

sharp point, and the inner side flattened out to a thin foliaceous plate, broad at the base and gradually narrowing to its extremity, or to near the apex of the outer margin which is generally separated from it as a free process.

It is, however, amongst the Dendrobranchiata that this appendage is seen in its fullest development. In *Penæus*, *Aristeus*, &c., it is large and broad, with a small tooth on the outer margin. In *Benthesicymus* and other deep-sea forms it is broad and of extreme tenuity, having only the feeblest representation of the external marginal tooth. In *Sicyonia*, on the contrary, the outer margin is intensified to a strong and powerful sharp-pointed spine, and the inner foliaceous plate is reduced considerably in size and thickness.

In the Phyllobranchiata the scaphocerite is longer than in the Trichobranchiata, but not so broad generally as in the Dendrobranchiata. In some genera, as *Oplophorus*, it is produced to a sharp point by the strengthening of the outer margin and the reduction of the foliaceous plate of the inner side.

If we judge of the utility of the scaphocerite by its structure, there can be little doubt that when developed as a large foliaceous plate it is of much value in helping to maintain the animal upright when swimming, preventing it from falling into an inverted position as seen in the Amphipoda and other Crustacea, where it does not exist or is only feebly represented, as in some of the Astacidea.

When it is produced to a sharp point, as in *Sicyonia* (Pl. XLIII. fig. 3c"), *Oplophorus* (Pl. CXXVII. fig. c), *Acanthephyra* (Pl. CXXV. fig. 1c), *Thalassocaris* (Pl. CXXVII. fig. 1c), &c., it is evidently used as a weapon of offence. In these genera the teeth affixed to the outer extremity of the second joint of the peduncle, which are generally of little importance, are developed to a greater extent, and fulfil an important office by guiding the scaphocerite into a corresponding groove, where they support it. In some instances, as in *Sicyonia*, they lock it into a fixed position, and thus increase its power as a weapon of offence. In the Astacidæ, where it is sharp-pointed and strong, it is too short to be useful as an offensive weapon, and probably is of value only in protecting the sensory organs.

In *Hemipenæus* the scaphocerite is very large and broad, and the outer distal tooth is small; and in some specimens the distal margin is considerably thickened, and the hairs are wanting; this condition appears rather to be the result of some exceptional state than a normal condition (*vide* p. 304). I am inclined to believe that this organ may be used for such a purpose as that of disturbing the muddy bottom over which it lives, with the object of procuring food, and that the constant gentle friction so produced would first remove the marginal hairs, and then induce such irritation as to cause this

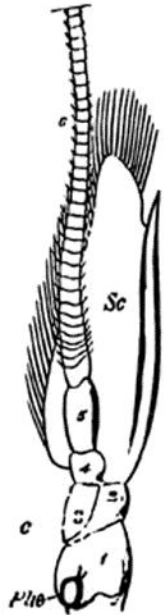


FIG. IX. — Second antenna. *Phc*, phyma-cerite; 1, 2, 3, 4, 5, joints of peduncle; *Sc*, scaphocerite; 6, flagellum.