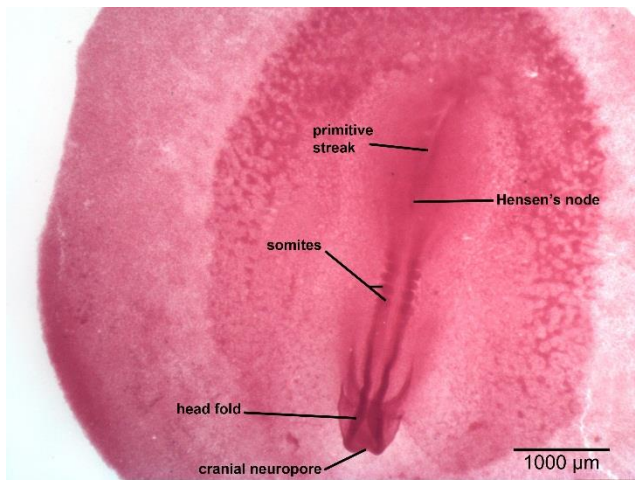
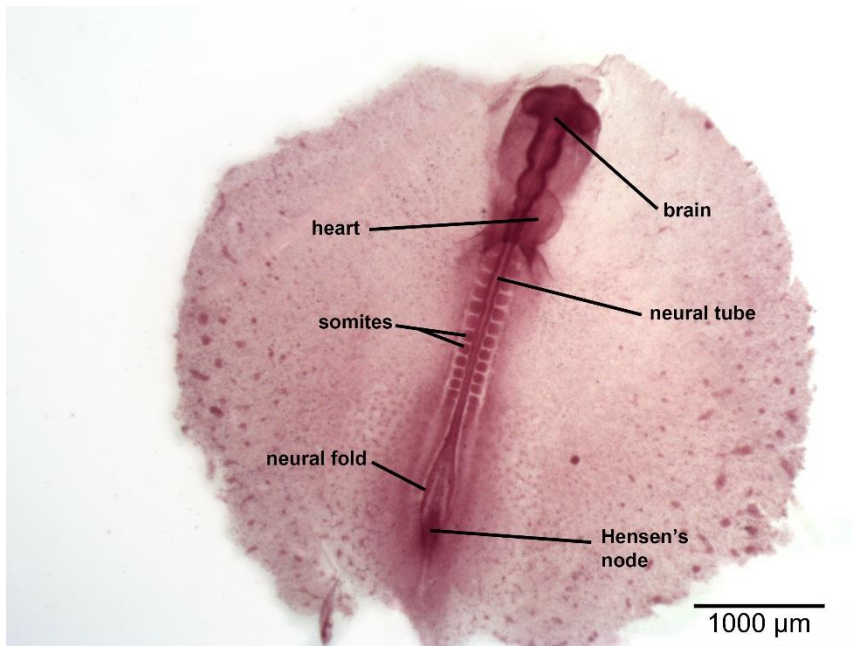


