

move from place to place, in a similar way. A fleshy organ, called the foot, is thrust forward, and its extremity fixed in the mud, or to some firm object, when it contracts, and thus draws along the body and the shell enclosing it. Snails, and many similar animals, have the fleshy under surface of their body composed of an infinitude of very short muscles, which, by successive contractions, so minute, indeed, as scarcely to be detected, enable them to glide along smoothly and silently, without any apparent muscular effort.

168. In the majority of animals, however, locomotion is effected by means of organs specially designed for the purpose. The most simple are the minute, hair-like *cilia*, which fringe the body of most of the microscopic infusory animalcules, and which, by their incessant vibrations, cause rapid movements. The sea-urchins and star-fishes have little thread-like tubes issuing from every side of the body, furnished with a sucker at the end. By attaching these to some fixed object, they are enabled to draw or roll themselves along; but their progress is always slow. Insects are distinguished for the number and great perfection of their organs of motion. They have at least three pairs of legs, and usually wings also. But those that have numerous feet, like the centipedes, are not distinguished for agility. The Crustacea generally have at least five pairs of legs, which are used for both swimming and crawling. The Worms are much less active; some of them have only short bristles at their sides. Some of the marine

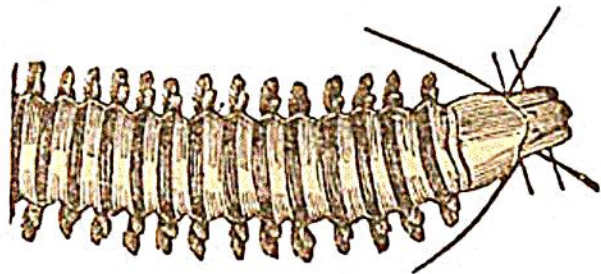


Fig. 33.

species use their fringe-like gills for paddles. (Fig. 33.)

169. Among the Vertebrata, we find the greatest diversity in the organs of locomotion and the modes of their application, as well as the greatest perfection, in whatever element