

TRILOBITES

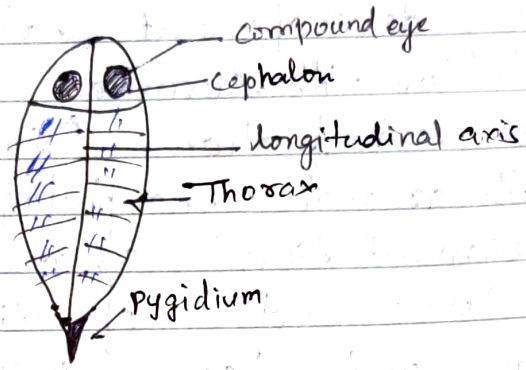
- Trilobites are considered as most primitive arthropod among 1st Cambrian arthropods discovered. This was proved to be wrong on the other hand trilobites are considered as advanced among Paleozoic arthropods.
- These provide excellent example of prolonged morphological development, with incremental changes during evolution with common adaptive strategies.
- These has calcification (biomineralisation) which is coupled with gradual morphological development like segmentation among diff. groups indicating the co-evolⁿ of diff. aspects of segmentation and body patterning.
- Role of regulatory evolution and paleoenvironmental changes set the evolution trajectory of clad as a whole.
- Mixed taxonomic signals in respects of their association with diff. taxa involved the maintenance of common ancestor of all living arthropods with respect to tagmosis (alternative of segmentation) and instars.
- Trilobites had 100 million years of expansion of their taxonomic and ecological diversity followed by a prolonged decline lasting approximately 200 mys.
- This phase of expansion and contraction explore the adaptive and environmental context of a major diversity fluctuation in an early euarthropods over the extended interval of geological time.

Trilobites - Body Plan:

These are fossil grp. of marine arthropods with heavily

calcareous exoskeleton populated ocean about 520 mya and got extinct about 250 mya.

As the name suggests, trilobites had 3-lobed body plan which derives from distinction b/w elevated longitudinal axis and flattened region



TYPICAL TRILOBITES.

- Trilobite body is divided from anterior to posterior into distinct head region which contain mouth, stomach, eyes and antennae.
- Trunk region contain segmented body plan which was clearly evident.
- In mature trilobite, trunk is further divided into thoracic region in which skeleton segments are ~~see~~ articulated with their neighbours and terminal shield (pygidium) within which all segments are tightly conjoint.
- Trilobites had oldest compound eyes with well preserved biomineralised cuticle and has been described in 10 different species.

Peculiarity and speciality of trilobites.
Convergence of different trilobite groups (lineages)

suggests the common adaptive strategies such as tendency towards tight enrollment as protection against predators and also to ensure the biotic interactions influenced by evolutionary changes within group.

- The pattern of evolutionary radiation in species diversity with abrupt diversity crashes indicates the highly fluctuating physical conditions particularly rapid extinction which play an important role in evolutionary history of a clad.
- Calcification in early ontogenic development coupled with gradual progressive morphological development permitted the recognition over 100 trilobite species. Striking variation in no. of ~~trunk~~ trunk segments at maturity across ontogenic and phylogenetic associated with curious body pattern provides the opportunities to explore the co-evolution of different aspects of segmentation and body patterning.
- Striking gradual rise in degree of intra-specific variation in afterward of cambrian radiation offers an opportunity to access the role of regulatory evolution and palaeoenvironmental changes to safe the evolutionary trajectory of this salient group.
- These had essence of mixed taxonomic signals although they didn't depart ^{differ} far from common ancestor of all living arthropods particularly in the overall low degree of body and specialisation and gradual pattern of development achieved to see living larval forms.