

acids than the older portions. If one of these small points, after having been treated with a strong solution of potash, be examined under the microscope, it will show apparently no trace of consisting of anything but the usual doubly refracting calcareous matter. If it be then slowly decalcified, an investing layer of finely fibrous tissue is gradually brought into view as the lime is removed. The fibrous tissue seems to form an investment to the hard part, or rather to be present only in its peripheral regions, the central part of the piece of corallum appearing to be free, or almost so, from contained fibrous structures, and thus to be more rapidly attacked and decomposed by the acid. In specimens of *Heliopora* which have been slowly decalcified in chromic acid, the appearance presented by one of these growing points as viewed from below is shown in Plate I. fig. 6. Here it will be seen that a mass of tissue composed of extremely fine fibres (B) occupies the space immediately within the layer of connective tissue cells. The fibres composing the mass are disposed in a concentric manner, externally around the centre of the mass, and more internally around two rounded cavities situate side by side in its centre. Appearances similar to this are presented by a section from the surface of *Heliopora*, prepared as described, cut parallel to the surface and viewed from beneath, sometimes two and sometimes one cavity appearing in the fibrous mass. The fibrous masses occupy the position which in the undecalcified coral is occupied by the projecting points of the corallum, and are identical in structure with the small investment of fine fibrous tissue which, as above described, can be obtained from a growing point of the corallum by decalcification. But the quantity thus derived from a portion of the corallum cleaned with potash is very small indeed in proportion to such a mass as that shown in Plate I. fig. 6. The spaces A, B shown in this figure were probably occupied by the central parts of two newly-formed excrescences on a projecting point of the corallum, whilst the hard tissue was extended thence for some distance amongst the fibrous tissue. It is, however, uncertain how far this extension reached. I have not been able to prepare such sections of hard and soft parts in contact as permit the elucidation of this question.

I have not seen the finely fibrous tissue in the deeper parts of the coral; but in some preparations traces of residual tissue are to be recognised in longitudinal sections occupying the former sites of parts of the corallum situate at some distance from the surface, as at Plate II. fig. 4, P; but it does not here show the fibrous structure.

It seems probable that the layer of connective tissue cells produces the finely fibrous tissue, and that within this tissue the calcareous matter is deposited gradually from within outwards, the tissue gradually being removed and absorbed as the process continues. The finely fibrous tissue may be termed calciferous. Exactly similar tissue, with similar concentric fibrillation, occurs in similar relations in *Pocillopora*, though in this latter case the connective tissue cells are perhaps absent.