

THE TEREBELLA AND HERMELLA.

While wandering along any of our sandy coasts, we frequently come across some moderately large tubes projecting from the sand, and rather conspicuous in the little puddles left by the receding tide. Round their mouth is usually a set of forked filaments which, like the tube itself, are composed of fragments of sand agglutinated together. The substance of this tube is very soft, but very tough, and will endure a tolerably hard pull without breaking. If the inhabitant of these tubes be sought, it will not be found without much labor, for the terebella retreats to the further extremity at the least indication of danger; and as the tube is a foot or more in length, and is always conducted under stones or among rocks, it is not easily dislodged.

As in the case of the sabella, this annelid performs its architectural labors by means of its tentacles, which are most wonderfully constructed; so as to be capable of extension or retraction, and at the same time can seize or throw away a particle of sand at any part of the tentacle. The method of working is very well given by Mr. T. Rymer Jones in "Wood's Natural History:"

"If a specimen be dislodged from its tube, it swims by violent contortions in the water, after the manner of various marine annelids; the tentaculæ and the branchiæ are compressed and contracted about the head, like a brush; and as the animal is very soon exhausted by such unnatural exertions, it soon sinks to the bottom. Should a quantity of sand be now scattered from above, the tentaculæ, speedily relaxing, extend themselves in all directions to gather it up, sweeping the vessel quite clean, so that in a very short time not a particle is left behind that is within their reach, the whole having been collected to be employed in the construction of a new artificial dwelling, adapted to shelter the naked body of the architect.

"We will suppose a tube to have been partially constructed into the side of the aquarium wherein a specimen is about to take up its permanent abode. During the earlier part of the day the animal is found lurking in its interior, with only the extremities of the tentaculæ protruding beyond the orifice, and it will so remain until towards noon. But scarcely has the sun passed the meridian than the creature begins to become restless; and towards four or five it will be seen to have risen upwards, the tentaculæ extending with the approach of evening, until after sunset, when they are in full activity. They are now spread out from the orifice of the tube like so many slender cords; each seizes on one or more grains of sand, and drags its burden to the summit of the tube, there to be employed according to the service required. Should any of the tentaculæ slip their hold, the same organs are again employed to search eagerly for the lost particle of sand, which is again seized and dragged toward its destination.

"Such operations are protracted during several hours, though so gradually as to be apparently of little effect. Nevertheless, on resuming inspection next morning, a surprising elongation of the tube will be discovered; or, perhaps instead of a simple accession to its walls, the orifice will be surrounded by forking threads of sandy particles agglutinated together."

There are many species of terebella, and even on our own coasts we may be gratified with several beautiful forms of these interesting annelids. They have, to a considerable extent, the power of reproducing lost portions of the body; and it has been found that even the whole mass of plummy tentacles can be removed without much injury to the terebella, which retreats to its tube, and after a while reproduces the whole of the missing organs.

FISH PARASITES.

BY A. W. ROBERTS.

The leeches which commonly swim free in the water, and only occasionally attach themselves to the bodies of verte-

brate animals to drink themselves full, have their nearest relations in those which attach themselves to the exterior of fishes and crustaceans. While, however, the free swimming leeches have ringed bodies, the parasitic leeches of fish and crabs have soft and smooth bodies, especially in the

skinned animals. The accompanying illustration represents the skate sucker, *Pontobdella muricata* (natural size). From the fact that it is more frequently found adhering to the different members of the skate or ray family of fishes, it is most commonly known as the skate sucker. This genus of marine leeches can be generally distinguished by the numerous tubercles on the rings of the body, which produce a very curious effect. The prevailing color of the skate sucker is a greenish gray.

These marine leeches are provided with a large and powerful sucking disk, by which they can maintain themselves in a horizontal or perpendicular position; but their most common position, when at rest and attached to inanimate objects, is a spiral, the head being in the center.

