

- (i) Three pairs of gills and a tail fin.
- (ii) It is blind.

[d] Suborder - Proteida -

eg - Necturus (Mud puppy)

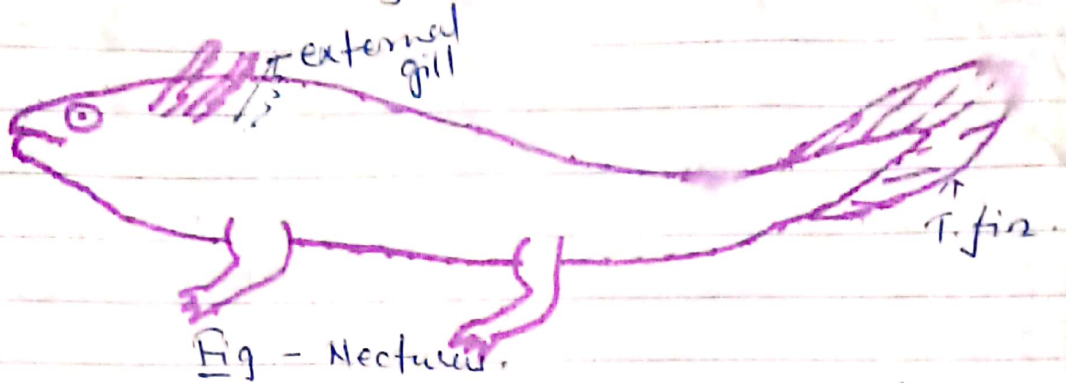
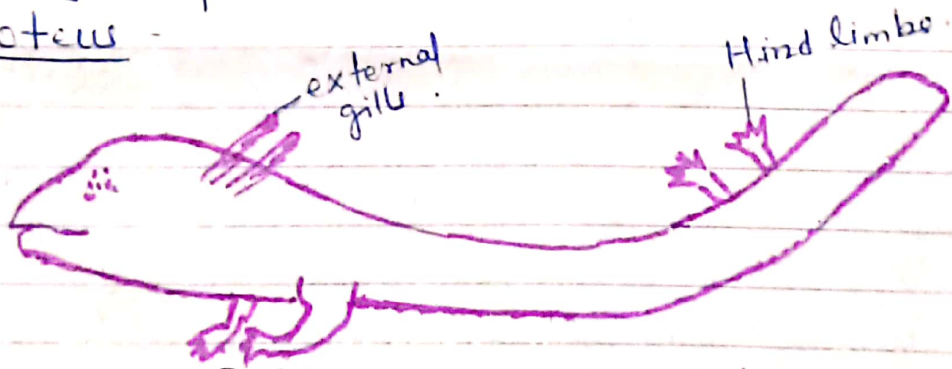


Fig - Necturus.

- (i) Typical permanent larvae completely neotenic.
- (ii) Three pairs of external gills present.
- (iii) Skull is cartilaginous.
- (iv) Larval musculature and circulatory system well developed.
- (v) Tail fin present.

Proteus -



(i) Blind eyes, hidden behind the opercular skin.

- (ii) External functional gills present.

[e] Suborder - Meantel

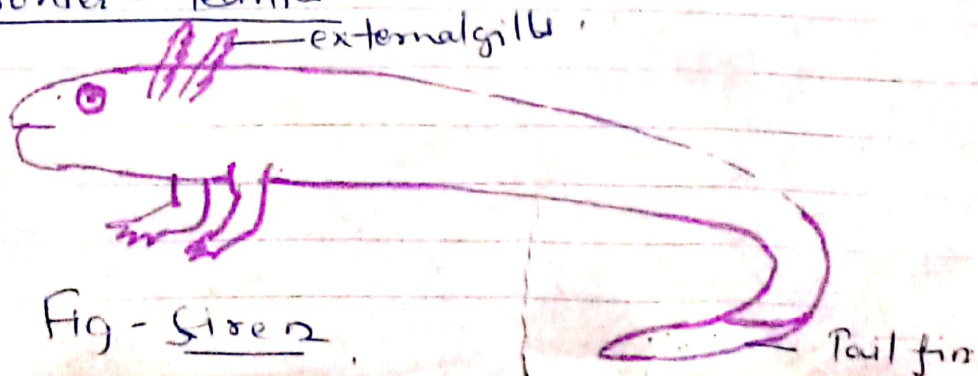


Fig - Salamander.

- (i) Gel like larval form.
- (ii) Lidless eyes.
- (iii) Tail fin present.
- (iv) External gills present.
- (v) Hindlimbs absent.

Thus, we see that the extreme condition of neoteny is seen in percebia-branchiolota - viz - Necturus, proteus, Sierr.

These are the oldest members of order Urodela. Not the natural group but constitute the heterogeneous assembly.

Factors influencing Neoteny: - Some factors are responsible for the inducement of neoteny. These are:

- (a) Ecological factors.
- (b) Hormonal factors.
- (c) Other factors.

[A] ECOLOGICAL FACTORS: - Ambystoma tigrinum (the American axolotl) does not metamorphose at high altitudes such as mountain ranges, but the same larva metamorphoses easily at low altitudes. This is only due to the ecological factors.

[B] Hormonal factors: -

- (i) Thyroid hormone: - The thyroid hormone i.e. thyroxine plays an important role in inducing the metamorphosis in Amphibians by affecting the neoteny. The doses of the thyroxine differ for the animals of different species, different age groups and for different kinds of tissues (Bacher 1928).



Axolotle can be metamorphosed, when treated with the thyroxine. Decreasing in the quantity of thyroxine or any abrupt change in the thyroid gland may affect the metamorphosis in amphibians.

Even the large dose of the thyroid hormone is unable to initiate the metamorphosis in perizibromchiolates.

[ii] Pituitary hormones: The transplantation of the pituitary gland of Ambystomatigrinum to A. mexicanum induced the metamorphosis in A. mexicanum but the vice versa has not any effect because the pituitary gland of A. mexicanum is defective.

prolactin stimulates the thyroid to secrete thyroxine in Amphibians. Not only this it also induced metamorphosis in amphibians (EIK 1963).

[iii] Pancreatic hormones: According to Gressner (1925) insulin is responsible for inducing metamorphosis in amphibians.

[c] Other factors:-

- (i) Ongram (1929) reported that iodine may induce the metamorphosis in Amphibians.
- (ii) Calcium delays metamorphosis in axolotles.
- (iii) According to patch (1928) vitamins play a great role in inducing the metamorphosis in Amphibians.