

## Notes on *Pontobdella muricata*.

By

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A *Pontobdella* lived in my tanks for about six months of the present year. I first placed it in a wide shallow tank with a variety of Actiniæ and a few Hermit Crabs, but no fish of any sort. When first introduced the leech was very restless, and wandered all over the tank. After a day or so, however, he took up his abode on the glass, close to the surface. He remained in this spot about three months, and if disturbed would always go back to it. He never noticed any of the other animals, and did not appear in the least sensitive to the stinging power of the tentacles of the Actiniæ. I have frequently seen him plunge his head and neck in amongst the tentacles of a large *Anthea cereus* who lived near him, and he treated *T. crassicornis* with a like disrespect.

So soon as the weather grew warm, the leech displayed signs of uneasiness, and finally left his place on the glass, and retired to a cool corner formed by the slate back and side of the tank, close to the syphons of the aerating apparatus, where he remained two months and a half.

He never appeared to notice sticks or nets moving near him in the water, but would remain in his usual position, viz., the base fixed to the wall of the tank, the body sticking out horizontally for about half its length, and the fore part doubled under, so that the mouth was pressed against the under side.

If, however, I placed my hand near him in the water he always displayed excitement; he would raise his head and most of his body completely out of the water and wave himself in the air, or more frequently he would feel about with his head in the water, going over the rocks and sand at the bottom of the tank, as if searching for food. He never detached his base on these occasions, and always drew sharply back if he touched my hand, so that he did not intend to bite me, as I at first suspected.

In *The Aquarium Naturalist* Professor Rymer Jones writes that the skate-leech becomes more active at the approach of evening, and that it rejects all subsistence when in confinement, though extremely voracious in the natural state. My *Pontobdella*, however, was neither more nor less active in the evening than at other times in the twenty-four hours. He certainly abstained from food during the first four months of his residence with me, not decreasing in size or appearing at all out of health during the whole of that time, so that I began to think he must have some miraculous power of fasting. I tried him with all sorts of food, such as raw meat, live shell-fish, live earthworms, live and dead wrasse, etc., but he would have none of them. At last, one day a flounder and a skate (both young) died within a day of each other in another tank, so I placed the flounder, who was only just dead, in the leech's tank, just under the latter's head. As usual, when the leech became aware of my hand being in the tank he began moving his head about, and in doing so touched the flounder several times; however, he took no more notice of it than if it had been a piece of rock, so I gently detached him from his place, and put him on the back of the flounder; the leech, however, instantly got off it and returned to his corner. I therefore concluded that live flat-fish were essential to him if he would feed at all in captivity, for I did not think that one species of flat-fish would be less acceptable to him than another.

However, the skate died the next day, and I dropped him into the leech's tank, without expecting the latter to take any notice, any more than he had of the dead flounder. To my surprise, the skate had hardly touched the bottom of the tank when the leech detached his base and cast himself upon the skate's body, where he immediately fixed his base and sat upright with his head doubled down in the usual way; after a few minutes, he bit the skate's back in several places, evidently making vigorous but unsuccessful efforts to extract blood. His labours lasted about half an hour, and he then returned to his old corner, and took no further notice of the skate.

I observed that when about to attack his prey he did not move in his usual way, which is that of a fresh-water leech, viz., by first fixing his head and then drawing up his base after it. He simply detached his base, fell to the bottom of the tank, and extended himself till he was over the skate's body, then drew up the rest of his body till it lay sideways in a loose coil on the skate, and then fixed his base, *not* his head, on the lower part of the skate's wing.

Probably this method of attack is less alarming to a live fish than if the leech first seized with his head.

After this episode with the dead skate, I moved the leech into a much larger and deeper tank, wherein were many blennies, gobies,

wrasse, etc., thinking that he might secure a wrasse when lying half on its side asleep at nights, as is the frequent custom of these fish.

The fish displayed no fear of the leech; on the contrary, several of them bit at him when he was first put in.

The leech, however, seemed extremely alarmed at the fish, and at once secreted himself between two large stones at the bottom of the tank, where he remained hidden for about a week without moving. I then introduced three young live skate into the tank, and extracting the leech from his hiding-place, put him on the back of one of them; he took no notice of it however, but immediately escaped to a rock fixed to the side of the tank. I left him there for the night, but in the morning the leech was fixed, as to his base, on the lower part of the wing of one of the live skate, in exactly the same place where he had settled on the dead skate.

There were traces of blood on the skate's back, and about an hour later the leech had fixed his mouth on the wing, and immediately in front of the leech's mouth there was a semi-circular mark of blood.

The two other skate died in the course of the day, but the third skate lived on for about twenty-four hours with the leech on his back. The latter must have extracted a quantity of blood, but he did not swell as does a fresh-water leech when gorged.

When *Pontobdella* had had enough he would raise himself upright in his usual position, and with his base still fixed to the skate, until he felt ready for another attack.

Finally he got off the skate, and hid himself completely under a stone, and a quarter of an hour after the leech had disappeared the skate died. The latter would probably have borne the leech's attack longer, had it not been enfeebled by a recent journey from Plymouth to London.

The leech remained in hiding for about a month after his meal, and I then removed him and the other animals from London to the country.

He had always appeared to dislike heat, and unfortunately, on arriving in the country, he was placed in a shallow vessel, the water in which had been greatly heated by the sun. He at once lost the power of attaching his base, and lay for three or four days on his side, coiled like a watch-spring, and then died. Given a live skate or so a year and cool water, I believe *Pontobdella* could be kept alive for an indefinite period.