

serrated margin of a leaf, and they are here usually adnate to one another, so as to form a completely closed case (Pl. XI. fig. 4, and Pl. XII. figs. 4 and 8). In other instances they contract no adhesion by their edges, and the corbula is then open (Pl. XI. figs. 5 and 9).

That the corbula is a modified hydrocladium there can be no doubt. It takes exactly the place of a hydrocladium, while its proximal end is in the form of a short peduncle, which holds it to the stem, and which still retains the normal condition of the ramulus, and carries a scarcely modified hydrotheca. The floor or rachis of the corbula is a simple continuation of this peduncle, with the hydrothecæ entirely suppressed.

In determining the morphological significance of the corbula, the meaning of the costæ or leaflet-like ribs becomes an element of primary importance. Now the key to this will be found in certain other forms of the protective apparatus, and I believe we shall be justified in regarding the costæ as the greatly modified mesial nematophores of the suppressed hydrothecæ, complicated by the development on them of secondary nematophores, and thrown alternately to the right and left in accordance with their new protective function. This will become apparent after an examination of the phylactocarpal apparatus in other genera.

The form of phylactocarp referrible to the type found in the *Lytocarpus (Aglaophenia) myriophyllum* of the European coasts, affords the means of clearing up this point in a way which will scarcely admit of doubt. Two beautiful species, *Lytocarpus (Aglaophenia) distans*, and *Lytocarpus (Aglaophenia) bispinosa*, obtained during the exploration of the Gulf Stream by the United States Survey,<sup>1</sup> are especially significant in the light they throw on the morphology of the corbula, while another beautiful species, *Acanthocladium huxleyi*, occurring in the Challenger collection (Pl. X., and Pl. XX. fig. 1), is scarcely less instructive.

In all these, as well as in *Lytocarpus myriophyllum*, the phylactocarp is, as in the true corbula, an obviously modified hydrocladium. After retaining for some distance from its point of origin the normal character of the hydrocladium, and supporting one or more hydrothecæ, each with its usual mesial and lateral nematophores, it is continued in an altered form, and develops a double series of long ribs, which carry numerous small nematophores along one or both edges, remain quite distinct from one another, and form the walls of an open basket or cage (Pl. XX. fig. 1), along whose floor the gonangia are distributed from the proximal to the distal end. Now, in this continuation of the hydrocladium the hydrothecæ are not, as in the true corbula, suppressed. We find, on the contrary, that every rib carries a hydrotheca at its base, the rib with its basal hydrotheca being raised on a peduncle from the rachis or floor of the cage. The pair of lateral nematophores belonging to each of these hydrothecæ may be recognised in nearly its usual condition, while the mesial nematophore, though holding its normal position with

<sup>1</sup> Hydroids of the Gulf Stream, pp. 44 and 46, pl. xxvi. figs. 1-8, and pls. xxvii. and xxviii.