

round the germ being already present as an indication of the incipient plication of the amniotic membrane; and here the greater part of the mesoblasts are still further and more minutely divided, (Pl. 9a, fig. 4, 5, 5a, 6, 8,) and reduced to that size (fig. 34, a) which they exhibit when the organs have begun to mark out their boundaries.

But, let us return and trace more critically the changes through which the yolk cells pass, in order to reach that condition in which they are found when they have become components of the nascent embryo. By the time that the segmentation of the yolk has commenced, not only the cells in the region of the embryonic area, but those all over the surface of the yolk close to the vitelline envelope, have multiplied their mesoblasts to an innumerable number. In this state, they may be recognized as a very light yellowish white layer, which—when the egg is rolled in various directions, the more interior yolk thus falling to what becomes, in succession, the lower side, and this layer is left more exposed—resembles a very fragile, sedimentary deposit against the yolk sac, falling away in flakes upon the least flexure or disturbance of its smooth, crust-like arch. Owing to the rapid formation of this layer, and the quickly succeeding ultimate changes in the cells, the latter seem to burst almost in an instant, and leave their mesoblasts arranged in heaps, (fig. 35a,) side by side, thus forming the brittle stratum above mentioned. The superficial ectoblastic cells of this layer discharge their mesoblasts so early before the self-division of the latter has been completed, that it is next to impossible to find among them ectoblasts still embracing their progeny; but this may be accomplished in regard to those more deeply seated, especially next to the inner surface of the stratum. We will first make a special mention of these latter, and then return to the former to trace their progress in completing the stage of their fissiparous multiplication, and the connection of the same with the building up of the embryo.

By cutting out an embryonic disc and laying it upon its back in a watch-glass containing albumen from the same egg, it is very easy to select whatever portions are needed from this body for this purpose; the substance hanging together so lightly that a few cells may be taken up on the point of a knife and laid upon a glass slide for examination, or, for those most superficial, the microscope may be brought to bear directly on them in situ. Of course, in the latter case, a strong, concentrated light from above is necessary, on account of the opacity of the embryonic disc, which precludes the possibility of using transmitted illumination. The innermost cells, the ectoblasts, of the germinal layer and of the embryonic disc,¹ are still

¹ If, however, there are those who still incline to believe that these cells are genuine segment balls,

then they must, even upon this supposition alone, admit also, without reservation, that segmentation