**Affinities of Echinoderms**:

The echinoderms, especially their larval forms, attract the attention of many Zoolo­gists due to the presence of many striking similarities between themselves and between different other groups of animals.

Relationship with Annelida:

A number of early workers have estab­lished affinities between the trochophore larva of annelids and some echinoderm lar­vae on the basis of the presence of similar ciliated bands and some other superficial similarities.

But these affinities are not based on any scientific ground because cleavage pattern is spiral in annelida but radial in echinoderms; coelom formation is schizocoelic in annelids but enterocoelous in echinoderms.

Relationship with Brachiopoda:

Some superficial similarities are also noted in between the early developmental stages of Brachiopoda and Echinodermata.

The similarities are:

1. Cleavage is holoblastic,

2. Blastula is a coeloblastula,

3. The coelom is enterocoelous in the members of the class Articulata of phylum Brachiopoda,

4. The members of class Articulata have free-swimming larval stage. However, these affinities are only superficial.

Relationship with Chordata:

The most convincing affinities are noted between the echinoderms and the chordates. Hence many workers regarded the echinoderms to be the nearest group to the chordates. However, modern workers do not support the contention and they hold that the echinoderms and the chordates diverged separately from a common basic ancestor.

The affinities are discussed below:

1. Mesodermal skeletal substance is present in both.

2. Presence of infra-epidermal nervous system in hemichordata.

3. The perforations on the calyx of carpoid echinoderms are compared with pha­ryngeal gill-slits of Amphioxus.

4. Needham (1932) has tried to show a relationship between these two groups by analysing biochemical evidences. Invertebrates have the phosphogen in the form of arginine phosphate whereas chordates usually have creatine phos­phate. But the echinoids among echinodermata and hemichor-dates among Chordata have both arginine phosphate and creatine phosphate.

5. Wilhelmi (1942) has shown similari­ties between the two groups by sero­logical tests as well.

6. Cleavage is radial, holoblastic.

7. Blastopore changes into anus.

8. Enterocoelous mode of coelom forma­tion.

9. The similarities between adult echinoderms and chordates are very few, but the affinities between the lar­val forms are highly notable.

Metschnikoff (1869) tried to show the following affinities between the torn aria larva of Balanoglossus and the bipinnaria and auricularia larvae of the echinoderms:

1. free-swimming and bilateral symmetrical larvae in both,

2. transparent body with similar ciliated bands,

3. enterocoelous coelom with similar disposition,

4. similar lo­cation of mouth and anus,

5. the madreporic vesicles in bipinnaria are thought to be homologous with heart vesicle of Balanoglossus.