

LARVAL FORMS OF ECHINODERMATA

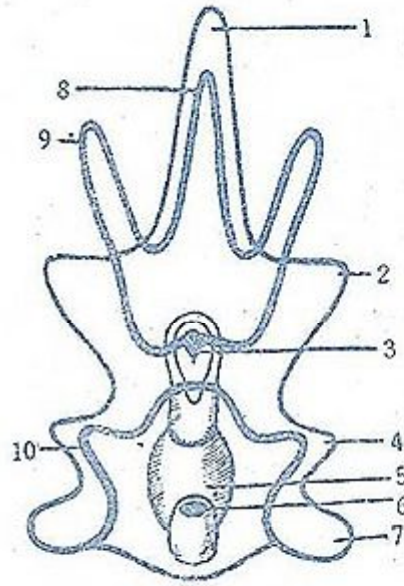
- In echinoderms eggs and sperms are released in water and fertilization takes place in water forming zygote.
- Echinoderms are deuterostomes and hence cleavage is radial, holoblastic and indeterminate.
- The larvae hatch in water and feed and grow through successive larval stages to become adults.

1. DIPLEURULA

- Fundamental larva of all echinoderms
- Microscopic and free-swimming
- Bilaterally symmetrical
- Has a gut and two ciliary bands, namely a perioral band and adoral band
- Feeds on diatoms

2. BIPINNARIA

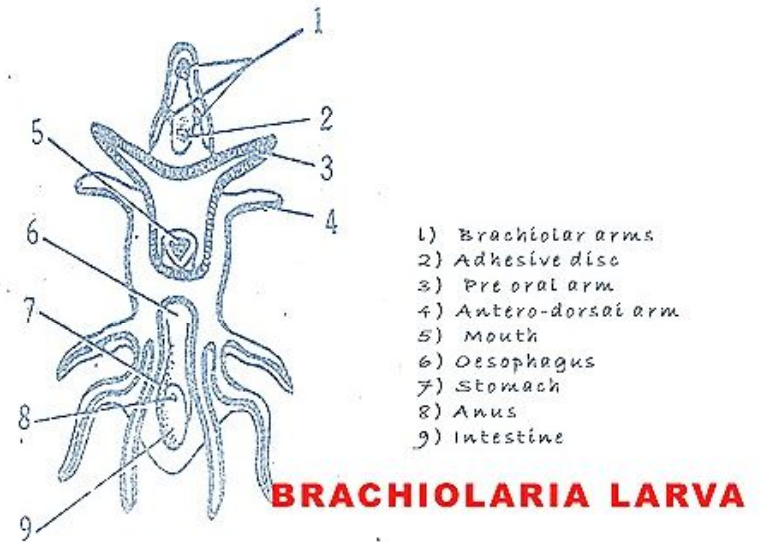
- Second larva of starfish
- Microscopic, free-swimming,
- bilaterally symmetrical
- Gut is in the shape of “7”
- The cilia are concentrated into bands arranged in a particular pattern called the arms
- Has 2 unpaired and 5 paired arms
 - Ventro-median arm, dorso-median arm
 - Pre oral arms, post oral arms, antero-dorsal arms, postero-dorsal arms, postero-lateral arms



1. Dorso-Median arm
2. Dorso-lateral arm
3. Mouth
4. Postero-dorsal arm
5. Stomach
6. Anus
7. Postero-lateral arm
8. Ventro-median arm
9. Pre-oral arm
10. Post oral arm

