

The genus *Ethmophyllum* is a very interesting form, for in it we observe the septa, vesicular structure, and poriferous system that later, in Paleozoic time, appear in the various divisions of the Zoantharia branch of the Actinozoa (*Zaphrentis*, *Cystiphyllum*, *Favosites*, &c.); to include *Archæocyathus* and allied genera, Dr. Bornemann has proposed a new class of the Cœlenterata, which he calls *Archæocyathinæ*.

*Leptomitus Zitteli* is the only representative we have in the Cambrian showing the base or root of the "anchoring sponges."

*Protospongia fenestrata* ranges nearly through the Cambrian of Wales, according to Dr. Hicks; and in America the genus, if not the species, is now known from both the Lower Cambrian of New Brunswick and the upper portions of the Middle Cambrian of Nevada, the great vertical range being accompanied by a correspondingly wide geographic distribution. Like most of the other Cambrian sponges there is not enough known of its structure to accurately place it in the classification of the *Hexactinellidæ*. The minute structure of *Archæocyathus* and *Ethmophyllum* is not well shown in the Cambrian specimens, owing, in all probability, to the destruction of the spiculæ in the replacement by calcite. In the one silicified species, *Ethmophyllum Minganensis*, from the Lower Silurian, the spiculæ are preserved, and in *Archæocyathus Billingsi* we observe what appear to be spiculæ in the cup and interseptal spaces, but not in the walls or septa.

## HYDROZOA.

§ 101. *Diplograptus? simplex* is a form allied to the leaf-like graptolites of the Lower Silurian (*Phyllograptus*), but we know too little of the species to even give it a proper generic reference; the same may be said of the species referred to *Climacograptus? Emmonsii*. All we can say of them is that they represent the graptolida at the horizon of the Middle Cambrian. Matthew recognizes two genera of graptolites in the St. John Group, *Dendrograptus* and *Protograptus*; the former being found in the Upper Cambrian (Potsdam) horizon shows that the type ranges through the Cambrian System.

## ECHINODERMATA.

§ 102. A glance at the figures illustrating *Ecocystites?? longidactylus* shows that we have not yet reached a simple type of the Cystoidea in this Cambrian fauna, although, in the irregular size and great number of the plates, the pore-like openings at their margins, and the long simple arms, a general looseness of organization is indicated that is wanting in the compact, regular forms of the superior fauna.

The genus was founded on single plates from the St. John Group; and somewhat similar plates occur in the Wisconsin Potsdam sandstone. Until entire or nearly entire specimens are found from these horizons, we cannot compare the *E.?? longidactylus* with what these plates represent.