

trates, inasmuch as upon opening these eggs nothing but a thin, hardly consistent, jelly-like albumen pressed its smooth surface against the closely embracing shell membrane.

From the foregoing facts, it is evident that the concentric layers of albumen are not deposited by direct apposition of the glandular wall of the oviduct upon the yolk sac; so that, whatever turns the egg may make in its passage along the channel of the latter, this glairy envelope is not impressed with such a spiral arrangement of its strata as constantly obtains in that of Birds; consequently there are no chalazæ. Again: we may justly infer from this structure that there is no spiral motion of the egg, in its descent from the inlet to the outlet of its conduit, otherwise a simple inversion of the egg would not injure its contents, as experience has shown to be the case when inadvertently a Turtle was opened whilst laying upon its back, and the eggs were taken out in this abnormal position;¹ whereas in the albumen of Birds the chalazæ are formed early, and serve as axles, upon which the yolk sac swings and keeps its embryonic side uppermost, whilst the more exterior albumen revolves about it. Except to mention that the whole albumen is deposited before the calcareous deposition commences, we will defer any general remarks in reference to the shell until we come to describe its microscopic structure.

What we have just shown in regard to the albumen, the shell lining, and the shell deposit, leads very naturally to the question, What is the essential difference, between the mode of formation and the structure of these concentric layers, which renders them so distinct from each other, and how can they all be the product of one and the same portion of the same organ? The only reply we can make to the latter part of this question is, that it is just as possible for one organ, more or less complicated, to perform diverse functions, as that so simple a structure as an egg can produce, within itself, the multitude of functions which constitute the organic whole of an independent animal; but how this is done still remains among the mysteries inaccessible to our investigations. As regards the first part of the question, we will endeavor to answer it so far as our observations may guide us. We have already proved, by direct ocular demonstration, that the greater part, and, we would suggest, perhaps the whole, of the albumen is at times, if not always, deposited by infiltration through the already partially formed and synchronically developing shell-lining membrane. Now, notwithstanding this substance enters the confines of the lining membrane in a fluid state, yet it by no means continues in this condition, nor does it remain simply, as at the first glance it seems to be, a gelatinous, homogeneous bed, in which the yolk rests.

¹ On that account, Turtles ought always to be opened from above to examine the eggs.