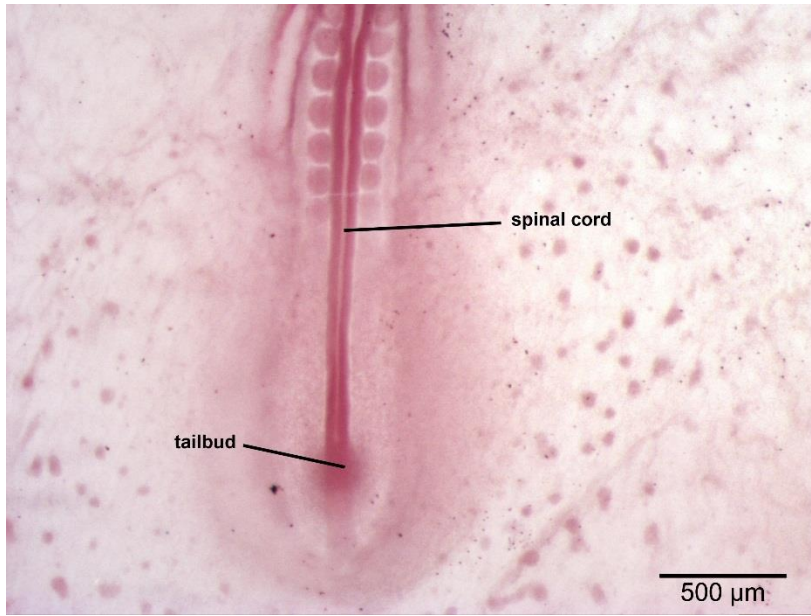
18 hours Primitive streak



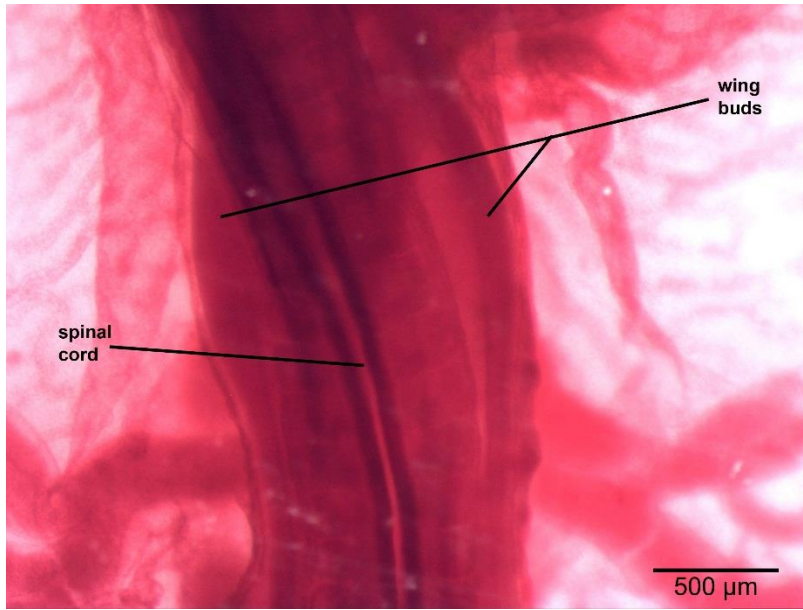
24 hours Primitive streak



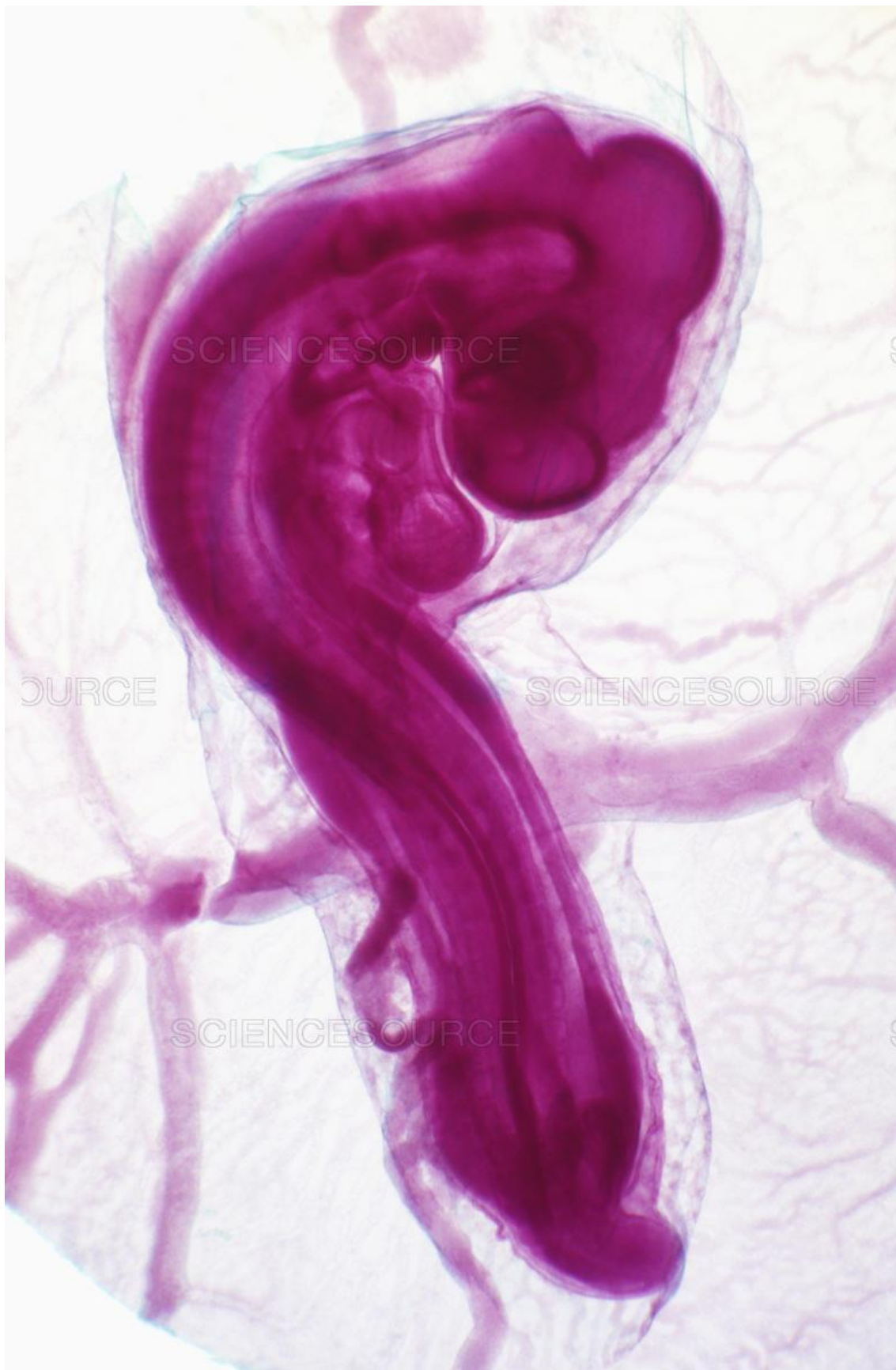
33 hours Primitive streak

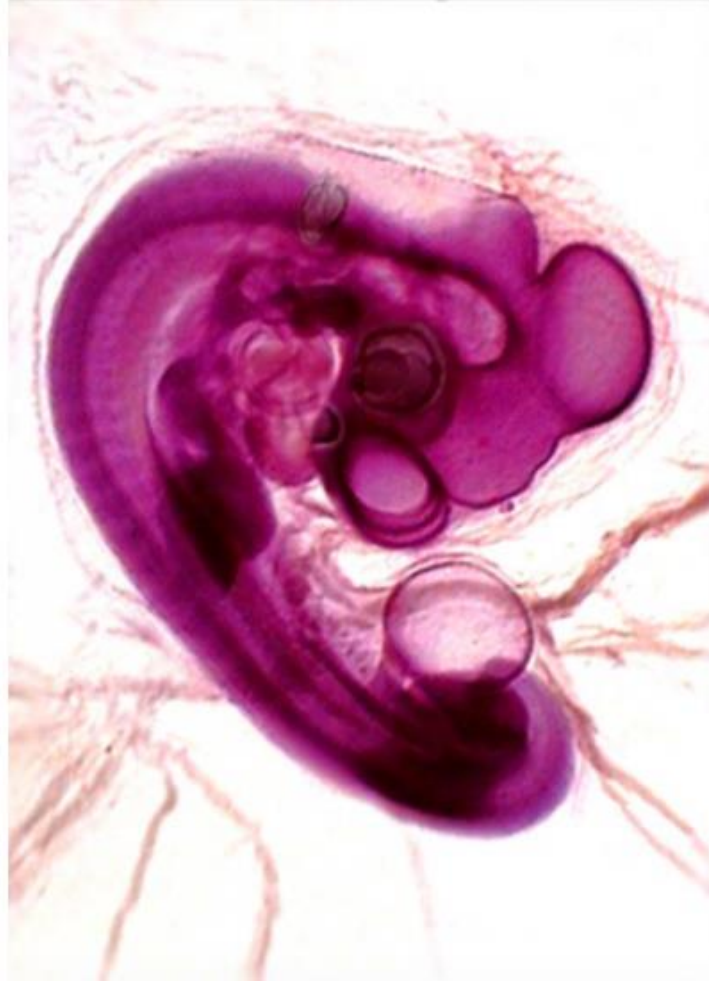


48 hours PS



72 hours PS





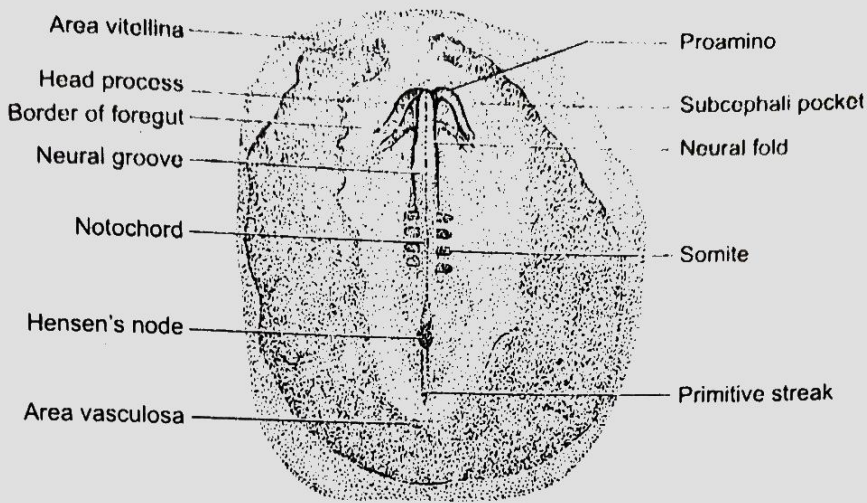


Fig. 3.2.2.2 : 24 hours stage of entire chick embryo.

central area of discoblastula consists of a translucent area, called **area pelucida** and the peripheral area of discoblastula is opaque, called **area opaca**.

A. Whole mounts of Chick embryo at different stages :

1. 24 hour (First day) stage :

- (i) The area opaca is divided into **area vasculosa** and **area vittellina**.
