

as a feature belonging to any one species, because I have seen it in two distinct forms, but I have utilised it in naming *Penæus fissurus* in order to draw attention to it.

The somites of the pleon, more particularly the first three, are each divided into two portions, an anterior and a posterior, a deep groove separating them; the posterior portion carries the coxal plate of the pleopod; it is large, broad, and anteriorly overlaps the posterior extremity of the carapace, and posteriorly the anterior margin of the second somite of the pleon. In this it differs from the species of the Palæmonidæ, in which the second somite of the pleon overlaps the one before as well as the next behind. In the Penæidæ the anterior three somites are never carinated, but those that are posterior to them are always extremely so; even when not produced to the form of a tooth, the posterior extremity of the carinated somites is longitudinally cleft for the reception of the carina of the next succeeding somite, and the telson is generally dorsally flattened or grooved, and has the sides compressed and frequently fringed with small spines and hairs.

The ophthalmopod is two-jointed, and is attached to a base that freely articulates with the frontal surface or metope, which represents the first somite of the cephalon; the first joint articulates with the somite, the second with the eye. The stalk is flattened in *Penæus*, but it is cylindrical and single-jointed in *Aristeus*, as it is in the other families of the group. In *Benthescymus* the stalk is flattened transversely, more especially on the upper side, in conformity with the plane of the surface when the ophthalmopod is ensconced in the depression of the first pair of antennæ; and the ophthalmus or visual extremity of the ophthalmopod is very large and reniform. In some species the eyes are so arranged as to expose the surface of all the numerous lenses to the light, bringing the ophthalmopoda with their blind sides contiguous to each other. In *Benthescymus* and *Gennadas* the visual portion of the eye is not broader than the stalk on which it stands; the pigment is reduced in many species to a small black or brown spot, and the lenses, which are few and not closely packed, are situated at a considerable distance from the spot of dark pigment. This kind of eye appears to be one of weakened power, and when at rest, or indeed at any time, has only a limited range of vision, to compensate for which some species, more especially those of the genus *Gennadas*, in which it is larger than in most others, have a supplementary eye in the form of a small tubercle which encloses a single lens. This appears to be mostly adapted to those animals that inhabit the greater depths of the ocean, where only the feeblest rays of light penetrate.

Mr. John Murray¹ has suggested that these secondary eyes may be, and probably are, phosphorescent organs, he having seen them brilliantly luminous in some species of Crustacea.

In all Crustacea above the Entomostracous forms the first pair of antennæ consists of a peduncle of three joints and two terminal flagella. In some cases the outer branch

¹ Narr. Chall. Exp., p. 743.