

lar processes of the dactylos is a large cusp or blunt tooth, the inner side of which is hollowed to receive the tubercular articulation of the dactylos. The dactylos reversely corresponds with the pollex, but it is smooth on the outer margin excepting two or three teeth near the distal extremity; the inner surface is bordered by a row of cusps more numerous but less prominent than those on the pollex: the carpos is distally furnished with two strong cusps that correspond with the articulating processes of the propodos on the upper and lower distal margins, on the inner surface there is one sharp tooth near the middle of the anterior margin, two, one very large, on the upper margin, and two small cusps on the under: the meros is broader distally than at the ischial extremity, it is smooth and slightly arcuate longitudinally on the upper surface and convex on the lower, it is armed on the outer margin with a row of teeth that gradually increase in size anteriorly, and with two rows on the inner: the ischium is short, flat, unarmed, and articulates with the meros on the inner and outer distal angles by means of strong cusp-like processes, and at the outer coxal angle is a posteriorly projecting process that affords resistance to the too free backward movement of the joint: the coxa is triangulate and articulates at two points, one externally corresponding with the posterior angle of its own somite, and the other internally with a projecting process on each side of the median ventral carina; attached to the coxa on the outer surface is a large mastigobranchial plate, which is divided into two longitudinal processes, to the upper or median angle of which a podobranchial plume is attached throughout its entire length. The anterior process of the plate dips down longitudinally between the anterior and posterior arthrobranchiate plumes, its lower margin reaching to the pleurobranchial plume; the posterior passes over the posterior arthrobranchial plume and separates it from the podobranchial (*vide* sectional diagram of branchiæ in Pl. XXVIII.), the long hairs that cover the inner surface pass between the several filaments of the plumes and probably prevent them from pressing unduly against each other. This arrangement appears to be constant with all the appendages, excepting that the mastigobranchial plate is less pronounced posteriorly than anteriorly; the posterior pair carries a pleurobranchial plume only, attached to the posterior somite of the pereion.

Attached to the membranous articulation, between the coxa and the somite below the arthrobranchial plumes, is a lunate appendage (*mt*), the homology of which is difficult to interpret; there are four pairs, one attached to each pair of pereopoda excepting the posterior. I have not been able to find it in our British species of *Astacus*, but it exists in the three species of *Astacopsis* in this collection, and also in *Astacoides madagascarensis*. I have not yet had the opportunity of examining other genera.

I know of nothing that these parts can be homologous with, unless they be the rudiments of the foliaceous appendages forming the incubatory pouch of those females that carry their ova beneath the pereion. It might seem an objection that in *Astacopsis* they exist in the males as well as in the females, but if they be rudimentary and