- (ii) Abundant blood islands within the area vasculosa.
- (iii) The space between the head process and the pro-amnion is subcephalic pocket.
- (iv) Foregut is established and the anterior intestinal portal the opening of the foregut also appears.
- (v) Neural folds are very prominent.
- (vi) In the posterior region there is a faint **primitive streak**.
- (vii) Between the neural pore there is the anterior **neuropore**.
- (viii) Notochord is present.
- (ix) Distinct head fold situated above the pro-amnion.

- (x) Somites are about four pairs and well-formed.

2. 33 hour Stage :

- (i) Neural folds unite dorsally and the neural tube is formed.
- (ii) At the anterior end there is a little ventral flexion of the head process.
- (iii) Optic vesicles are well developed.
- (iv) The vesicles of the fore brain, mid-brain and hind-brain are formed.
- (v) Distinct notochord is present.
- (vi) **Heart** is thin wall and 'S' shaped.
- (vii) There are two large **omphalomesenteric veins**.
- (viii) Indication of the development of the aortic arches is evident.
- (ix) Pellucida, opaca, vasculosa and vitellina areas are easily distinguishable.
- (x) Primitive streak is visible at the posterior end.
- (xi) Twelve pairs of somites are present.

3. 48 hour stage :

- (i) Embryo shows cranial flexure and twisting of head over the right side.