On my return to the aquarium, one of the large fresh water tanks which had been neglected for several months had become so infested with a small variety of parasitical leech that it was with difficulty the glass front could be kept clear of them. Even the extreme tops of the aquatic plants growing in the tank swarmed with thousands of them constantly extending themselves in their endeavors to catch on (they not being free swimmers) to the tails and fins of the lake dogfish, or the large specimen of fresh-water eels contained in the tank. The eels instinctively avoided resting on the floor of the tank or coming in contact with the plants or rock-work sides of the tank, but remained suspended night and day in the open clear mid-water. Still,

with all the precautions taken by the eels, many of them became fringed with hundreds of the leeches. I have seen the eels repeatedly loop themselves so as to bring the head and tail together, in which position they would strip off the leeches with their teeth; and in so doing they often bit or tore off small pieces of their flesh and fins, so that in course of time (when the wounds did not heal rapidly) they became badly covered with fungus. What with the leeches and the fungus the eels had become floating skeletons. To save the few remaining, I placed them in the "hospital tank" for treatment. The course of treatment was to rapidly pass them through a bath of warm and very salt water (a nearly saturated solution). This salt bath I never knew to fail in destroying leeches and fungus, if the fish so treated were not too far gone.

The bottom of the "hospital tank" contained a heavy flooring of Coney Island sand, in which the eels embedded themselves as if only too glad to take a rest after their long suspension. At night they were fed to repletion on raw beef. Under this treatment they soon became "solid" and happy.

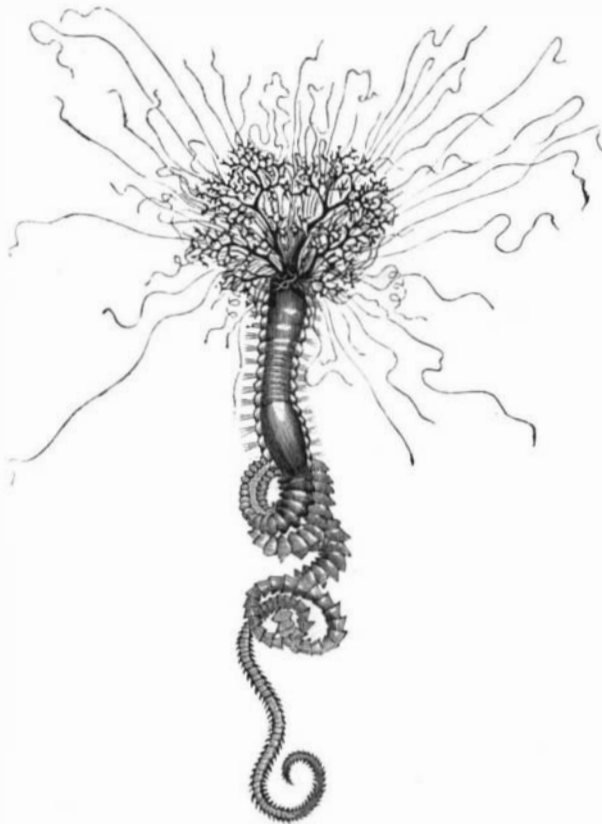
The tank out of which the eels were taken was then cleared of all the fish remaining, after which a half barrel of quicklime was cast into it, and in one hour's time the lime had done its work, everything living was burnt up, the tank was then drawn off, scrubbed, and washed out, and a heavy bottom of fine sand introduced.

One of the most beautiful tanks I ever had, and of which I was very proud, contained some twenty-five weakfish, thirty kingfish, twenty striped bass, two pilotfish, and several bluefish. They were all in perfect health, high color, and feeding well. In one night all the kingfish died; the next day the weakfish departed, then the pilots, and the blues.

I had nothing in the way of an explanation, as I had never in all my long experience known of fish dying in this unaccountable manner. I examined the dead fish carefully; both externally and internally they appeared to be in perfect health; their gills seemed to be unusually healthy for fish kept so long in confinement.

Next to this tank was a tank of plump and healthy blackfish, who were fed as blackfish were never fed before; and these, too, died in the same unaccountable manner a short time after the other fish.

