which extends through its entire length, and enlarges into a bladder-like receptacle at the base. Sir Wyville Thomson informed me that, when living, liquid was seen to gravitate down the stem, and collect in the basal expansion.

The cavity which thus occupies the axis of the stem is lined by the endoderm (fig. 4, *c*), of which, however, only traces remained in the specimens. The cells of which this is composed seem to have contained coloured granules, and it must have been traversed by the longitudinal canals (*d*) which, as in *Corymorpha*, represent the proper body cavity. Such at least may be inferred from the presence in *Monocaulus imperator* of the longitudinal striæ which in *Corymorpha* are the external expression of the internal canals. These striæ, as Sir Wyville Thomson informed me, were very well marked in the living animal, and they are so represented in Mr. Wild's drawing. In the specimens as they reached me, however, rather faint indications of the canals were all that could be obtained.

Immediately external to the endoderm lies a very remarkable tissue (figs. 4, *b*, 5, *a*, and 6). Indeed the presence of this tissue is probably the most striking feature in the histology of the Hydroid. It shows itself in the form of a fibrillated membrane whose most marked property is its extraordinary elasticity. The fibres of which it is composed take a circular course and are comparatively thick, about $\frac{1}{500}$th of an inch in diameter, and are resolvable into finer fibrillæ, but are otherwise homogeneous (fig. 6).

Besides this fibrillated structure no other histological elements can be detected in the elastic tissue, which forms a transparent, colourless, and comparatively thick layer extending through the whole length of the stem. It is of a firm, even cartilaginous consistence, and its elasticity is such that separated portions of the stem-wall curl up forcibly on themselves. Sir Wyville Thomson describes the stem in the living animal as "enormously extensile." This extensibility is to a great extent retained in the dead specimen, in which the longitudinal extension of the stem is permitted by the elastic layer, which, when the extending force is withdrawn, brings back the stem to its previous length. Though the course of the fibres of the elastic layer is transverse, its elasticity would thus appear to exert itself in antagonising longitudinal as well as transverse extension of the stem. The elasticity, however, is more strongly marked transversely, or in the direction of the component fibres by which the stem in the dead animal is thrown into irregular longitudinal flutings (fig. 7). Though it is pretty certain that in the living animal the elastic layer must be associated with a proper contractile tissue, which it antagonises and controls, the state of the specimens did not allow any trace of this to be detected.

Resting on the outer side of the elastic layer is the ectoderm (figs. 4, *a*, 5, *b*), consisting of a single layer of loosely aggregated cells, irregular in form and size, and with granular contents which in the preserved specimens were opaque and of a brown colour. This layer would seem to be in direct contact with the surrounding water, for nothing like a