

In some genera, such as *Thaumastocheles* (Pl. VII. fig. 1g), *Willemæsia* (Pl. XVIII. fig. g), *Pentacheles* (Fig. 21, p. 107), and *Polycheles* (Fig. 32, p. 125), what I take to be the basephysis is developed at the extremity in the form of a freely movable leaf-like plate, which probably quivers under the action of the expiratory current from the branchial chamber.

In *Pasiphæa* a similar condition also exists, but in a more rudimentary state, as shown on Pl. CXLI. fig. 1g.

*The First Gnathopoda.*—The first pair of gnathopoda assumes a more leg-like character than either of the preceding appendages, but it is not entirely pediform until we come to the aberrant Schizopoda, and the still more distant Amphipoda.

It is generally formed of five joints, but in some genera there are six, and in a few, as in *Nephrops thomsoni* (Pl. XXVI. h), there are seven joints. In general character it is usually short, wide and thin, the three distal joints being reflexed on the inner side, and the dactylos is generally broad and flat. The larger the number of joints the narrower they are, and the more pediform is the whole appendage; but when the joints lessen in number, the reduction is made by the coalescence of the meros and ischium, and sometimes the basis also, into one, and by the absorption or loss of the dactylos. Attached to the basis is an ephysis that is generally long and two-jointed, the distal joint being multiarticulate; sometimes it is only single-jointed, as in *Oplophorus* (Pl. CXXVII. fig. 1h) and in *Nephrops*, where it puts on a somewhat rudimentary appearance. I do not remember an instance in which it is altogether absent, unless it be so in *Pasiphæa* (Pl. CXLI. fig. h). The coxa almost universally has a mastigobranchial plate attached, which is generally of small size and varies in form, and has very constantly a branchial plume attached to it, and occasionally a second or arthrobranchial plume attached to the membranous articulation.

In the Astacidæ branchial filaments are attached to the outer surface of a large membranous plate that appears to resemble the mastigobranchia.

*The Second Gnathopoda.*—The second pair of gnathopoda is more perfectly pediform than the first, but varies to a greater extent in the number of its joints. In the Trichobranchiata it consists of seven joints, in, I believe, every genus, not excluding the Stenopidæ. This circumstance is the more remarkable in the Palinuridæ and the Scyllaridæ, as in these two families all the pereiopoda have only six joints each.

In the Dendrobranchiata there are also seven joints; and as the leg becomes longer and more slender in its gradual passage from *Penæus*, through *Haliporus*, *Sergestes*, and *Lucifer*, it assumes more closely the character of the succeeding simple legs.

In the Phyllobranchiata the number of joints is generally limited to five, this diminu-