Next to the blackfish was a tank containing over one hundred spotted codlings, and who were so fat that they seldom swam for more than five



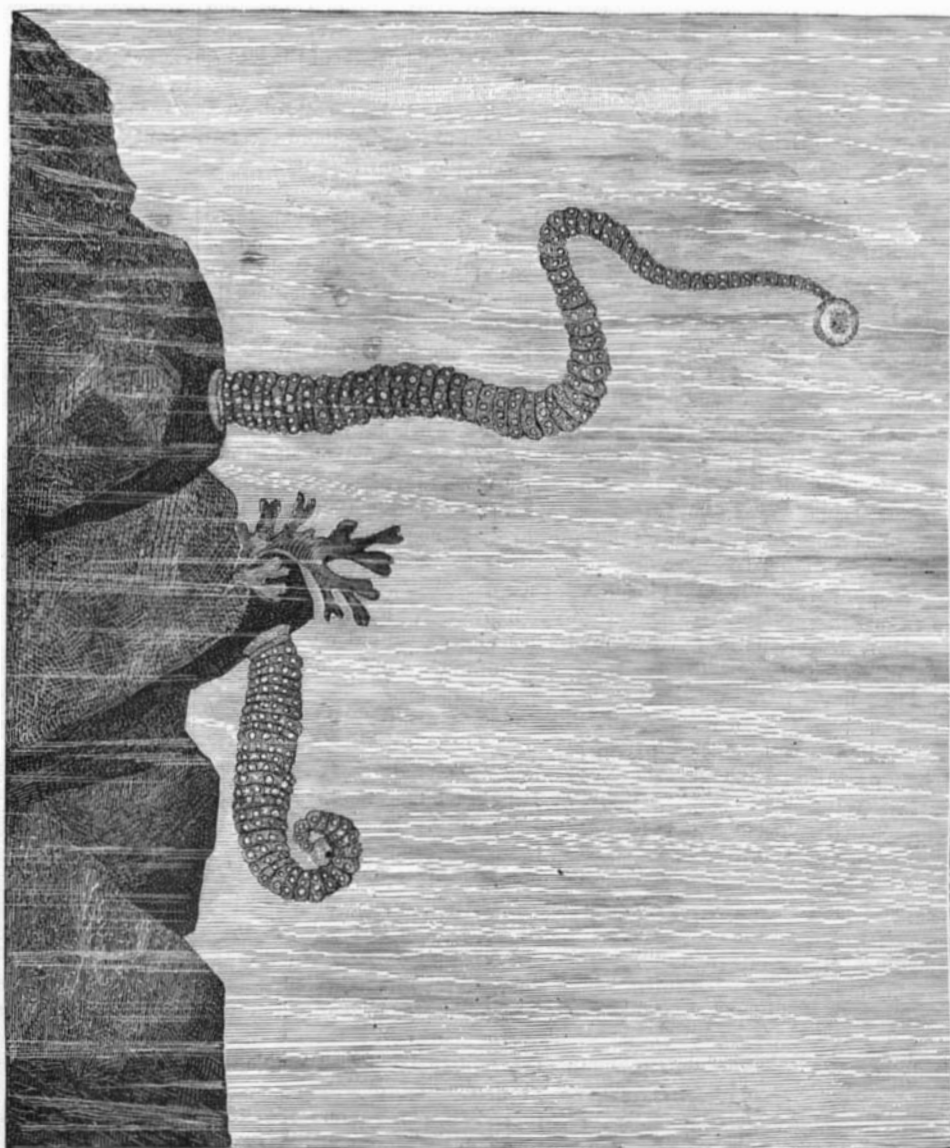
TEREBELLA EMMALINA.—[Natural size.]



HERMELLA.—[Magnified.]



TUBES OF THE HERMELLA.—[Natural size.]



SKATE SUCKER.—*Pontobdella muricata*.—[Natural size.]