

The third pair of siagnopoda differs in having the mastigobranchial plate transversely divided by a rib, thus making an anterior and a posterior division in *Spongicola* and *Stenopus*, whereas the posterior division alone exists in *Astacus*; and the central branch is uni-articulate, while in *Spongicola* it is two-jointed, and in *Stenopus* four-jointed.

In both families the first pair of gnathopoda is six-jointed, and they resemble each other in form. In *Astacus* the podobranchial plume is developed as part of the mastigobranchial plate, a feature that is peculiar and, so far as we know, confined to the family Astacidae, whereas in the Stenopidae, the two genera which comprise the family have the podobranchial plumes absent from all the appendages of the pereion except the first pair of gnathopoda, where they are reduced to an almost rudimentary condition and attached at the base only to the mastigobranchial plate.

The second pair of gnathopoda is pediform in each family, but short and robust in *Astacus*, and comparatively long and slender in *Stenopus*; it carries in both families a basephysis, which in *Spongicola* is small and rudimentary, as in *Astacoides madagascarensis*, while in *Stenopus* it is extremely short and feeble. The mastigobranchia is reduced to a rudimentary condition and the podobranchia is wanting in the Stenopidae, while in the Astacidae the podobranchia is developed on and forms part of the mastigobranchial ramus.

The pereopoda in the Stenopidae are long, and, with the exception of the third pair, slender, and possess the characteristic Penæid feature of having the carpos longer than the propodos, with the exception of the third pair, which is shorter in *Stenopus* and still more so in *Spongicola*. The carpos in all the Astacidae is shorter than the propodos, and the legs have consequently a comparatively shorter and more robust appearance.

The first pair of pleopoda in the Astacidae is modified in form for sexual purposes in the males of the northern hemisphere and wanting in both sexes in the genera of the southern hemisphere. In the Stenopidae it is uni-branched and foliaceous.

The second and succeeding pairs in the Astacidae and Stenopidae are biramose, foliaceous, and possess not even the rudiment of a stylamblys; the posterior pair in the Stenopidae has the outer plates of the rhipidura without a diæresis, and the telson has no transverse division, while in all genera of the Astacidae there is a division or diæresis more or less perfectly defined.

By thus reviewing and comparing the two families we find that the Stenopidae correspond with the Astacidae in the structure of the branchiæ, in having eleven pairs of arthrobranchiæ, in having five pairs of pleurobranchiæ in comparison with four in the Australian genera; also in the form of the mandibles and first two pairs of siagnopoda, as compared with the genus *Astacus*, and in the subpediform condition of the two pairs of gnathopoda. On the other hand, distinctions exist in the character of the rostrum, which is compressed horizontally in the Astacidae, and vertically in the Stenopidae; in the scaphocerite being long or moderate in the Stenopidae, and short in Astacidae; in