

there cannot be the least doubt that the faint, thin line (Pl. 9a, fig. 33b) which presses closely upon the dark contour of the mesoblast is the wall of the ectoblast; for, even were it not possible to follow with the greatest ease the gradual diminution of distance between the two approaching surfaces until contact ensues, the action of water, which bursts and peels off the outer membrane, would alone serve to prove its existence.

This filling of the ectoblast by the mesoblast is not a feature peculiar to fecundated eggs found in the oviduct, although it belongs in a great measure to that condition of the ovum; for its beginning has been noticed (Pl. 9a, fig. 33a, 33b) in one egg, taken from the oviduct of a female known to have been kept from the male during a whole year. But, just as segmentation of the yolk proceeds to a certain extent in the unfecundated eggs of some animals, so here the filling of the ectoblastic cell may occur as a phase continued up to a limited amount of the yolk; beyond which, however, the stimulus of fecundation is necessary, in order that the process may go on throughout the whole vitelline mass.

But there is a further change, in the nature of the yolk cells, which belongs exclusively to the eggs found in the oviduct; and that is the sudden multiplication of the number of the entoblasts, (Pl. 9a, fig. 1, 2a, a, b, c, 39d, 39e,) amounting, in some cases, to hundreds in each mesoblast, and, in most instances, still preserving their rounded form. From what we have sometimes seen in fecundated eggs where more than half the yolk cells were totally destitute of entoblasts and the remainder for the most part faintly entoblasted, as if these waxy masses were deliquescing, we have good reason to believe that this last feature in the life of the entoblast is brought about by a total renascence of entoblasts, after the plan of their first appearance in young ovarian eggs, and not by any subdivision of each crystalloid body into several smaller ones. That this novel conduct of these bodies is intimately connected with the genesis of the embryo there is abundant proof in the fact of its simultaneousness with another still more remarkable and most important phenomenon, hitherto unsuspected as playing a part in the life of the yolk cell of any animal, namely, a self-division of the mesoblast.

How long before the segmentation of the yolk this process commences has not been established; but certainly it may take place without the last fecundation, since it was observed in eggs that had not been permeated by this quickening influence within a year (Pl. 9a, fig. 33). This may readily be proved by confining the females apart from the males during the breeding season, and opening the eggs just as they enter the oviduct, when it may be seen that subdivision of the mesoblast has proceeded to a certain extent without the help of any recent stimulus. In such eggs, this self-division of the mesoblast was noticed and recorded as the earliest observed occurrence of this peculiar phenomenon. This is enough