varies considerably in appearance, being relatively thick in some parts and almost totally absent in others; for I have never found it to extend right across the food-groove as it does in other species (Pl. VIIIa. figs. 4, 5, *n*).

I have cut sections of the arms and pinnules of some half dozen species of *Actinometra* and have found abundant extensions from their axial cords in all cases. The fibrillar tissue generally has a strong yellowish tinge, which renders it easy to follow when it leaves the substance of the skeleton and enters the ventral perisome. *Actinometra parvicirra* and *Actinometra nigra*, both from the Philippines, have, however, given me the best results. The axial cord enlarges slightly in the centre of each joint of the ray, arm, or pinnule,

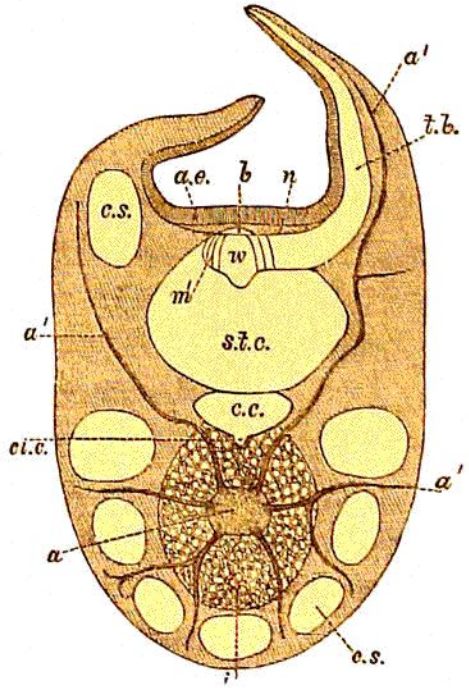


FIG. 5.—Diagrammatic transverse section through the end of a grooved pinnule of *Actinometra parvicirra*, × 70. *a*, axial cord; *a'*, the branches proceeding from it; *a.e.*, ambulacral epithelium; *b*, radial blood-vessel; *c.c.*, cœliac canal; *ci.c.*, ciliated cup; *c.s.*, connective tissue spaces in the perisome; *j*, skeleton of the pinnule-joint; *m'*, transverse muscle-threads in the water-vessel; *n*, radial trunk of the ambulacral nervous system; *s.t.c.*, subtentacular canal; *w*, radial water-vessel; *t.b.*, its tentacular branch.

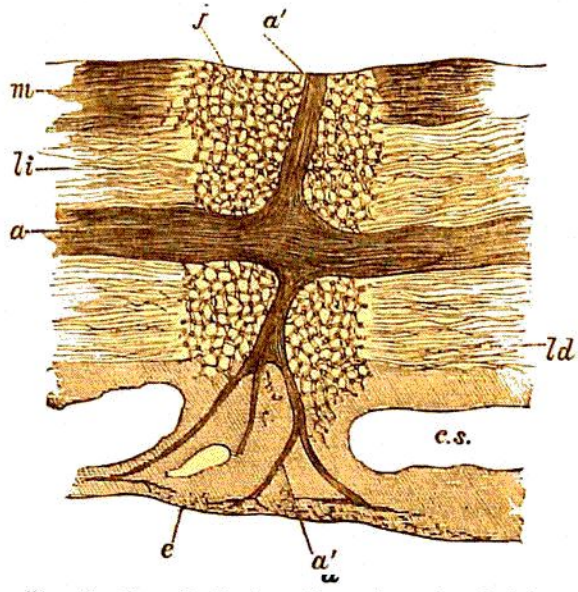


FIG. 6.—Longitudinal section of a pinnule-joint of *Actinometra nigra*, × 50. *a*, axial cord; *a'*, the branches proceeding from it; *c.s.*, connective tissue spaces in the perisome; *e*, epidermis; *j*, skeleton of the pinnule-joint; *ld*, dorsal ligament; *li*, interarticular ligament; *m*, muscle.

and gives off four branches, or occasionally more (Pl. LXI. fig. 6; woodcuts, figs. 4, 5) One pair of these runs towards the dorsal surface, and breaks up into successive subdivisions, the last of which are exceedingly fine and can be traced no further (woodcut, fig. 6, *a'*). The other pair extends towards the ventral side of the skeleton, and passes out of it into the perisome at the sides of the genital glands, where they are continued upwards towards the ventral surface of the arm or pinnule, which may or may not bear a food-groove, according to the part of the body from which it comes.

In both these species the perisome contains a number of more or less regularly arranged spaces in the connective tissue (woodcuts, figs. 4–7, *c.s.*), and the branches of the