BIPINNARIA LARVA

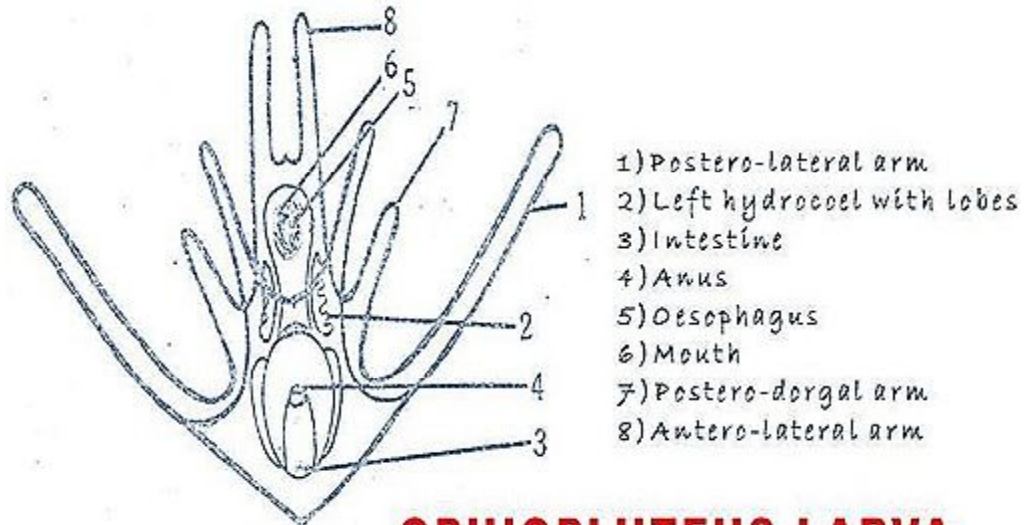
3. BRACHIOLARIA



- Third larva of starfish
- Formed after 6-7 weeks of life and growth of bipinnaria
- Pre-oral region has three arms called brachiolar arms
- Arms are provided with suckers

4. OPHIOPLUTEUS

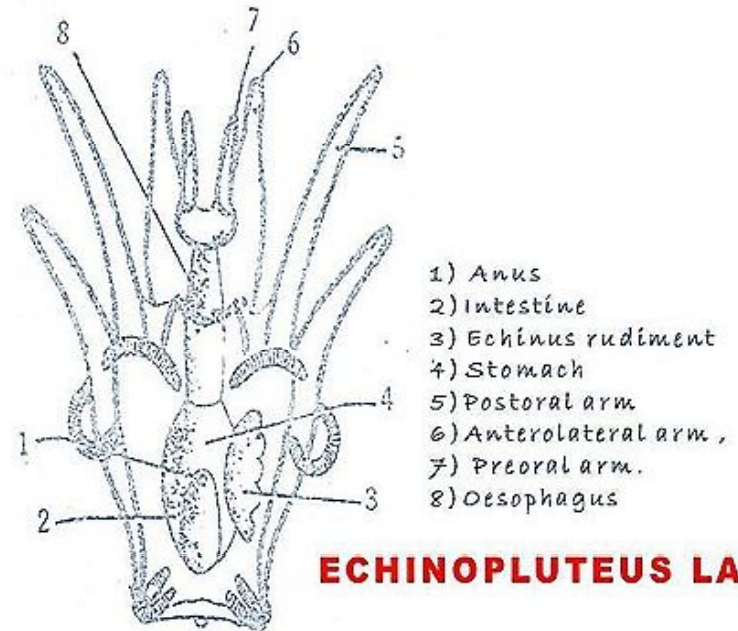
- Larva of Ophiuroidea
- Arms are supported by calcareous rods
- Has 4 pairs of arms
 - Pre-oral
 - Post-oral
 - Postero-dorsal
 - Postero-lateral



OPHIOPLUTEUS LARVA

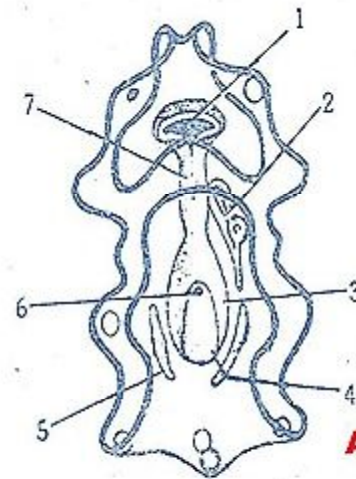
5. ECHINOPLUTEUS

- Larva of Echinoidea
- Arms are supported by calcareous rods
- Provided with 1 unpaired and 6 paired arms
 - Median posterior arm
 - Preoral, post oral, anterolateral, anterodorsal, posterolateral, posterodorsal



6. AURICULARIA

- Larva of Holothuroidea
- Single ciliated band
- Arms without calcareous rods that are not distinct

