

At a much later period, (Pl. 8, fig. 5, 9,) these cells begin to press against each other, and to assume a more or less polygonal shape; yet this change does not at all correspond to the age or size of the egg, but appears to exhibit a considerable amount of variation as to shape and magnitude, since in a follicle inclosing an ovum invisible to the naked eye (Pl. 8, 12, *b*; Pl. 9a, fig. 13, *b*, 13a) the cells are closely set against each other, whilst in another and much larger egg, visible without a lens, (Pl. 9a, fig. 12, 12b, 17, *c*;) there is but very little mutual crowding. In addition to their change in shape, the cells last mentioned have also undergone an internal alteration: a darkening of their walls, and a slight increase in the conspicuousness of the mesoblast (Pl. 8, fig. 5, 9; Pl. 9a, fig. 12b, 17, *c*).

An egg about twice the diameter of that represented in Pl. 9a, fig. 12, when brought under the microscope, has the appearance of being covered by a network with polygonal meshes. These meshes, when more magnified, are found to be large, mutually compressed cells, belonging to the innermost layer, or tunica granulosa, of the Graafian follicle. Their size has considerably increased, and the contents have become very hyaline, especially the large mesoblast, which it is very difficult to detect (Pl. 9a, fig. 14, 14a). Each mesoblast occupies about one third the diameter of its ectoblast; as usually, before and afterwards, it has a central position, and is remarkable for its thickness (Pl. 9a, fig. 14) when compared with its breadth. The external surface of these cells is more or less flattened next to the inner stratum (Pl. 9a, fig. 14, *a*) of the stroma, a feature more conspicuous still in older eggs.

When the egg has about one tenth of an inch in diameter, (Pl. 9a, fig. 18.) the exterior surface of these cells is closely pressed and flattened against the fibrous stroma (Pl. 9a, fig. 18a, *b*); and the cells themselves have become internally so transparent that even the mesoblast is not visible, except when brought out by reagents. This hemispherical shape, with their rounded surface next to the zona pellucida, they retain for the rest of the interovarian life of the egg (Pl. 9d, diagram, fig. 2, *b*). What further changes they undergo, after the egg has been expelled from their embrace, has not yet been investigated, and therefore the subject must be left for further research.

*The Zona pellucida.* Although the zona pellucida is developed later than the vitelline sac, yet, on account of its connection with the Graafian follicle, we think it proper to consider it first. The earliest appearance of the zona pellucida which we have noticed is seen at a time when the egg has already become visible to the naked eye (Pl. 9a, fig. 12); it is then represented by a layer of excessively hyaline, large, flat cells, (Pl. 9, *a*, fig. 12a and 17, *b*, *b'*;) resting on the outer surface of the yolk sac, and just within the tunica granulosa (*c*). For want of observations we can say nothing about the origin of these cells, excepting that, from their position, they must be developed from the Graafian follicle, and indi-