

more or fewer of the spherical bodies are usually torn out of the cell, and those which remain are separated by clear intervals from each other; it then becomes evident that as a rule no network of protoplasm is associated with these bodies, they alone constitute the contents of the cell.

It is evident that some kind of relation exists between these pigment-cells and the cells previously described, and this is rendered certain by the occurrence in the latter of occasional spherical bodies of the same character as those of the pigment-cells (Pl. XIX. fig. 21). The question then arises as to whether the pigment-cell is a metamorphosed protoplasmic network cell, or whether the latter is an exhausted pigment-cell. The latter would appear to be the more probable view; the pale circular bodies of the protoplasmic cells have much the appearance of pigment spherules which have lost their pigment. They frequently contain a small body about 0.002 mm. in diameter, which shines brilliantly with reflected light, and which is evidently a contained air-bubble; now air-bubbles when unconfined always work their way out of balsam, and their presence in these bodies is therefore probably due to confinement within some limiting membrane; and the question suggests itself whether they may not occupy cavities left vacant by the exhaustion of the pigment, from pigment granules now represented by the pale circular bodies, in which the air-bubbles occur. The apparent absence of protoplasm from the pigment-cells may be more apparent than real, but till this is shown to be the case it leaves the question of the relations between the two kinds of cells in a very unsatisfactory position.

In addition to the preceding cells a third element (Pl. XIX. figs. 14, 15) enters into the composition of the ectosome, and this is of an altogether problematical character. It presents itself as minute oval or elongate finger-biscuit-shaped bodies, exceedingly numerous, evenly and darkly stained, evenly and very finely granular (fig. 15), and sometimes marked with faint, longitudinal, undulating striations (wrinkles?) (fig. 14). At one end towards the side a small, more darkly stained oval body sometimes occurs, and may represent a nucleus. Each of these bodies, on an average 0.01 by 0.006 mm. in size, lies within an oval vesicle in the surrounding collenchyma, about 0.016 by 0.012 mm. in size.

*Choanosome.*—The mesoderm is a well-marked sarcenchyma, in which, however, oval cells containing a protoplasmic reticulum, like those of the ectosome, and pigment-cells as well, are abundantly present; in addition are met with, lying each in its own cavity, large (0.024 mm. in diameter) rounded or polygonal, deeply stained, granular, naked, protoplasmic cells, with a large oval nucleus 0.012 mm. in diameter, which is surrounded by a darkly stained margin, and contains a spherical nucleolus 0.004 mm. in diameter. These cells are numerous in places, as many as seven sometimes being seen together in one portion of the field of the microscope. The figure (Pl. XIX. fig. 13) represents one of these cells; the wash of colour in the cavity it occupies should have been omitted, and