

serrate margin is divided into three portions defined by a tooth that is larger and more powerful than the rest, each portion looking in a different direction, as shown in the figure (Pl. XVIII. *d*). In many Crustacea, perhaps in most, a massive tuberculated ridge or molar process traverses the base from the posterior to the anterior margin. In this family this process is smooth, and consists of a slender ridge, with the anterior extremity of which a two-jointed synnaphipod articulates, the second joint of which is fringed with long hairs and generally lies folded in the hollow formed by the concave psalisiform blades, where it evidently acts as a brush to arrange the food in position during the process of manducation. The whole of this important structure is attached to a long apophysis or lever that is moved on its longitudinal axis by a muscle attached to a tendon just below the base of the psalisiform plate, and diagonally by muscles at the extremity of the apophysis, which are attached to the antero-lateral extremity of the carapace.

There is very little variation in the form of the mandibles in the various species or genera, and what little there is exists in the serrate margin, which may be more or less coarsely or finely marked, so that the number of denticles in the central division may vary in number.

The first pair of siagnopoda or maxillæ (Pl. XVIII. *e*) consists of two small, longitudinally curved plates, as shown in the accompanying cut, that lie laterally outside the siagnos, but are pressed firmly against its posterior surface. Both the plates are flat, and the outer one is the larger, and terminates in one or two strong spines. At the base of the outer plate is a compact tuft of ciliated hairs. This fasciculus likewise exists attached to the first pair of siagnopoda in the Scyllaridæ, to which the whole appendage bears a greater resemblance than to that of any other of the Macrura; it is very unlike the same in the Astacidæ.

There is very little variation of this part in the various species, and what differences there may be appear to lie in a tendency for the outer branch to change in its relative proportion to the size of the inner.



FIG. 19.—First maxilla,  $\times 3$ , of *Pentacheles euthrix*. From a drawing by Willemoes-Suhm.

The second pair of siagnopoda or maxillæ (Pl. XVIII. *f*) consists of two small plates, almost rudimentary in character, and a large squamose plate that is projected forwards as far as the anterior extremity of the mouth. The margin of the plate is fringed with short cilia, all directed towards the anterior extremity. The two small plates that are the rudiments of the normally formed appendage are tipped with long hairs, and are folded back against the great squamose plate. The second is implanted outside, and but little behind the first pair, and forms an efficient valve or doorway capable of shutting up the exit

passage from the branchial chamber, so that while the animal might safely burrow in the mud, pure water could be retained in the branchial chamber, and irritating detrital matter

FIG. 20.—Second maxilla,  $\times 3$ . From a drawing by Willemoes-Suhm.