymnaea* and *Planorbis* but preys upon a variety of other hosts including other freshwater molluscs, the larvae of *Chironomus* ("blood worms") and probably aquatic annelids. Elliot (1917) reported that a leech (probably a species of *Glossiphonia*) was observed by him to prey on a small *Lymnaea pereger* attacking it near the collumellar muscle.

A number of species of the genera *Lymnaea* and *Planorbis* act as vectors for various helminth diseases in India and abroad including schistosomiasis (Rees, 1932 ; Khaw, 1947 , McCullough, 1951 ; Ghosh and Chauhan, 1975). In view of this fact, it may be suggested that the predatory leeches can be utilized in the biological control of the vector snails. Further studies on this aspect would expectedly uncover their control potential.

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