4th Class, POLYZOA.

The *Polyzoa* of Thompson of Cork form a peculiar class of *Radiata*, subsequently named *Bryozoa*, by Ehrenberg, from their moss-like growth, and *Ciliobrachiata* by Farre, from their tentacles (unlike those of other polyps) being covered with vibratile cilia; they are of far higher organization than the *Zoophyta*, with which they were long confounded, although individually they are all very much more minute; by their aggregation, however, they form delicate but moderately large coralla. Each individual is contained in a long cylindrical, or short oblong or ovate cell, never divided by transverse, nor radiating, lamellæ, composed of the more or less hardened outer integument of the animal; the upper portion, or that near the aperture, always remaining flexible and continuous with the neck of the inhabitant, and being inverted with it when it contracts within the cell. The mouth is at the anterior end, surrounded by about twelve long tubular stiff tentacula, covered with vibratile cilia, causing a perpetual current of water. The mouth selects the proper particles of food brought by the inner current, and passes them to a contractile pharynx, leading to a large œsophagus, ending in a muscular gizzard, in which the food is comminuted before passing into an elongate stomach studded with brown hepatic glands; a very straight intestine extends from the stomach to the anus, which is near the mouth at the base of the tentacles. This complexity of the digestive system induces many modern naturalists to remove the *Polyzoa* from the *Radiata* to the *Mollusca*, placing them next the *Tunicata*. Respiration is usually referred to the ciliated arms. No distinct *circulation*, nor *nervous system*, has yet been recognised, but the *muscular system* is fibrous and well developed; one set of muscles for retracting the creature within its cell arises from the inner wall, and is inserted into the base of the tentacles; another set arises from the bottom of the cell and is inserted into the stomach; other shorter fasciculi retract the soft edge of the cell by extending from it to the inner edge of the hard portion. The animal is protruded by the action of a few circular muscular fasciculi compressing the fluid parts. *Reproduction* is both by buds and ciliated free locomotive gemmules, neither of which originate from any special organ, but are developed from the parietes of the cell; the former from the outer, the latter from the inner surface. The gemmules becoming free are developed in the cavity between the cell and the body of the polyp, which they kill by their growth, finally escaping through the aperture.

This class is divided into the following families:—1, *Escharidæ*; 2, *Tubuliporidæ*; 3, *Myriaporidæ*; 4, *Asterodiscidæ*; 5, *Halcyonellidæ*.

1st Family. ESCHARIDÆ.

Polypidom free or encrusting, never rooted by a calcareous mass; substance stony or crustaceous, seldom flexible; cells shallow, oblong, or ovate, often provided with an operculum, capable of being closed by special muscles.

Genera:—1, *Eschara*; 2, *Escharina*; 3, *Berenicea*; 4, *Ptilodictya*; 5, *Escharites*; 6, *Escharoides*; 7, *Melicerita*; 8, *Tilesia*; 9, *Membranipora*; 10, *Flustra*; 11, *Discopora*; 12, *Ocellaria*; 13, *Cellepora*; 14, *Apsendesia*; 15, *Cellaria*; 16, *Vincularia*; 17, *Intricaria*, &c.

Genus. BERENICEA (*Lam.*)

Gen. Char.—Corallum encrusting foreign bodies, composed of a very thin, calcareous, foliaceous base, bearing numerous ovate, distinctly separated cells, not piled; aperture round near the broad anterior end; cells disposed in an obscurely radiated arrangement.

The cells resemble *Cellepora*, but are not piled; they also resemble, in some measure, the cells of *Stictopora* (*Ptilodictya*) but are parasitic and confined to one side; they differ from *Discopora* by each cell being separated by a small space from its neighbour.