

to establish its independence of fecundation within a year. But, since the self-division of the mesoblast was not remarked as occurring in eggs just about to drop from the ovary into the pavilion of the oviduct, it must be considered, without doubt, as an intra-uterine phase, commencing before the completion or even before the first appearance of the shell, since the latter was still quite soft and thin in a fecundated egg in which the segmentation of the yolk had but just separated a small area of the surface of the yolk into eight portions, and since it was altogether absent in several eggs whose embryonic disc was well marked.

Moreover, from what we have seen in the yolk of the thin shelled egg just mentioned, and considering also that the segmentation of the yolk was not far advanced, it may be safely inferred that the self-division of the mesoblast begins before the other process. Judging from the heaps of already minute and numerous mesoblasts (Pl. 9a, fig. 35) in the segmenting mass, at the period when segmentation begins, (while but a single mesoblast existed before in each ectoblast,) and also from their presence all over the superficies (fig. 35a) of the egg, (their parent envelope, the ectoblast, having disappeared in both cases,) we may further say, that the self-division of the mesoblast is in fact a forerunner of the segmentation of the yolk, wherever this occurs, whether it be at the blastoderm, or over the whole surface of the yolk mass, as we shall presently attempt to show.

As we have already mentioned, the earliest period, at which self-division of the mesoblast has been observed in an egg fully fecundated, belongs to that age when the embryonic area is divided into but eight parts, (Pl. 10, fig. 1, 2, 3,) and heaps of numerous mesoblasts exist, (Pl. 9a, fig. 35a,) which, we can safely affirm,—although we ascertained that in this instance they had lost their parent cell, while its presence (fig. 34, *b*) around those belonging to a little older embryonic disc (Pl. 11, fig. 3) and to that portion of the germinal layer exterior to this was satisfactorily made out,—had evidently originated from a frequent repetition of that same process which at first, in the more internal portion of the yolk mass, simply doubled (Pl. 9a, fig. 33, 36–36c, 37–37d) the single mesoblastic bodies, as exhibited in the figures here referred to. In such instances, the wall of the ectoblast, which in the case of undivided mesoblasts is very obscure, (Pl. 9a, fig. 33a, 39a, 39b, 39d, 39e,) was rendered very conspicuous, as it bridged over the constricted portion; but again became more or less indistinct where the mesoblastic masses had multiplied considerably, as may readily be seen in eggs scarcely older than this (Pl. 9a, fig. 7, 9, *a*, 38, *a*, 38a, 38b, *a*, 38c). These last eggs presented abundant materials for the investigation of the self-division of the mesoblast, from its beginning, through all degrees of multiplication, until the mesoblasts have become very numerous. We will, however, refer at the same time to figures illustrating this subject in younger, and in some much older, stages of growth.