

the deeper parts of the epithelial muscle-cells, where they form a tissue to which he has given the name of "interstitial tissue."

In a circumscribed portion of this tissue which is to become the testis, a more vigorous growth takes place. The cells composing it enlarge and multiply by division, and form a many-layered, compact, lenticular body. This is the testis; it forms a projection from the body of the *Hydra*, covered by the epithelial muscle-cells.

In the meantime the nucleus of the testicular cells becomes replaced by one or more sharply contoured, strongly refringent corpuscles. The cell is now a perfectly transparent sphere. On one spot of the surface there arises a fine plasma process with active flagellate movements. This is subsequently seen to have become united with one of the corpuscles in the interior of the cell, and by its action the corpuscle to which it had attached itself is finally drawn out from the generating cell, and the mature spermatozoon is thus set free.

The foundation of the ovary agrees essentially with that of the testis. The cells of the interstitial tissue in a zone which in *Hydra viridis* embraces nearly half the circumference of the body multiply and unite with one another into groups, composed each of a single layer of cells. These cells increase in size, and the groups themselves finally unite into a one-layered flattened cell-mass in which a multiplication of cells still goes on.

This cell-mass forms the ovarium, and when it has reached the stage here described a single cell which usually lies exactly in its middle begins to be distinguished by more active growth from the others. This is the young egg. It continues to increase in size, while its surface becomes extended into processes which with the continued growth of the egg pass into broad irregular lobes.

With further growth the egg becomes extended in width without increasing in thickness, and two incisions now show themselves opposite to one another on the edges of the somewhat disc-shaped egg, and extending deep into the interior, cut the egg into two lateral halves connected by a narrow middle isthmus, and having their edges irregularly notched and cleft. The egg continues to increase in width, and the form which it now presents has been compared by Kleinenberg to that of a butterfly with expanded wings, the edges of which are irregularly notched and torn. In the connecting isthmus lies the germinal vesicle with its included nucleolus or germinal spot.

Besides irregularly-shaped granules of apparently albuminous nature chlorophyll grains now show themselves in *Hydra viridis* embedded in the plasma of the egg.

The outgrowths from the plasma increase in size and now form the principal part of the egg. They branch dichotomously, push themselves between the other cells of the ovary, and the egg becomes eminently amœbiform.

At the same time there appear in the plasma sharply contoured corpuscles. These are usually in the form of thick-walled hollow spheres, and in *Hydra viridis* there