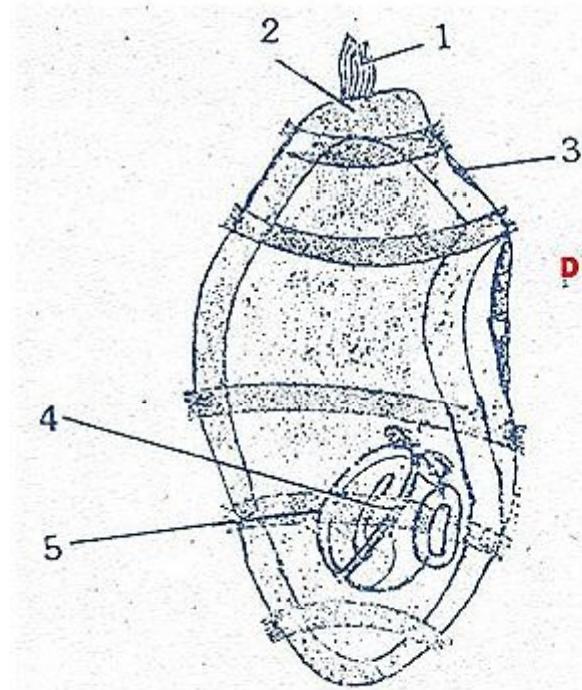


- 1) Mouth
- 2) Hydrocoel
- 3) Stomach
- 4) Intestine
- 5) Right omatocoel
- 6) Anus
- 7) Pharynx

AURICULARIA LARVA

7. DOLIOLARIA

- Larva of Crinoidea
- Free-swimming, bilaterally symmetrical, barrel-shaped
- Has 4 or 5 ciliary bands
- Anterior end bears apical plate, apical tuft and adhesive pit

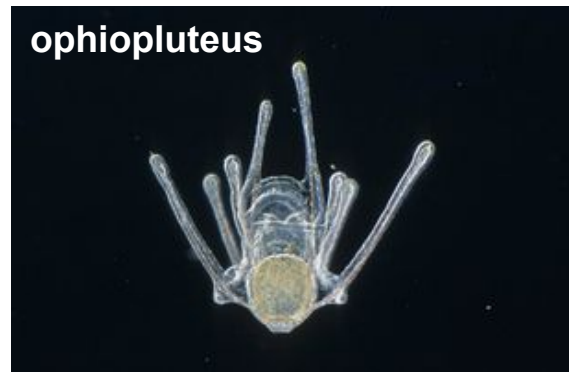
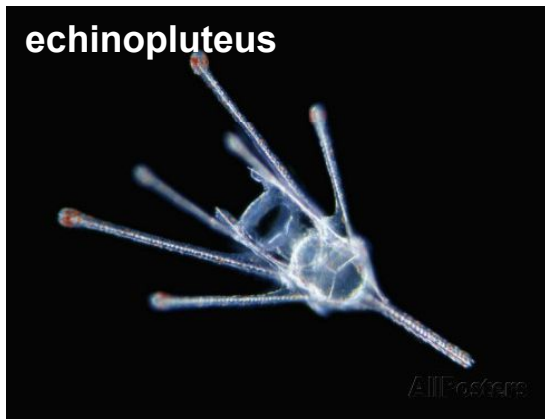
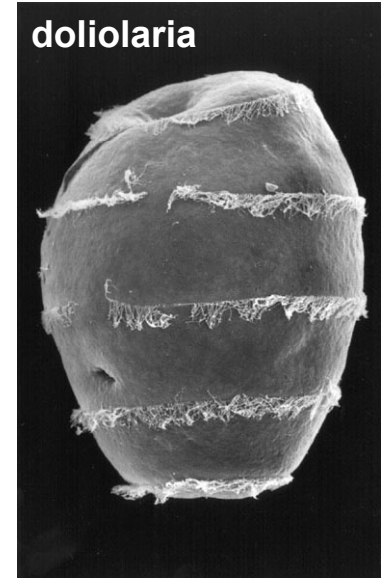
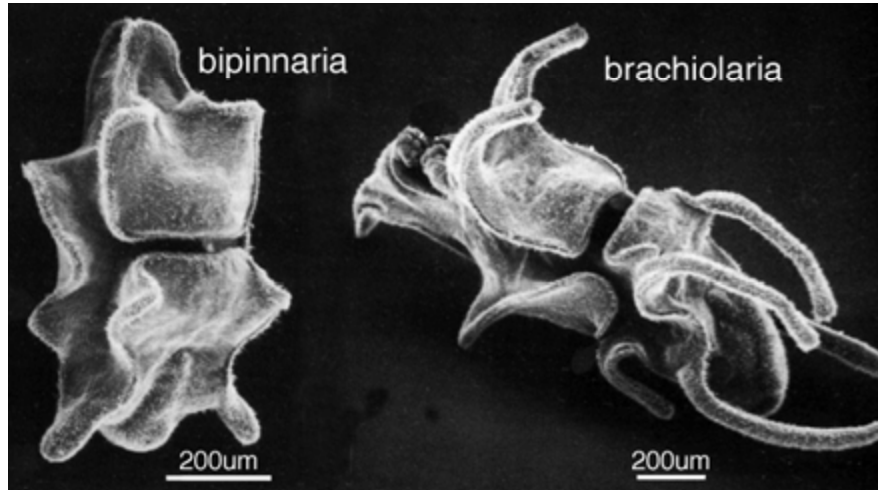


