Euspongia, this tissue in some species suffers a marked change in the neighbourhood of the flagellated chambers, granules appear in it, and are sometimes so richly developed as to obscure the collencytes. This modification Schulze distinguishes as granular collenchyma. From it to the sarcenchyma characteristic of sponges with aphodal chambers is but a short step. The granules of the granular collenchyma then evidently form a part of the collencytes, which have lost their stellate branching form and become polygonal by apposition. The gelatinous base of the original collenchyma is now reduced to a minimum, and the granular cells, now termed sarcencytes, lie so close together that usually no line of demarcation is visible. Occasionally, however, a narrow clear interspace can be discerned, and the composition of the sarcenchyma as a congeries of sarcencytes is thus made clear. The collenchymatous base probably persists, and we may regard it as a continuous medium in which all the cells composing the sponge are more or less immersed.

Cystenchyme.—In some sponges, *Pachymatisma* and many others, including many Lithistids (Pl. XXVII. fig. 14; Pl. XXXIV. fig. 12), the collenchyma undergoes a modification of another kind, and this chiefly in the ectosome or its neighbourhood. The collencytes are replaced by or transformed into oval vesicular cells, with a thin but definite cell-wall, enclosing a small quantity of pale not deeply staining protoplasm, which lines the cell-wall as a thin layer, and extends in narrow threads to the protoplasm in which the excentrically situated nucleus is immersed. The rest of the cell is vacuolar. These vacuolar or vesiculate cells may lie in a collenchymatous matrix isolated from each other, or they may be so numerous and closely approximated that all trace of intervening collenchyma disappears. This vesicular connective tissue (cystenchyme), as has been already remarked by several investigators, naturally recalls the similar tissue in Mollusks and other Invertebrates. From a similar tissue may arise that which for want of a better name I have called cavernous collenchyma; good examples of this occur in the Tetillidæ, *e.g.*, in *Tetilla grandis* (Pl. V. fig. 5). In this tissue the cell-walls of the vacuolate cells, which are accumulated in nests, appear to have broken down or fused together, and numerous large cavities result, each when first formed containing the protoplasmic remains of several cystencytes, but subsequently these appear to become absorbed and the cavities are left empty.

Chondrenchyme.—In yet other cases the gelatinous basis of the original collenchyma acquires additional consistency, and some of the collencytes are replaced by round or oval granular cells, a tissue resulting, which bears a remarkable resemblance to hyaline cartilage (*Thrombus challengeri*, Pl. VIII. figs. 35–37). Apparently no experiments have been made with a view to ascertaining whether this is chondrin-yielding or not.

Thesocytes.—No tissue that can be called thesenchyme has yet been observed in any sponge, but in many cases, notably in *Thenea*, more or fewer of the collencytes are modified to form what may fairly be regarded as reserve cells or thesocytes. In an