

was present on the second internode, which was here larger than the others, and carried a mesial as well as a pair of lateral nematophores; while the continuation of the rachis was arched over the gonangium, and had the persistent lateral nematophores of each internode curved backwards so as to be directed towards the convex side of the arch. It would seem to be only on the second internode that a gonangium is borne, and here it takes the place of the hydrotheca, which, had it not been suppressed, would have belonged to this internode, while the mesial and lateral nematophores are retained.

In *Lytocarpus saccarius*, a species from Ceylon,¹ the gonangia are borne near the distal extremity of short ramuli, which are hydrocladia in which the transformation has been less complete than in the cases described above. In the specimens examined these ramuli were composed each of three internodes. The proximal two internodes carried hydrothecæ in all respects like the other hydrothecæ of the colony, but in the distal internode the hydrotheca was suppressed, while its mesial and lateral nematophores remained with but little modification, and the solitary gonangium occupied the place of the suppressed hydrotheca.

In *Lytocarpus secundus* (Pl. XIV.) certain hydrocladia undergo a remarkable modification in order to become converted into phylactocarps. Their internodes, which are reduced to seven or eight in number, lose their hydrothecæ entirely, and carry each a long curved spine-like appendage, which is supported on the end of a short process of the internode, and bears a double row of cup-like nematophores, several nematophores of a similar form being sessile on the internode itself (fig. 5).

Though no gonangia were developed in the specimens examined, it will scarcely admit of doubt that the hydrocladia thus modified are true phylactocarps. Analogy would, perhaps, justify us in regarding the spine-like appendages as the mesial nematophores of the suppressed hydrothecæ, while the lateral nematophores have left no representatives. A comparison of these appendages with the costæ of a true corbula at once suggests itself, notwithstanding their disposition in a continuous series along the mesial line of the rachis, instead of being thrown alternately to the right and left. In the absence of gonangia, however, the exact relations of the parts of the phylactocarp to the gonangia, which may yet become developed on it, cannot be ascertained with certainty.

In the only known forms of Eleutheroplea in which phylactocarps have been detected these structures appear to be in all essential points modified hydrocladia, a number of which combine to form the phylactocarp. In *Hippurella annulata*, as described by Fewkes, the hydrocladia lose their hydrothecæ, and assume a verticillate disposition, arching over the gonangia, which are borne by the stem near their bases. In *Callicarpa gracilis*, Fewkes, the hydrocladia undergo a similar modification, and, moreover, become dichotomously branched.² This dichotomous division of a hydrocladium is not without analogy,

¹ *Linn. Soc. Journ. Zool.*, vol. xii. p. 277, pl. xxii. The species is there referred to the genus *Halicornaria*.

² *Bull. Mus. Comp. Zool.*, loc. cit., p. 134, pls. i, ii.