and hard; and, finally, in Testudinina it has a continuous, smooth, wavy surface, underlaid by a uniform stratum, as in Trionychidæ and Cinosternoidæ, and similar in structure and hardness with these, but much less in thickness, and only equalling one fifth the thickness of the nodules below.

SECTION III.

THE ABSORPTION OF ALBUMEN INTO THE YOLK SAC.

In the last section, we have described the mode of origin and deposition, and the structure of the albumen of the Turtle's egg. In this section, we propose to show what becomes of that albumen, and what connection it has with the yolk mass, around which it is originally deposited.[1]

The youngest and least advanced egg which we have observed, after the last fecundation, was one of Glyptemys insculpta, with an oval shell and a full complement of albumen, in which segmentation had just begun (Pl. 10, fig, 1, 1a). In this instance the yolk mass had already lost the globular form which it possessed in the ovary, and assumed an oval shape. This oval figure would not, at the first glance, intimate that there was any connection between the yolk and the albumen which surrounds it; when, however, we observe besides, that not only the shape of the yolk mass is changed, but its size also is increased, we very naturally infer that this augmentation in bulk is due to the introduction of some substance from without mixing with the yolk, and, as the albumen includes the yolk, that this is the substance in question. Whether the albumen, in this case, was absorbed as soon as it began to be deposited around the yolk, or not till its deposition had gone on for some time or had even been completed, it is not possible to say definitely; but inasmuch as in the case of a much older egg, (Pl. 9b, fig. 4b,) in which segmentation in the region of the embryonic area was already completed and the embryonic disc well defined, (*e*,) the yolk sac was plainly oval, (*y*,) and larger than when it left the ovary, whilst the albumen was as yet only partially deposited in a thin layer, (*a*) and no shell was present,[2]

[1] Before proceeding to the consideration of this subject, the reader may with advantage take a retrospective glance at the earlier stages of growth of the ovarian egg, and to that effect compare the diagram of the egg represented Pl. 9c, fig. 1 with that of fig. 2 upon the same plate, and also that of Pl. 9d, fig. 3.

[2] This instance shows that the oval shape of the yolk mass is not derived from the impression of the shell acting as a mould upon its contents, since no shell was as yet present; but arises no doubt from the tendencies inherent in the life of the egg and its development.