In such forms as *Pteropathes fragilis* the cœnenchyma is confined to the back of each branch, the zooids on the anterior surface being so closely packed together that there is no room for interzooidal tissue. In other cases where the polyps are more isolated, the connections between the polyps on the anterior surface of each branch contain prolongations of their cœlentera. Mesoglœal septa usually occur, which incompletely separate the individuals from one another.

Skeleton Formation.

The axial skeleton in all Antipathidæ consists of thin concentric horny lamellæ arranged around an axial lumen, which is usually central in position. When a number of layers are superimposed the colour is usually dark brown or black; in thinner portions of the corallum the colour is golden brown. In a number of species the older portions of the corallum become covered with a glossy varnish-like substance, which is sometimes so thick as to cover all but the apices of the spines. The lumen of the axis appears to be divided by thin irregular partitions into a number of small chambers. The sclerenchyma is surrounded by a more or less complete layer of flattened cells, which G. v. Koch terms the *axis epithelium*. This is surrounded by a mesoglœal sheath, and the whole is clothed with entoderm. The mesoglœa of the sheath is connected with that of the cœnenchyma by means of a short longitudinal septum running the whole length of a branch. V. Koch suggests that the axis epithelium, which evidently secretes the sclerenchyma, has an epiblastic origin. In this case the axis epithelium is comparable with the *calycoblasts* of V. Heider, which secrete the calcareous skeleton in Madreporaria. I have not yet fully studied this point, but so far as my observations go they appear to support v. Koch's view. In *Schizopathes crassa* transverse sections of the apex of a branch show an involution of the ectoderm which is continuous with the mesoglœa adjoining the mesoglœal sheath of the sclerenchyma, but I have not yet traced the lumen from the invagination to the interior of the sheath. Further details must be deferred until I have made a more complete investigation of the material in hand.

Origin and Arrangement of Spines.

Pourtalès was the first to lay stress on the form and arrangement of the spines which are present on the axis of all Antipatharia, with the exception of *Savaglia lamarcki*. He thought them to present such manifold variations in shape and arrangement as to offer valuable characters for specific purposes. Although perhaps the spines do not afford absolutely reliable characters, it nevertheless appears probable that there is a "typical" arrangement in certain portions of the corallum which is constant in each species. It may be added further, that the typical arrangement