

Order II. THALIACEA.

The Thaliacea are free-swimming pelagic forms, which may be either simple or compound, and, in the adult, are never provided with a tail or a notochord.

The test is permanent, and may be either well developed or very slight.

The musculature of the mantle is in the form of more or less complete circular bands, by the contraction of which locomotion is effected.

The branchial sac has either two large or many small apertures (stigmata), leading to a single peribranchial cavity which communicates with the exterior by the atrial aperture.

The anus opens into the peribranchial cavity.

Alternation of generations occurs in the life-history, and may be complicated by polymorphism.

This order includes all the pelagic Tunicata, with the exception of *Pyrosoma* and the Appendiculariidæ. It seems a natural, well-defined group, characterised amongst the free-swimming forms by the absence of a tail and a notochord in the adult, and by the occurrence of alternation of generations in the life-history. Temporary colonies may be formed at one stage in the life-history, but they never increase in size by gemmation from the Ascidiозoids, which eventually separate from one another. This, along with the alternation of generations, distinguishes the Thaliacea from the Ascidiæ Salpiformes, and the absence of a tail and notochord separates them from the Larvacea.

The Thaliacea may be divided into two groups, the CYCLOMYARIA and the HEMIMYARIA.

Suborder I. CYCLOMYARIA.

Free-swimming pelagic forms which exhibit alternation of generations in their life-history, but never form permanent colonies.

The body is cask-shaped, with the branchial and atrial apertures at the opposite ends.

The test is more or less well developed.

The mantle has its musculature in the form of circular bands surrounding the body.

The branchial sac is fairly large, occupying the anterior half or more of the body. Stigmata are usually present in its posterior part only. The peribranchial cavity is mainly posterior to the branchial sac.

The alimentary canal is placed close to the posterior end of the branchial sac.

Hermaphrodite reproductive organs are placed ventrally near the intestine.

This suborder was formed by Uljanin¹ in 1884 for the reception of the single family

¹ Fauna und Flora des Golfes von Neapel, Monogr. x., Doliolum. Leipzig, 1884.