yet in several sponges possessing a clear, transparent, collenchymatous mesoderm, particularly in *Thenea* (*Thenea delicata*, Pl. VI. fig. 20), fine filaments may be frequently observed, produced from the base of the choanocytes and extending radially from the chambers into the surrounding matrix. Of course these are not flagella, but with the methods in vogue in Carter's time they might easily be mistaken for them, and erroneous as one must admit Carter's inference to have been, one cannot at the same time refuse a tribute of admiration to his surprising acuteness of observation. Whenever these filaments are observed the tubular collars of the choanocytes will be found to be of unusual shortness, and the flagellated chambers in which they occur of far less than the usual diameter, owing to the unusually close approximation of the choanocytes, the bases of which form an almost continuous wall. The whole appearance is suggestive of a contraction of the choanocytal wall under the influence of some strong stimulus, possibly of the alcohol into which the sponge was plunged on removal from the dredge.

Returning now to the more normal chambers which are not thus contracted, close observation reveals the presence of lateral protoplasmic processes extending radially from the bases of the choanocytes and continuously uniting each of them with its surrounding fellows. These processes stain deeply with hæmatoxylin and are probably contractile. If so the contraction of the flagellated chambers is probably partly brought by their action, partly by a shortening of the collums of the choanocytes drawing their bases towards the fenestrated membrane, which thus furnishes a *point d'appui*. It is no doubt owing to the contraction of the chambers that the centrifugal filaments are rendered visible. They may be traced from the choanocytes into continuity with surrounding collencytes or adjacent pinacocytes, if an epithelial surface happens to lie near enough (Pl. VI. fig. 20).

The Mesoderm. Collenchyma.—The mesoderm in its simplest form consists of gelatinous connective tissue (collenchyma), which was first described accurately and its true nature pointed out by F. E. Schulze. It consists of a clear transparent jelly-like basis which does not stain with reagents, and which is produced by the alteration or excretion of numerous more or less stellate irregularly branching cells (collencytes), which are irregularly distributed throughout it. Although spoken of as gelatinous the base is not gelatine-yielding, it is singularly unalterable under the action of reagents, and would probably repay a careful chemical examination.

The collencytes may be best studied in *Thenea muricata*, since in this sponge the collenchyma attains an abnormally rich development; but almost any collenchymatous sponge serves nearly as well. Careful observation proves that they always pass into each other by the confluence of their thread-like processes.

Sarcenchyme.—By the modification of collenchyma in various directions numerous other tissues are produced; one of the most important of these is sarcenchyma. Schulze has already pointed out that in sponges with collenchymatous mesoderm, such as