

may be seen in them a conical projection attached by its base to a point on the inner surface of the wall, whence it extends deep into the interior.

These bodies are certainly not cells; they take no direct participation in the development of the embryo, and Kleinenberg, who has traced them from small globular condensations of the plasma, assigns to them the name of "pseudo-cells." They seem to have the significance of reserve matter, and gradually disappear.

The egg still continues to increase in size, but the outrunning extensions of its plasma are gradually withdrawn, and the egg loses its amoeboid form, and becomes rounded into a broad ovoid.

About the time when the formation of pseudo-cells has ceased the germinal vesicle and germinal spot begin to undergo a disintegration, and finally disappear long before the commencement of fecundation. The remaining cells of the ovary also become disintegrated and are manifestly used up as nutriment for the ovum.

By the pressure of the subjacent egg the ectoderm which lies over it becomes protruded in the form of a sac, in the summit of which a narrow orifice makes its appearance. Through this the egg is forced out into the surrounding water, though it still continues for some time to hang to the parent *Hydra* by a small part of its surface. It is now that the naked egg is exposed to the influence of the spermatozoa diffused through the water, and becomes fecundated.

The segmentation which now begins in the ovum is in accordance with the common law of binary cleavage, except that when the cleavage advances to a certain stage it loses somewhat of its regularity, some of the segmentation spheres cleaving less rapidly than the others. During this process pseudopodia are developed from the surfaces of cleavage, but these at a later period disappear. When the number of the segmentation spheres has reached thirty-two the surface of the egg has the mammillated condition of the mulberry form. Later on this disappears and the egg becomes quite smooth.

When the segmentation has been completed two kinds of cells may be distinguished in the germ. One of these consists of elongated prismatic cells resembling those of a cylinder epithelium. They form a one-layered stratum on the surface of the germ. The other consists of shorter cells rendered polygonal by mutual pressure. These form the main mass of the germ. All these cells are naked plasma masses, at first destitute of nucleus, but at the end of some hours nuclei make their appearance in the superficial cells, and soon after in the deeper ones. It seems certain that these nuclei arise independently in cells previously destitute of them.

Soon after these occurrences it is seen that the albuminous corpuscles, chlorophyll grains, and pseudo-cells contained in the superficial prismatic cells have retreated into the deeper parts of these cells, while the nucleus remains for some time immediately beneath their free surface, but ultimately disappears.