name of "nematophores" and insisted with justice on the differences presented by them as affording characters of primary importance in the systematic distribution of the Plumularinæ. Since then, however, our knowledge of these zooids has been greatly extended, and we now know that the character which the term nematophore was intended to express is one to which they can lay no special claim. I shall, therefore, not only on this account, but more especially because the term nematophore involves two conceptions which ought to be kept separate, namely that of the fleshy outgrowth and that of the receptacle in which this is contained, adopt here the terminology proposed by Hincks, and use the term *sarcostyle* for the fleshy offset from the cœnosarc, and that of *sarcotheca* for the chitinous receptacle by which this is protected.

The sarcothecæ occur in the Plumularinæ under two principal forms; (1) in that of fixed cups or tubes which are adnate by the greater part of their sides or by a broad base to the stem of the Hydroid; and (2) in that of cups which have no adhesion to the stem except at the very narrow point of origin, on which they are movable. Both kinds are very constant in their form and position. Under the name of nematophore they are specially described in the introductory remarks on the Plumularinæ of this Report.[1]

The contents of the sarcothecæ are very remarkable. Many years ago I drew attention to the fact that the bodies contained within the sarcothecæ had the faculty of emitting pseudopodia-like processes, which often extend to a great distance, running out free into the surrounding water or running straight along the stem or winding around it, frequently sending off branches which may become fused, one into the other, and again become separate, while once more the whole might be seen to have withdrawn itself into the interior of the sarcotheca. The phenomena thus presented so exactly resemble the emission of pseudopodia by certain Rhizopods that I came to the conclusion that the contents of the sarcothecæ consist chiefly of free protoplasm as in the body of an *Amœba*, though often with true thread-cells immersed in it.

Subsequent researches have, however, tended to modify this view, and the employment of the method of staining has led to the belief that the sarcostyles are of a more complex structure than I had originally supposed. By the use of this method Weismann believes that he has made it evident that the sarcostyles are composed of cells; further, that they are not a mere ectodermal outgrowth, but that besides having an external ectodermal layer they contain a solid filiform axial process from the endoderm, surrounded by a closed sac-like extension of the mesosarc.[2]

Since I became acquainted with these views I have had no opportunity of subjecting to fresh observation the conclusions to which I had been originally led, but any opinion

[1] *Kirchenpaueria* is the name of a genus which has been recently defined by Jickeli from some fragments of a Plumularian trophosome, in which certain sarcostyles are developed without being enclosed in sarcothecæ. The naked sarcostyles are here protruded through simple orifices in the perisarc of the stem (Jickeli, *loc. cit.*, p. 645).

[2] Weismann, Die Entstehung, &c., p. 176, pl. vii. fig. 7.