

At first the mesoblast constricts gently, so as to leave a broad sinus between the separating portions, (Pl. 9a, fig. 37, 40,) then a little later its constriction becomes narrower as it grows deeper, (fig. 40a, 40b, 40c, 40d,) till finally it divides into two (Pl. 9a, fig. 36-36c, 37a-37d, 38, 40e, 40f, 40g); then each of these again doubles itself. Sometimes the one division begins before the other, so that there is a triple mesoblast (fig. 40b, 40i); or, in the case of the next phase, one of four doubles previous to the others, (fig. 38b, 40j,) thus producing a quintuple mesoblast; and so on, again and again, almost to infinity, we might say, when we consider the innumerable quantity of these bodies (Pl. 9a, fig. 9, *a, b*) in each ectoblast, at the time they have just entered the boundaries of the embryonic disc and become part and parcel of the embryo. In this connection we may express the opinion, that it is very probable that the entoblast also segments, since in some instances (Pl. 9a, fig. 40d, *c*) it is so large as to make it almost impossible that it should enter entire into either of the two portions of a duplicated mesoblast. In several other cases the entoblast has been observed in the same position (fig. 40, 40a, *c*, 40c, *c*) as in the former, directly in the line of the approaching constriction; but in these cells it might, considering its size, be forced into either segment by the narrowing strangulation.

We have good reason to believe, that the phenomenon of self-division of the mesoblast obtains throughout the period of incubation of the animal; at least, it was observed in an egg two months old, (Pl. 9a, fig. 40-40b,) which is half the time required to develop the Turtle; and, on the day the animal left the shell, the still pendent yolk sac contained cells of the largest size, having each but a single undivided mesoblast (Pl. 18, fig. 4a); so that, at best, it cannot be said that the self-division of the mesoblast had pervaded the whole yolk at the time of hatching. Again: this process does not go on uniformly throughout the yolk at one time, but has a centripetal aim, provision for the embryonic disc (Pl. 9a, fig. 7, 35) and the germinal layer (fig. 3, 35a) all round the yolk sphere, being first made, previous to segmentation; then the next more interior portions become the seat of action, and so on, deeper and deeper.<sup>1</sup>

By referring to cells (Pl. 9a, fig. 7, 7a, 9, *a, b*) taken from the embryonic disc and from the germinal layer (fig. 3) after segmentation, we may gain abundant evidence, that, even at this period, the self-division of the mesoblast has not finished its part. This may be confirmed by resorting to an embryonic disc a little older, where the cephalic hood is just about to be formed, the depression all

<sup>1</sup> Such cells were observed from the centre of the yolk mass, from the surface, and midway between these points, and found everywhere alike, but in greater proportion near the surface, where they seemed

to be quite numerous; those divided into two being by far the most frequent. Both the mesoblast and entoblast, throughout the yolk mass, are very faintly yellow.