is reduced more than one half. We have here the most indisputable evidence that each individual cell elongates or shortens, and narrows or broadens according to the contraction or extension of the stem. We have seen this process repeatedly while the stem was under the microscope, and have even observed a single cell expand and contract quite independently of those around it; any one who will make a transverse section of the stem, and watch the movements of the cells on the edge (*Fig.* 7, g^1) of any one of the broad semi-partitions which extend along the chymiferous channel, may test the truth of this statement for himself. Sometimes a single cell expands until it nearly reaches the centre of the chymiferous channel; and so thin does its wall become at the time, that it could very easily be overlooked. The cells which enter into the composition of these semi-partitions (*Fig.* 5, g^3), may be very readily seen directly through the outer (i^3 i^4) and the inner (g g^1 g^2) walls, and are distinguishable from the cells of the latter by their relative position and their superior size. They are intimately united to the inner wall, of which they are, in fact, centripetal prolongations, as a transverse section (*Fig.* 7, g^3 g^4) shows. They are disposed in at least two layers (*Fig.* 7, g^3 g^4), the inner one (g^4) of which is narrower when the partitions are not expanded. The brownish-red granular substance (*Fig.* 7, *j*) which lines the surface of the chymiferous cavity of the stem, does not appear to be at all cellular in its nature, but, rather, concretionary. The granules are more or less angular, and of all sizes, from mere specks to apparently one sixteenth of an inch in diameter, as seen with a magnifying power of five hundred diameters. Those in the immediate neighborhood of the wall cling quite closely to it, but toward the centre of the cavity they are in constant agitation, and, frequently detaching themselves from their bed, rush along in the passing chymiferous current.

The cells, which constitute the outer and inner walls of the peduncles (Pl. 23, *Figs.* 18, 18ª, 19, and 19ª) of the medusoid bunches, have a close resemblance to those which we have just described, in the walls of the stem, but the former are much smaller. The cells of the outer wall (*Fig.* 19ª, *a*) cannot be seen unless the peduncle is contracted, because, when it is stretched out, this wall becomes excessively transparent and quite thin. These cells, when seen with a magnifying power of three hundred diameters, appear, in profile, to be about as broad as long, with rounded exterior and flattened or truncate interior ends. When the peduncle is stretched, all that can be seen of organization in this wall, are a few scattered lasso-cells (*Figs.* 18, 18ª, and 19); which give it a spotted appearance. The cells of the inner wall (*Figs.* 18, 18ª, 19, and 19ª, *b*), when the latter is in a strongly contracted state (*Fig.* 19ª, *b*), are three times as long as broad, and are rounded at the outer as well as at the inner ends. In this state the wall is very thick, and yet it is composed of but one layer of cells arranged so as to give it a