

cleft in *Palæmon*, broad and scarcely cleft in *Alpheus*, *Pandalus*, and unbranched in *Crangon*, *Gnathophylum*, and *Nika*, in which genera the third branch exists as a single obtusely pointed process, and on the outer side the mastigobranchial plate projects posteriorly, sometimes in a broad and leaf-like form, and sometimes as a long and narrow process; it is generally fringed with a series of long hairs that appear to have the power of sweeping the branchial chamber to the most distant limits.

*The Third Siagnopoda.*—The third pair of siagnopoda, or maxilliped, as we see it in *Homarus*, is composed of four joints, of which the first has no branch; the second consists of a broad and foliaceous plate having the inner margins fringed with cilia; the third is long and narrow, with a tendency to break up into joints, and beyond this there is a long two-jointed branch, the distal joint being multiarticulate. In the freshwater genus *Astacus* the structure is very similar, but the first joint is produced to a short and rudimentary plate fringed with cilia on the inner margin.

In *Palinurus* the two inner joints are more reduced; the third is short, rudimentary and single-jointed, and the fourth consists of two long slender joints, of which the second is multiarticulate; on the outer margin beyond this joint is an appendage that is rudimentary in *Palinurus vulgaris*, two-jointed in *Palinosythus lalandii*, and in *Palinurus* (?) *japonicus*, where it is sufficiently developed to demonstrate its relationship to the mastigobranchial plates of the pereiopoda.

In the genus *Hetairus* (Pl. CIX. fig. 2g) it is developed so that the true nature of the several parts can be demonstrated. The first joint is broad and foliaceous, and on the posterior margin supports a large plate, divided by an opaque line across the middle dividing it into two parts, suggestive of one being the elementary stage of a branchial plume, the other of a mastigobranchial plate. The next joint supports a long filamentary branch and resembles a basephysis of the pereiopod, differing from it in having a large foliaceous plate developed at its base; beyond are two cylindrical joints forming the continuation of the true limb.

In *Plesionika* (Pl. CXIII. fig. 1g) the morphology is still more clearly advanced, and shows the double-lobed mastigobranchia divided into two distinct foliaceous plates, connected at the base, just as may be seen in Pl. XII B. fig. 4g; in *Phyllosoma* the branchial plume exists as two simple sacs, but within one the branchia is forming, while the other retains the simple features of the mastigobranchia.

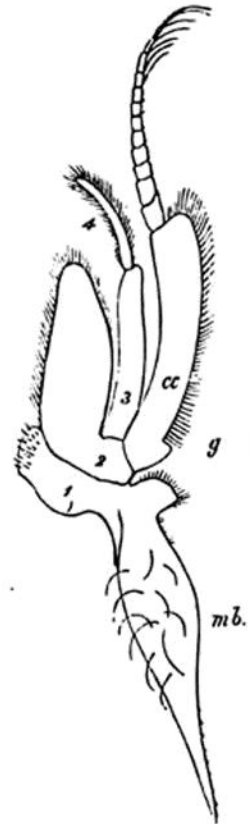


FIG. XIV.—Third Siagnopod.