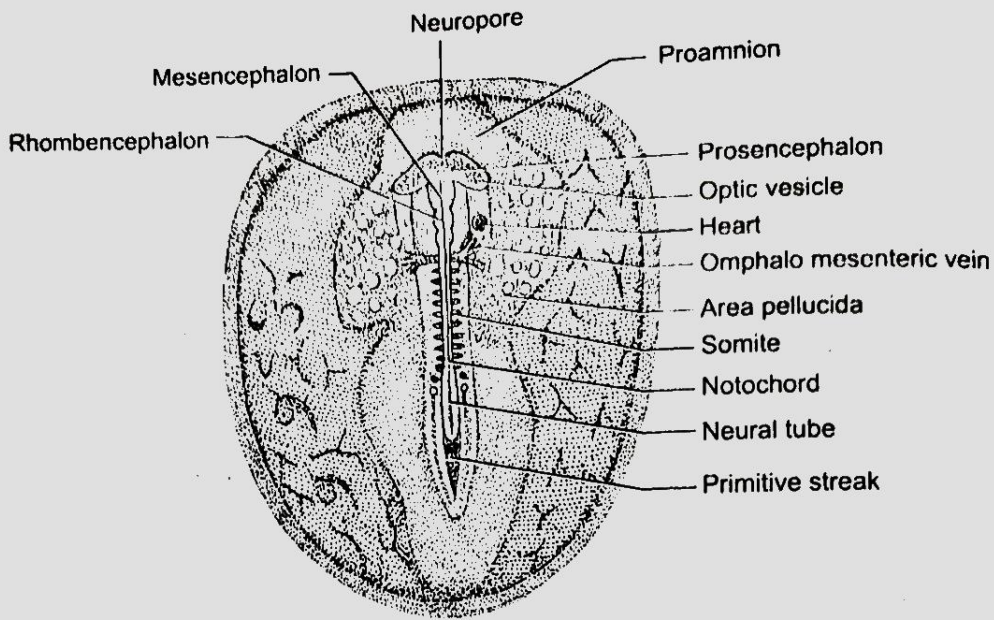


Fig. 3.2.2.3 : 33 hours stage of entire chick embryo.

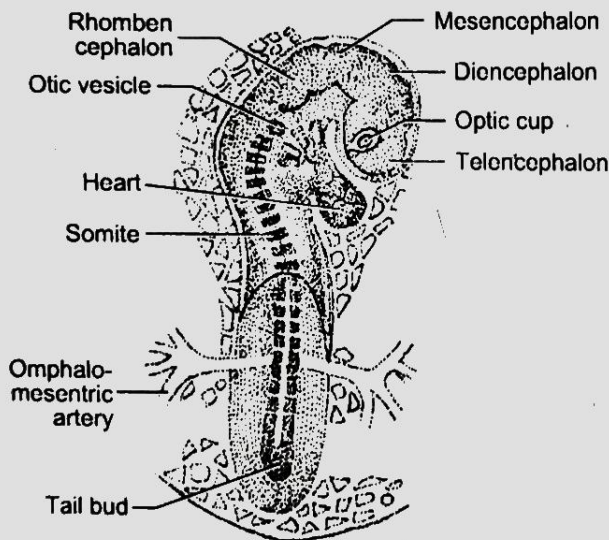


Fig. 3.2.2.4 : 48 hours stage of entire chick embryo.

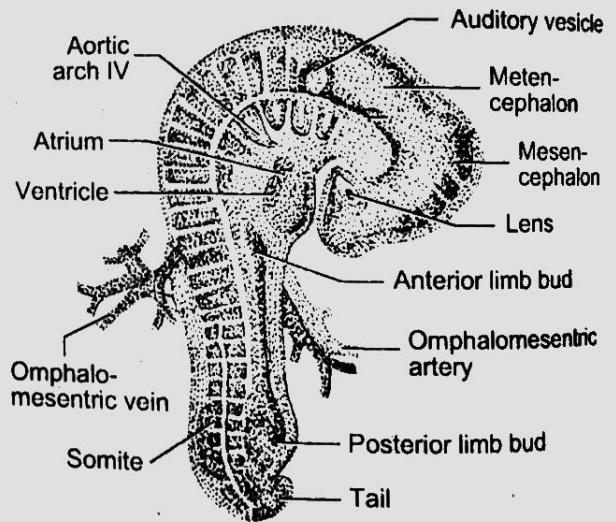


Fig. 3.2.2.5 : 72 hours stage of entire chick embryo.

