

The remarkable network formed by the branches of *Dictyocladium dichotomum*—the only known representative of the genus—confers on this Hydroid a physiognomy, one of the most distinct and striking to be found among the Calyptoblastic genera. The extent to which the hydrothecæ are adnate to the hydrocaulus, and the occurrence of joints at distant and irregular intervals, indicate an affinity with *Thuiaria*, from which, however, it differs not only in its reticulate ramification, but in the disposition of the hydrothecæ on all sides of the branches.

Dictyocladium dichotomum, n. sp. (Pl. XXXVI. figs. 2, 2a).

Trophosome.—Hydrocaulus profusely and dichotomously branched, with the branches united so as to form a broad, fan-shaped, angular-meshed net, a joint occurring usually at the base of one, and sometimes of both arms of the bifurcation, and also here and there on the branches at distant and indefinite intervals. Hydrothecæ tetrastichous, alternate flask-shaped, adnate for more than half their height to the branch, and with the distal end continued into a long free tubular neck, which terminates in the small, circular, even orifice.

Gonosome.—Gonangia sessile in the angles of the bifurcations, ellipsoidal, encircled by very prominent and regular annular ridges, and having the summit continued into a short conical process which carries the small circular orifice on its apex.

Locality.—Station 162, off East Monceur Island, Bass Strait; depth, 38 to 40 fathoms.

Dictyocladium dichotomum is a very remarkable and beautiful species. The mode in which the branches become united with one another so as to form the meshes of the net is very singular. When a branch is destined to form a union of this kind its distal extremity becomes elongated into a tendril-like continuation destitute of hydrothecæ. When this meets a neighbouring branch, the end of the tendril unites with the branch, not however with any part of the surface of the branch indifferently, but, directing itself towards the orifice of a hydrotheca, it here attaches itself, its axis becoming directly continuous with that of the hydrotheca. The branches are all in the same plane, and the collection contains specimens which have a height and width of more than five inches.

Syntheticium, Allman.

Syntheticium, Allman, Journ. Linn. Soc. Lond. (Zool.), vol. xii. p. 265.

Generic Character. *Trophosome*.—Hydrocaulus divided into definite internodes, each internode carrying a pair of opposite hydrothecæ, or a single hydrotheca which alternates with those of the internodes on each side of it. Hydrothecæ adnate for a greater or less extent to the internode.