

SECTION V.

SEGMENTATION OF THE YOLK.

The morning of the 27th of May, 1854, was made memorable to us, in our investigation of the embryology of Testudinata, by the discovery of the segmentation of the yolk in eggs of *Glyptemys insculpta*. After repeated trials every day for the space of several weeks upon *Chrysemys picta*, *Nanemys guttata*, *Ozotheca odorata*, *Chelydra serpentina*, and *Cistudo virginea*,—which were opened in great numbers, sometimes a little too soon, when the eggs were still in the ovary but just about to drop from it into the oviduct, or again too late, when the embryonic area had already obtained its definite outline and smooth, uniform surface,—it seems rather singular, that a species which is comparatively rare should have furnished the information so long looked for.

From what was seen in the oviducts of one of these animals, it is evident that the segmentation of the yolk proceeds very rapidly, indeed so rapidly, that the space of twenty-four hours probably covers the greater extent of this process. Of three animals opened in three successive days, the first furnished eggs, on the 27th of May, exhibiting the earliest stages of segmentation thus far observed in Turtles (Pl. 10, fig. 1-8); the second, on the 28th of May, gave those in which segmentation was almost completed (Pl. 10, fig. 9-11b); and the third, on the 29th of May, contained only eggs with well defined embryonic discs (Pl. 10, fig. 15, 15a). After all, we were not favored with the view of a primitive furrow, dividing the yolk into two equal portions. There is even good cause to doubt that the yolk always commences segmenting in such a regular manner, if we may judge from the total absence of bilateral symmetry in some of the early stages of this phase (Pl. 10, fig. 5, 6, 7) in the development of the egg. The youngest and simplest form of segmentation was observed in the most anterior of three eggs, in the right oviduct. About midway between the two ends of the yolk mass, which was already elongated,—as in fig. 1 and 1a, which represent a similar but somewhat older state,—and parallel to its longer axis, there ran a straight, narrow, and deep furrow, (Pl. 10, fig. 3,) with rounded edges, broadening at each end, and shallowing to a level with the surface of the more eccentric segments. Altogether this furrow equalled in length a little more than one fifth of the longitudinal diameter of the vitelline mass. (Compare fig. 1a. to see the natural size.) Commencing at two points, a little more than one third the distance from the ends of the first furrow, other furrows of a similar