

the upper side, transversely concave on the lower, and longitudinally flattened in correspondence with the surface of the preceding joint. These joints are fringed with hairs that vary in different species, but as a whole they are of little importance except as carriers of the terminal flagella.

These flagella are always two in number. In some genera they are of equal length, while in others they are unequal; they are evidently of different degrees of importance, as one is liable to vary with the sex, and is generally furnished with peculiar organs that are evidently connected with some special sense.¹ Though one flagellum may in different species vary in length it never becomes rudimentary, as the diminution is due to the shortness, rather than to the numerical decrease, of the articuli, whereas the second is always slender and constructed of articuli that are long, and the diminution generally takes place by their numerical reduction.

In an adult specimen of *Penæus japonicus*, where both flagella are short and of equal length, neither being longer than 5 mm., the primary flagellum consists of fifty articuli, and the secondary only of twenty. In *Aristeus*, the primary is very short and the secondary very long; the former is flattened and hollowed on the lower side, which latter character is emphasised in *Solenocera* to such a degree that the more slender flagellum when at rest is lodged within the longitudinal hollow of the larger.

The second pair of antennæ articulates freely with the metope, and consists of a peduncle of five joints and a long flagellum. The first joint is generally short and broad, and carries on the inner side a large phymacerite, at the extremity of which is a passage closed by a soft membrane. This is the external passage connected with the green gland, the function of which has not yet been determined. The second joint is longer but not so broad, and supports at its extremity a scaphocerite, which in this tribe of Crustacea is large, being broad, thin, and foliaceous, and on an average about one-fourth the length of the entire animal. The outer margin is strengthened by a longitudinal rib that terminates in a sharp tooth more or less distant from the distal extremity. The form varies in different genera. In some it is long and broad as in *Aristeus*; in *Sergestes* it is long and narrow, and in *Sicyonia* it is broad at the base, and gradually but obviously narrows from its greatest diameter to the apex. The scaphocerite is strengthened at the outer margin, sometimes by one, but in others, as in *Sicyonia*, by two longitudinal ribs that converge towards the extremity, where they unite and form the external distal tooth; from the inner or median rib a series of parallel ribs or raised lines run obliquely to the margin, and, when they approach it, widen and divide into two or three others. In *Penæus* the median longitudinal rib does not converge towards the subapical tooth, but runs down the centre and fades away before it reaches the distal

¹ These organs I believe to be endowed with acoustic properties, but Claus suggests that they may be olfactory organs. They are not so constant in the Penæidea as among other Crustacea, where, when present, they exist as translucent membranous cilia of variable form.