

in the ectoderm of the foot-disc of *Hydra*. The remarkable development of pseudopodia by the sarcostyles will be described below when considering the structure of those bodies.

*Thread-cells*.—Of all the elements of the ectoderm the thread-cells or urticating capsules are the most characteristic. These bodies, however, are by no means confined to the Hydroida, but occur under various forms as a distinguishing and universally present feature in the whole of the Cœlenterata with the exception of the sponges—taking for granted that these have their true place in the Cœlenterate subkingdom.

The thread-cell varies both in form and in size in different species of Hydroida, and even in different parts of the same Hydroid, but it may be described as essentially consisting of a containing capsule and a contained filament which under certain conditions admits of being projected from the capsule.

The thread-cell however possesses a really complicated structure, the exact determination of which is exceedingly difficult, but from what has been satisfactorily established by the most careful observations, it may be regarded as certain that the thread-cell in its typical form, such as is seen in the larger thread-cells which occur in the body of *Hydra* or in the spherical capitula which terminate the tentacles of *Coryne*, consists essentially of an oviform rigid capsule lined by a fine membrane, which at one end of the long diameter of the capsule is invaginated into its cavity in the form of a tube occupying the axis, and there becoming continuous with a very fine and long tubular filament which lies in a congeries of coils within the capsule. The whole is included in an external cell, the *cnidocyst*, within which it has been developed, while the cnidocyst itself sends off from a point close to its summit or discharging pole a minute bristle-like process of its protoplasm, the *cnidocil*, which projects beyond the surface of the ectoderm into the surrounding water.

This is the condition of the typical thread-cell in its quiescent state, but under the influence of certain stimuli, not yet well understood, and which are probably exerted through the medium of the cnidocil, its characteristic action is brought into play, and a remarkable change takes place in it. The tube, which in the quiescent state lay in the axis of the capsule, is now suddenly projected through the discharging pole, and this act is immediately followed by a similar projection of the fine tubular filament with which at its free end the axile tube is continuous, and the capsule is thus emptied of its contents. The whole of this process consists in an act of evagination by which the wider axile tube and the fine tubular filament into which this is continued are transferred from the inside to the outside of the capsule.

When this sudden act of evagination has been completed it is seen that the portion of the tube which in the inverted state had lain in the axis of the capsule, is provided, in the form of thread-cell here taken as the type, with a verticil of barb-like spines attached to what has now become the outer surface of its walls. It continues to be attached by