

spirits and kept for reference, as may be seen in my embryological collection. I mention these trifling circumstances, only the more fully to satisfy the reader that these investigations were made upon parts of the egg duly isolated for a satisfactory microscopic examination.

## SECTION V.

### THE GROWTH OF THE OVARIAN EGG, AS A WHOLE.

Thus far we have described in detail the origin, the development, and the maturation of the several constituents of the ovarian egg of Testudinata. Now, in order to arrive at a full and comprehensive understanding of the general relations which exist between the several elements of this complicated structure, among each other as well as with reference to the whole organism of the egg, it is necessary to combine, in one view, all the details which have been before presented as separate and independent features. We have, indeed, up to this time, considered the different parts of the egg as constituting separate organs, as it were, growing each one independently, as regards the peculiar plastic force operating therein. We have shown that each of these parts is distinguishable from every other by dissimilar characters; and yet they are all connected by a superior power, which holds them in obedience to the one great law of correlation controlling the growth of every organized being.

In a former section<sup>1</sup> we have followed the growth of the egg as a whole, up to that period when the homogeneity of its contents begins to be disturbed by the introduction of the yolk cells in the form of dark granules. At this stage the Purkinjean vesicle is a very clear globule, usually situated in that part of the egg which is most distal from the side where the granules appear (Pl. 8, fig. 4, 5, 6, 8, 9, 10, etc.). The next step brings an encroachment of the granular region upon that which surrounds the Purkinjean vesicle, simultaneously with the appearance of the Wagnerian vesicles in the latter (Pl. 8, fig. 13a, 15, 17, 17a, 18a, 19); thus exhibiting no inconsiderable change in the internal life of the egg. In the succeeding stage, the yolk granules are replaced by mesoblasted cells, (Pl. 8, fig. 22, *a-d*, 23, 23a-23d, 24, 24a, 25, *a-c*, etc.) accompanied by an enormous increase of the Purkinjean vesicle (Pl. 8, fig. 22, *c*, 24b); from this time also the differentiation in the size of the yolk cells becomes conspicuous, those around

<sup>1</sup> See Sect. 1, p. 451-457.