

axial cords run in the partitions between them. These branches have no regular mode of subdivision, no two pinnules being exactly alike ; while they are not symmetrical on the two sides of the same pinnule. Longitudinal sections of the pinnules of *Actinometra nigra*¹ show that these branches which come up to the ventral side in successive segments of the pinnules (woodcuts, figs. 4–7, a') are united by continuous trunks that run along the upper surface of the pinnule right and left of the ambulacrum (woodcut, fig. 7, lt) ; they send branches upwards between the connective tissue spaces, of the same kind as those which appear in transverse section.² The nervous structures in these pinnules thus consist of four principal trunks, three of which are intimately united by a network of fibrils, while the fourth and smallest is the ambulacrinal nerve. This is not yet known to be connected with any other structures, though I strongly suspect that it is continuous at the sides of the food-groove with a subepidermic plexus covering the pinnule and communicating with the numerous branches of the axial cord.

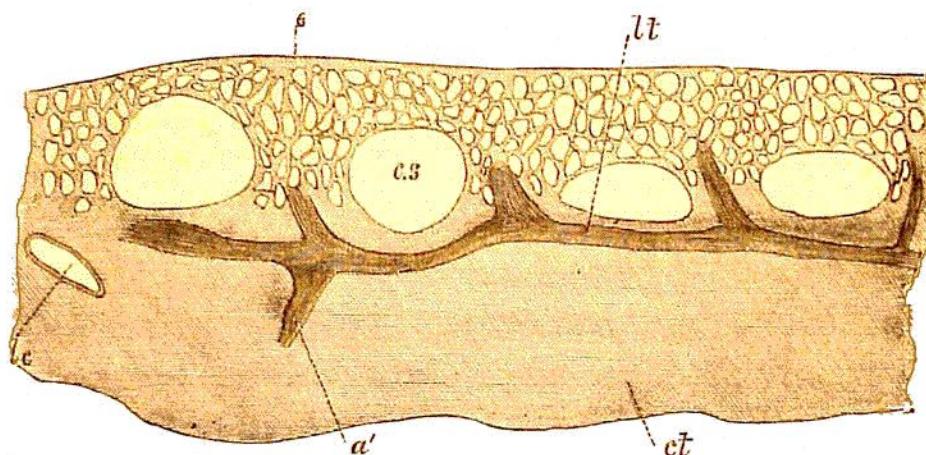


FIG. 7.—Longitudinal section of the ventral perisome in a pinnule of *Actinometra nigra*, $\times 60$.

a' , Ventral ascending branch of the axial cord ; $c.s.$, connective tissue spaces in the perisome ; ct , connective tissue above the ovary ; e , epidermis ; lc , lateral canal, connecting the coeliac and subtentacular canals ; lt , one of the lateral trunks which connects the ascending branches of the axial cord (a').

N.B.—This section passes to one side of the medio-ventral line of the pinnule.

Sections of the arms and pinnules of *Antedon eschrichtii* give much the same results. The ventral branches of the axial cords in the arms extend upwards along the sides of the coeliac canal, curve round the outer walls of the subtentacular canal, and pass on into the elevated folds of tissue bounding the food-groove, as shown in Pl. LX. fig. 6, a' . They do not seem to subdivide so freely as in the tropical *Actinometra*, but in both genera I have traced their smaller fibrils into the little respiratory leaflets along the edges of the food-groove. Perrier has seen the same thing in *Antedon rosacea*, and believes

¹ Théel's figure of a dorsal nerve-trunk in *Elpidia glacialis* with its muscular branches (*K. Svensk. Vetensk. Akad. Handl.*, Bd. 14, No. 8, Taf. iv. fig. 18) has a wonderful resemblance to a longitudinal section of the axial cord in a Crinoid pinnule.

² Woodcuts figs. 4 and 5 are composite figures made up from the study of some half dozen sections through the central part of a pinnule-joint and the overlying ventral perisome. Woodcuts figs. 6 and 7, however, are diagrammatic representations of single sections, and I have plenty more of the same character.