

the yolk cells present a smaller size and are less crowded, and clearer homogeneous cells, mix in considerable numbers with them, so that really this is the most fluid part of the egg. From this point the yolk increases in density radiatingly, not only toward the periphery, but also in approaching the centre, which is not at all to be distinguished from the surrounding part by any sudden differentiation in its constituents.¹

Although, from quite an early period, the cells around the Purkinjean vesicle are smaller than those which are more distant, yet the changes which take place in their mesoblasts and entoblasts are identical in all the yolk cells throughout the egg. The shape of the egg also gradually changes, with increasing size and age, from a flattened, more or less disciform, to a perfectly globular, figure, as it becomes more and more detached from the surface of the ovary, against which, in the earlier stages, it is very closely pressed.

Thus we see, that, from the beginning to the maturation of the ovarian egg, there is a constant dissimilarity between its two sides, one of which corresponds to the position of the Purkinjean vesicle, and the other to the opposite portion of the egg. The former contains within and around itself the extreme of albuminous concentration, and the latter the preponderance of oleaginous elements; yet, intermediate between the two sides there is a gradation, both in the proportionate size of the cellules and the relative amount of the above-named substances, which unite these extremes into one harmonious whole. How far this antagonism is carried out in the subsequent phases of the life of the egg will be more fully discussed in a future section; but this more we will say here, that, although we have had no opportunity for observing the intermediate steps² between the maturation of the ovarian phase of the egg and the period of slightly advanced segmentation, we have still sufficient reason to assume that the same diversified portions mentioned above retain the same relative position² during the passage of the egg

¹ See note 1, p. 480.

² The clear space, observable in the egg of various animals just previous to segmentation, to which the name of "embryo cell" has been given, (see Thompson, l. c., p. 139,) from its supposed intimate connection with the formation of the germ, may be identical with the white area about the Purkinjean vesicle observed in Testudinata. We would take this opportunity to express the opinion, that very probably too much stress has thus far been laid upon the assumption that the Purkinjean vesicle performs a peculiar and exclusive function in reference to the formation of the so-called embryo cells; and, moreover, that

the Purkinjean vesicle is not to be so definitely separated, as regards its essential elements, from the immediately juxtaposed substance of similar appearance, but should rather be looked upon as the crowning point of albuminous concentration, to which the opposite side of the egg stands in the reverse extreme of a highly oleaginous nature. A reference to the mode of origin of this vesicle shows this conclusively; for it is developed as a phase of secondary accession in the egg evolution, and not as the primary basis to a succeeding structure ever after retaining a significance of superior import, and leading, as some would have it, to its becoming in the end the essential element in