

centre. In a profile view they appear elongated, with the longer diameter trending in the direction of the thickness of the wall. At the time the animal is hatched, the epithelium, (fig. 10,) at the base of the tongue, is a layer of rather irregular, polygonal cells, containing a moderate sized mesoblast, and a minute, granule-like entoblast. These cells vary considerably in size, and so does the mesoblast. In a transverse section of a fold of the œsophagus, (fig. 11,) we have, first, on the surface, a layer of epithelial cells (*a*) that are broader than deep, and each one of which is crowned with a row of vibratile cilia (fig. 12) arranged along the line of contact with the neighboring cells, so that their free surface is naked. Next beneath these is a thick layer of long, irregular, columnar cells, (fig. 11, *b*,) the longer diameter of each occupying the whole thickness of the layer; and, outside of these, irregularly rounded, homogeneous, transparent cells, (*c*,) which fill up the space in the angle of a fold, and also form a thin layer between the columnar cells (*b*) and the muscular coat (*d*). The cells of the muscular coat (fig. 13) of the œsophagus are excessively long, slender, and spindle-shaped, and lie so closely pressed together that their long, slender ends cannot be well seen, unless they are separated (fig. 13a). With a magnifying power of eleven hundred diameters, the cell wall appears only as a rather thick, dark line. The mesoblast occupies nearly or altogether the whole breadth of the cell; it has a quite thick wall, (*a*,) and contains a sharply defined, single entoblast (*b*).

The mucous membrane of the stomach is made up of at least four layers of cells, (fig. 17, *a*,) piled one above the other, so as to resemble columnar cells. Those next the inner surface of the stomach are the largest; and, proceeding thence outwardly, they grow smaller. The mucous membrane of the thick intestine is composed of no less than six layers of cells (Pl. 21, fig. 18, *a-a'*). In those cells which are next to the surface, (*a'*,) the mesoblast is very easily seen; but in the other more exterior cells it is very faint. By separating a few columns of cells, (fig. 18a, 18b,) not only may their relations be better shown, but the clear, round mesoblast, and its sharply defined entoblast also become visible. These cells are placed so regularly one above the other, that they resemble a long columnar cell. When seen in a mass, through considerable depth, they appear oval, with the longer diameter of each trending in the same direction as the columns (fig. 18); but, taken singly at a fixed focus, their more or less polygonal shape (fig. 18a) may be recognized. Those at the surface (fig. 18, *a'*) are the largest, and those at the outermost side, (*a*,) nearest the muscular layers, (*c*, *d*,) are a great deal smaller; and between these two extremes there is a regular gradation. Here and there a few cells were found in a state of self-division (fig. 18c, *a*, *b*); some (*a*) had two distinct mesoblasts and a strong median