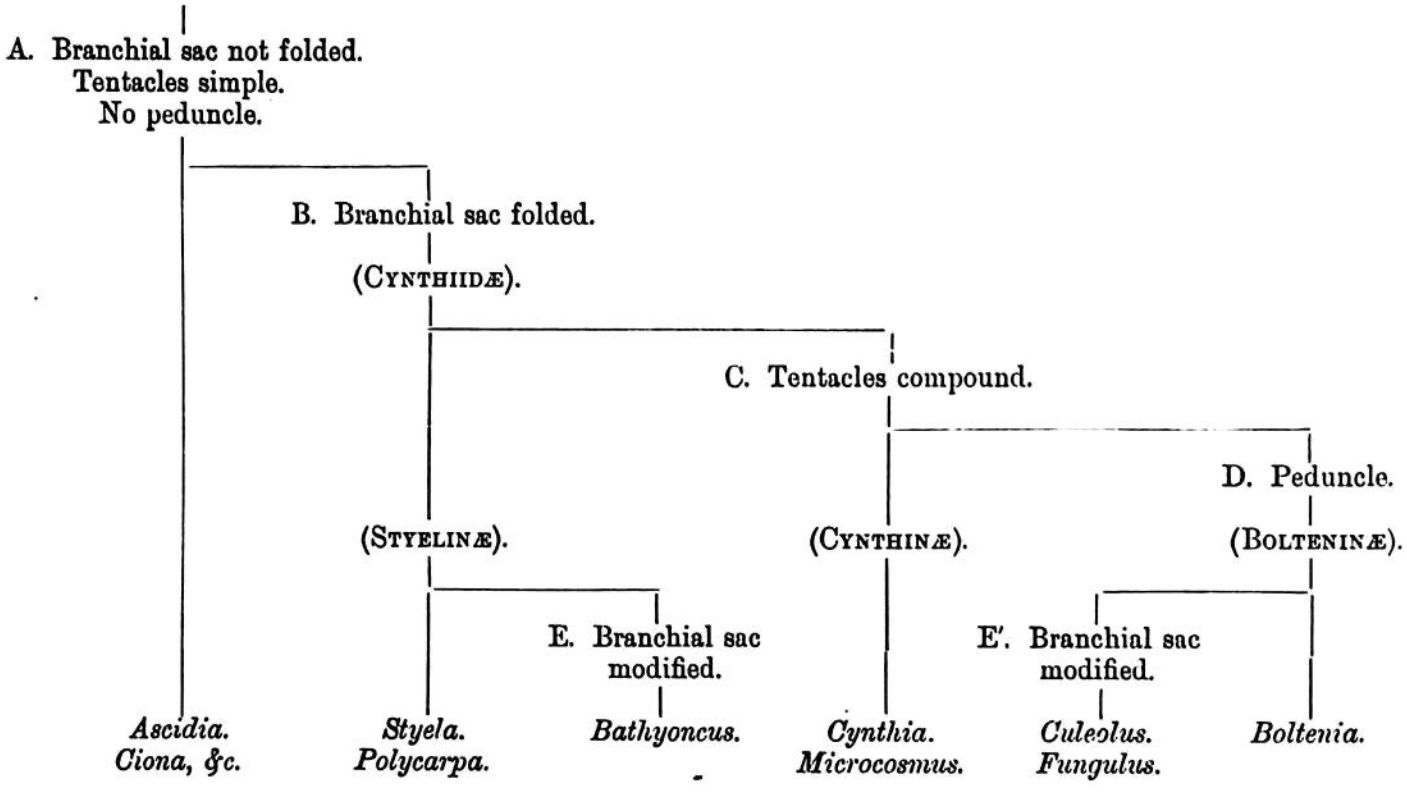
in the former. I incline to this view since it permits us to place in close relationship all the pedunculated forms, whether possessing an ordinary or a modified branchial sac, and does not necessitate the independent origin, in two distinct groups, of two sets of very different characters, namely, compound tentacles and a peduncle, but merely of one—the modification of the branchial sac. And this modification has probably taken place after the separation of the Bolteninæ from the Cynthinæ (both these groups have arisen from the Styelinæ previously), because we do not find any traces of the modified branchial sac among the Cynthinæ. The following scheme shows what I imagine to have been the sequence of these stages in the evolution of the Cynthiidæ :—



The whole family seems to have sprung originally from a simple sessile form (marked A. in the scheme), with the branchial sac not folded, and unbranched tentacles, of which the present *Ascidia*, or more probably *Ciona*, is the comparatively little modified descendant. From such a form the ancestral branch of the Cynthiidæ would be first distinguished by a longitudinal folding of the branchial sac, a condition which we find common to the three sub-families. This hypothetical form (B. in the scheme) had still simple tentacles, and is represented at the present day by the Styelinæ. From this line the Cynthinæ and Bolteninæ were later distinguished by the tentacles having become branched in their common ancestor (C. in the scheme), and we find the comparatively slightly modified descendants of this form in the *Cynthia* and *Microcosmus* of the present day. The next stage in differentiation was the formation of a peduncle in the ancestral form of the Bolteninæ (D. in the scheme), represented now by *Boltenia*. Hence the Bolteninæ have been