- (ii) Fore, mid and hind brain distinct and fore brain takes the anterior most places.
- (iii) Heart is differentiated into ventricular, arterial and sinus region.
- (iv) Second aortic arches develop.
- (v) Vitelline veins and the arteries are distinct.
- (vi) Somites are 26 pairs.

4. 72 hour stage :

- (i) Torsion as well as flexure is increased thus bilateral symmetry is lost.
- (ii) Lumbar flexure and caudal flexure in the tail region.
- (iii) A four pair of pharyngeal pouches have appeared.
- (iv) First four aortic arches visible.
- (v) Area vasculosa considerably expanded

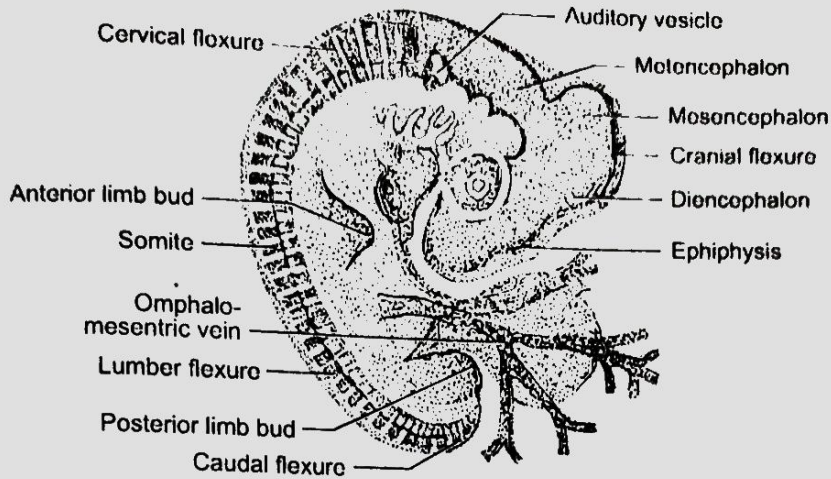


Fig. 3.2.2.6 : 96 hours stage of entire chick embryo.

and vitelline arteries and veins are well developed.

- (vi) Eye develops *lens*.
- (vii) Mesodermal somites are thirty five pairs.
- (viii) Limb buds are visible.

5. 96 hour stage :

- (i) Flexure and torsion are much more complete and gives the embryo a 'C' shaped appearance.
- (ii) **Head, trunk and tail** are clearly demarcated.
- (iii) Very large vitelline veins and arteries are visible.
- (iv) Wing buds and leg buds appear.
- (v) Somites are continued up to tail process and there number is forty two pairs.

B. Identification of transverse sections of chick embryo at different stages of development

1. T.S at 24 hour stage :

(a) T.S through head :

- (i) T.S shows ecto, endo and mesoderm.
- (ii) **Splanchnopleure** of the either side bends towards the middle line along the lateral margin of the intestinal portal.
- (iii) Neural plate ectoderm folding to form a neural groove.
- (iv) Notochord is situated below the neural plate.
- (v) Gut is immediately caudal to anterior intestinal portal.

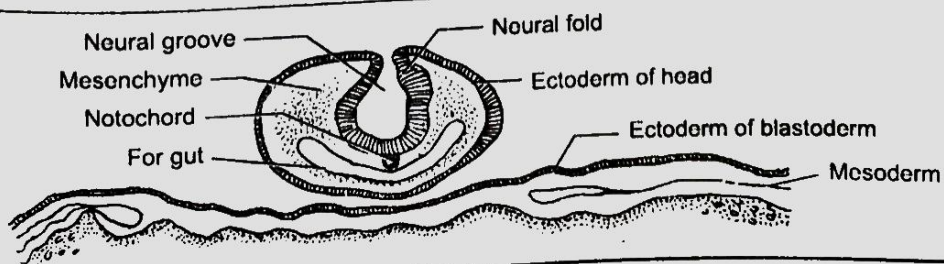


Fig. 3.2.2.7 : T.S. of 24 hours stage of chick embryo through head region.