

The alimentary canal lies behind the branchial sac, and the anus opens ventrally on the surface of the body in front of the stigmata.

The reproductive organs are placed at the posterior end of the body.

Gemmation does not take place, and alternation of generations and metamorphosis do not occur in the life-history.

This order corresponds to Balfour's¹ group Perennichordata. It includes a single family, the Appendiculariidæ.

This is one of the most interesting groups of the Tunicata, as it shows more completely than any of the rest the characters of the original ancestral forms. Its members have undergone comparatively little degeneration, and consequently they correspond more nearly to the tailed-larval condition than to the adult forms of the other groups of Tunicata.

Family APPENDICULARIIDÆ.

Body more or less ovate with the longer axis antero-posterior, and having a large appendage (the tail) attached to the ventral surface. The branchial aperture is anterior.

The Test is periodically developed into a very large, investing capsule which is after a time cast off from the body.

The Branchial Sac is simple, and has only two openings, which are placed one on each side of the ventral edge, and lead to separate atrial apertures.

The Nervous System consists of a large ganglionic mass placed dorsally near the anterior part of the body, and a nerve cord with ganglionic thickenings which is continued posteriorly into the appendage.

The Alimentary Canal lies posterior to the branchial sac. The anus opens on the exterior of the body.

The Reproductive Organs, like the anus, are independent of the atrial apertures.

All the members of this family are minute and free-swimming. They occur on the surface of the sea in most parts of the world.

The first form belonging to this family was made known by Chamisso² in 1821 under the name of *Appendicularia flagellum*; but the description and the figures are so vague that it is really impossible now to say with certainty which species, or even which genus, of the Appendiculariidæ Chamisso found. The specimens were obtained in Bering Strait during the circumnavigating expedition under Kotzebue in 1815-18. Some years afterwards von Mertens,³ voyaging in the same seas, found

¹ Comparative Embryology, vol. ii. p. 8, London, 1881.

² De animalibus quibusdam e classe vermium, etc., fasc. 2, p. 363, Acad. Cæs. Leop., Nova Acta, tom. x. 1821.

³ Beschreibung der Oikopleura, Mém. Acad. d. Sci. St. Petersb., sér. 6, tom. i, p. 205, 1831.