DOLIOLARIA LARVA

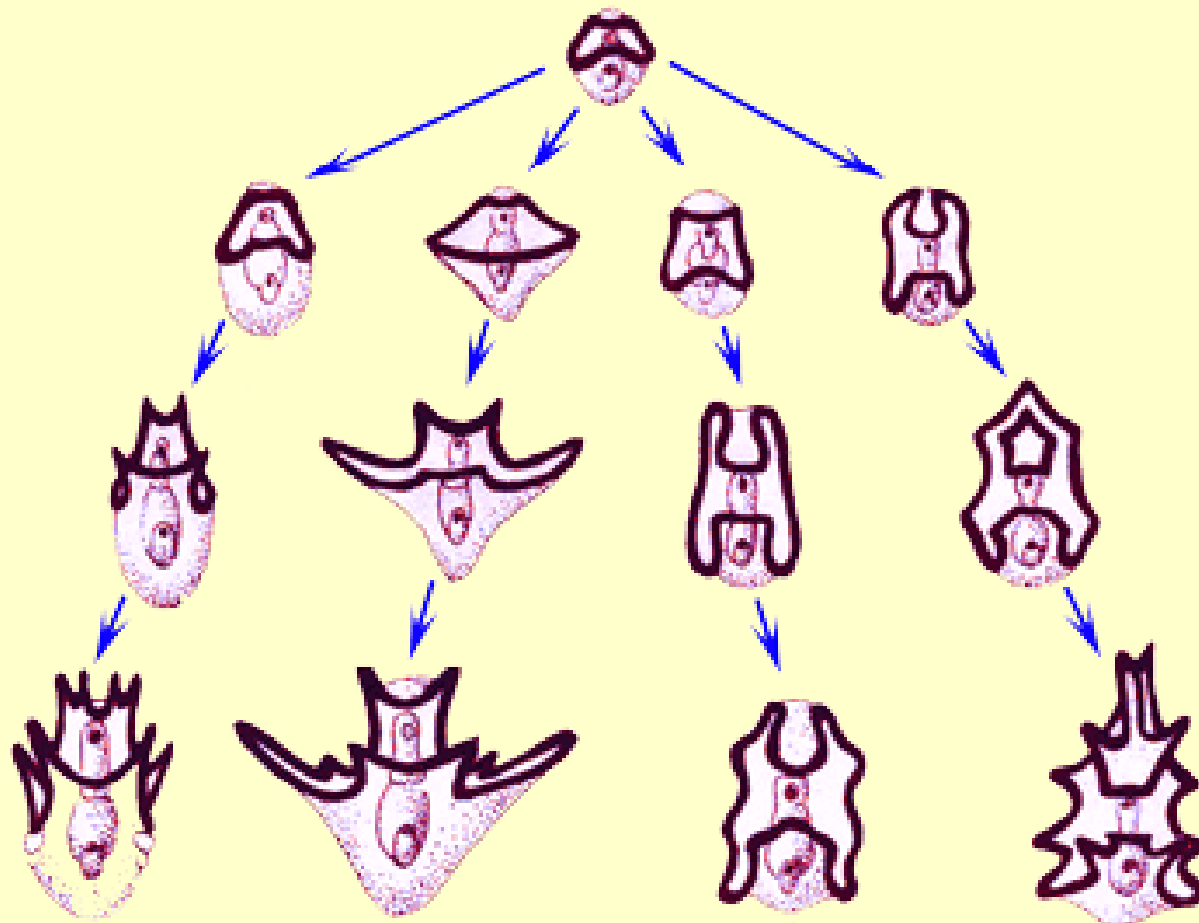
- 1) Apical sensory tuft
- 2) Apical plate
- 3) Adhesive pit
- 4) Primary mesenteron
- 5) Enteric sac

8. PENTACRINOID

- Second larva of Crinoidea
- Has stalk attached to the substratum with a disc
- Free end bears crown with mouth and tentacles



Dipleurula



Echinopluteus

Ophiopluteus

Auricularia

Brachiolaria

METAMORPHOSIS

- A change in the form and often habits of an animal during normal development after the embryonic stage.
- Bilaterally symmetrical larva becomes radially symmetrical adult
- Alteration of the position of the mouth
- Metamorphosis is retrogressive. Advanced larva becomes a primitive adult possessing characters of lower animals