that they have all the appearance of being true nerves.[1] He further describes how their ultimate subdivisions "aboutissent à des cellules étoilées, dont chacune se prolonge en un fibre musculaire. Des ramifications de ce genre sont également en rapport avec les fibres que contiennent les tentacules ambulacraires et dont un grande nombre se tiennent dans les papilles sensitives de ces tentacules que Ludwig considère à tort comme creuses." Elsewhere he states that the cords are invested with a sheath of stellate cells which are themselves related to connective-tissue corpuscles, and through these with the ectodermal cells of the arm. These statements of Perrier's are of considerable importance, and should his observations be confirmed the nervous nature of the axial cords will, I think, be at last admitted, even by those whose scheme of Echinoderm morphology is founded upon the archetype of a Stellerid or Urchin. These, however, are formed almost entirely upon the left larval antimer, whereas the chambered organ of a Crinoid and its downward extension into the stem are formed in the right peritoneal tube. (See Appendix, Note G.)

The branches from the axial cords of the rays and arms, to which allusion has so frequently been made, vary considerably in their development and distribution. Among all the numerous Crinoids, stalked and free, that I have examined, *Rhizocrinus* is the only one in which these branches have not been visible. I see no reason to doubt their existence, however; but the genus is one of small size, and is also permanently fixed through life, so that one would not expect to find large muscular branches proceeding from the axial cords, as in the Comatulæ and Pentacrinidæ which are free or semi-free, and can use their arms for the purpose of swimming; whereas, according to Agassiz,[2] the movements of extension and flexion of *Rhizocrinus* are but slow and gradual. The branches are also poorly developed in the massive and sessile *Holopus*. But in *Bathycrinus*, in the Pentacrinidæ, and in the Comatulæ they are very largely developed, occurring not only in the arms and rays but also in the stem and cirri. They vary considerably in their extent, some portions of the stem showing them abundantly(Pl. XXIV. fig. 2, *ca'*), while in others they are less numerous. An optical section of two decalcified stem-joints of *Bathycrinus aldrichianus* is shown in Pl. VIIa. fig. 1. The larger branches of the axial cord (*ca'*) are seen with a low power where the radial spaces render the stem-substance more transparent than elsewhere, but this gives no idea of the minuteness and complexity of their subdivision, which only reveals itself by the use of a high power.

In *Pentacrinus wyville-thomsoni* again I have found these branches to be abundantly developed in some stem-joints and almost entirely absent in others (Pl. XXIV. figs. 1–5). The fibrillar envelope surrounding the vascular axis is sometimes in immediate contact with the reticular tissue which forms the organic basis of the skeleton (figs. 2, 3). But in other joints it is closely surrounded by a layer of large pigment bodies like those which occur scattered in more or less abundance through the skeletal tissue (fig. 5, *p*). In other sections again, fibrillar extensions of the central axis pass outwards from it

[1] *Comptes rendus*, t. xcvii. p. 188.

[2] *Ill. Cat. Mus. Comp. Zoöl.*, No. viii. p. 29.