

## **Alterations in the larva**

Changes taking place in the tadpole larva can be studied under following three headings:

### **Retrogressive changes**

It involves destruction of larval tissues and disappearance of some structures:

1. tail of larva contracts and finally disappears, partly absorbed and partly cast off
2. Caudal muscles, nerve cord and notochord disappear as they break down and are consumed by phagocytes.
3. Adhesive papillae disappear completely.
4. Ocelli, otocyst and sensory vesicle break down and disappear.
5. Anterior region between adhesive papillae and mouth shows rapid growth, while dorsal side with atriopore stops growth. This causes shifting of mouth through 90°. As a result, the final positions of branchial and atrial apertures in the adult represent the original anterior and dorsal sides of the larva.

## **Progressive Changes:**

1. Trunk becomes pear shaped
2. 4 larger ectodermal ampullae grow out of its 4 corner
3. The ampullae anchor the larvae to substratum and serves for respiration
4. Neural gland and nerve ganglion become mid-dorsal between mouth and atriopore
5. Mouth becomes functional and larva ecomes feeding
6. Pharynx becomes larger, blood vessels develop, stigmata multiply rapidly to form branchial sac
7. Stomach, intestine and liver develops
8. Atrial cavity becomes more extensive
9. Circulatory system, heart and pericardium develops
10. Gonads and gonoducts develop from mesenchymal cells
11. Test spreads to cover entire animals

The foregoing changes mark the beginning of a sedentary, actively feeding adult life which soon starts producing gametes, first ova and later sperms.

## **Molecular changes**

Manket and Cowden (1965) studied the metabolism of protein and nucleic acid and pointed out that some protein synthesis occurs throughout the development but with the outset of metamorphosis; extensive degradation of proteins begins followed by rapid synthesis of new proteins.

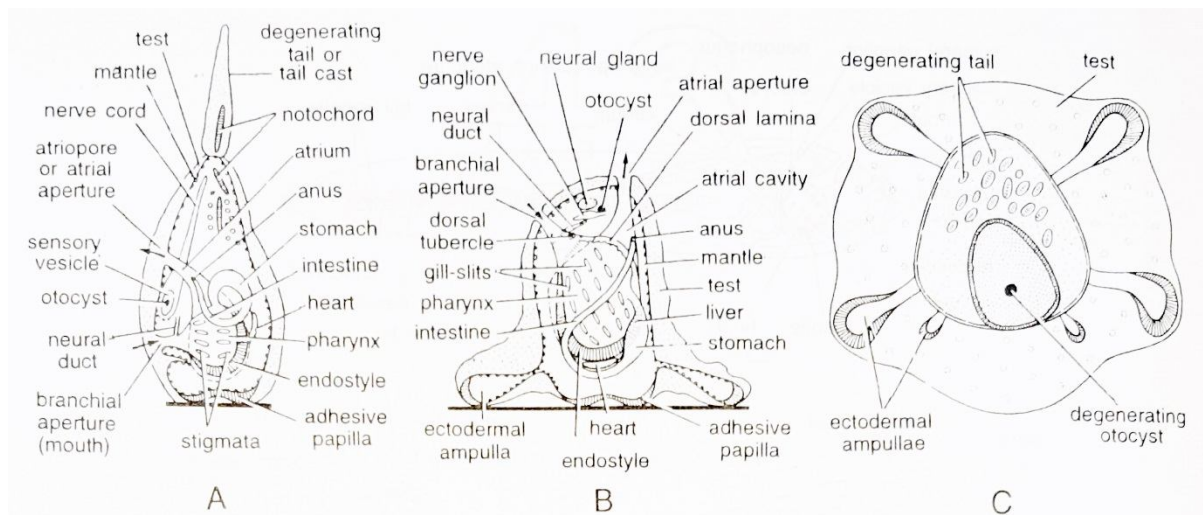


Figure 1 *Herdmania* showing metamorphosis A Recently Hatched larva that shows degeneration of tail B Side view of young adult C Dorsal view young adult