

represented in Pl. L. fig. 2. It seems at first sight to be perfectly bare, but careful examination proves it to be covered by very closely set small plates with ill defined boundaries.

The ambulacra of *Pentacrinus wyville-thomsoni* form rather prominent ridges, which are composed of four irregular rows of plates. The plates of the two inner rows are somewhat elongated transversely and generally closed down over the grooves, representing the covering plates of the pinnule ambulacra.

A well plated disk also occurs in *Pentacrinus alternicirrus* (Pl. XXVI. figs. 1, 2); but the ambulacra are less heavily plated than in *Pentacrinus wyville-thomsoni*, and are therefore not so readily distinguished from the anambulacral plates. These are sometimes larger than in the Atlantic species, and are pierced by abundant water-pores which are not shown in the figure; but they do not always fit quite closely together, so that gaps of bare perisome are visible here and there. As in *Pentacrinus wyville-thomsoni*, the plates are generally larger in the anal interradius than elsewhere.

A disk of *Pentacrinus naresianus* was drawn for Sir Wyville Thomson by Mr. Black (Pl. XXX. fig. 2); but it seems to have been mislaid or else cut into sections, for it has not come into my hands. So far as can be judged from the figure, the anambulacral plates were small; while the ambulacra appear to be well-defined ridges and to come into close union around a very small peristome, which is thus entirely concealed by the apposition of their large covering plates.

I have not seen a disk either of *Pentacrinus maclearanus* or of *Pentacrinus blakei*; but in *Pentacrinus mülleri* and *Pentacrinus decorus* it is far from being as completely plated as in the species already noticed (Pl. XVII. fig. 10; Pl. XXXIV. fig. 2). For the anambulacral plates are generally isolated and not in contact with their fellows. They are small and numerous in *Pentacrinus mülleri*; but in *Pentacrinus decorus* they are fewer in number and comparatively large, some of them containing as many as twenty water-pores.¹

There are about four irregular rows of plates on the ambulacra, the inner ones being elongated, and sometimes standing up rather prominently at the edges of the grooves.

The relation of the food-groove to the arm-joints varies greatly in the different species of *Pentacrinus*, so that mere fragments of the arms can be identified by the characters of their ambulacra, quite apart from any peculiarities of their arm- and pinnule-joints.

The middle line of the upper surface on each joint of the brachial skeleton is occupied by a groove of variable depth and width, to which Müller gave the name "arm-groove" (Pl. XVII. figs. 1, 4, 7, 8, 9). It is bordered on each side by the more or less prominent muscle plates of the successive joints; and the vascular structures which are partially

¹ These are omitted in the figure, and the plates are drawn too close together.