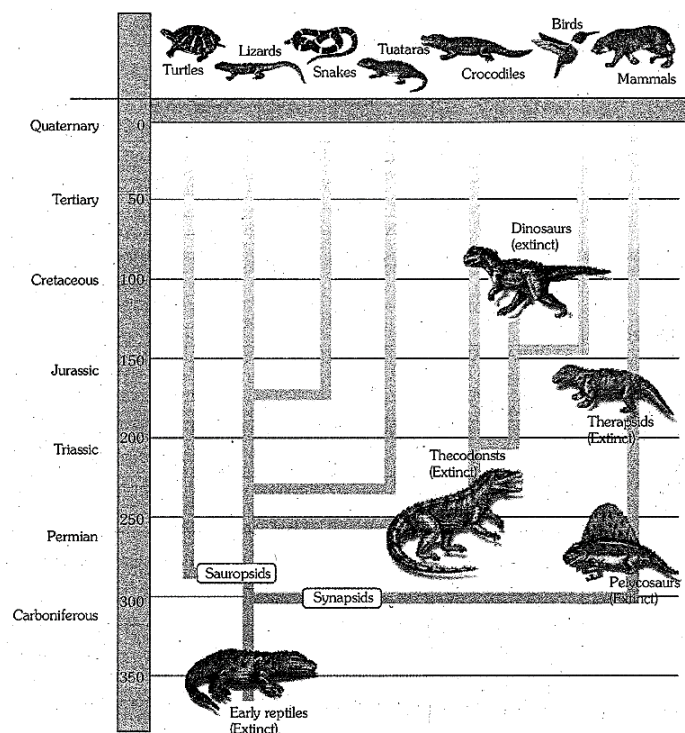


## EVOLUTION

### A BRIEF ACCOUNT OF EVOLUTION

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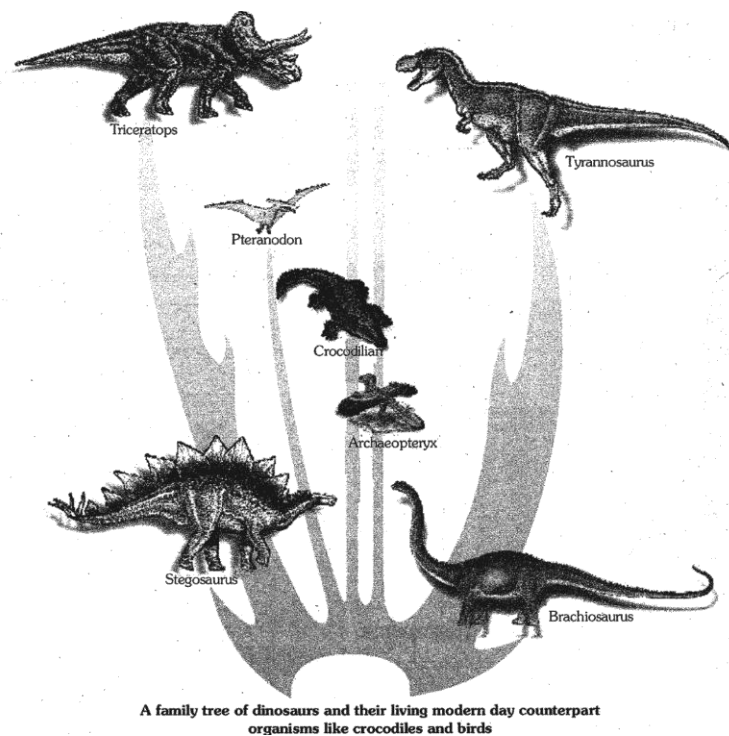
- About 2000 million years ago (mya) the first cellular forms of life appeared on earth.
- By the time of 500 mya, invertebrates were formed and became active.
- Jawless fishes probably evolved around 350 mya.
- Sea weeds and few plants existed probably around 320 mya.
- The first organisms that invaded land were plants. They were widespread on land when animals invaded land.



Representative evolutionary history of vertebrates through geological period

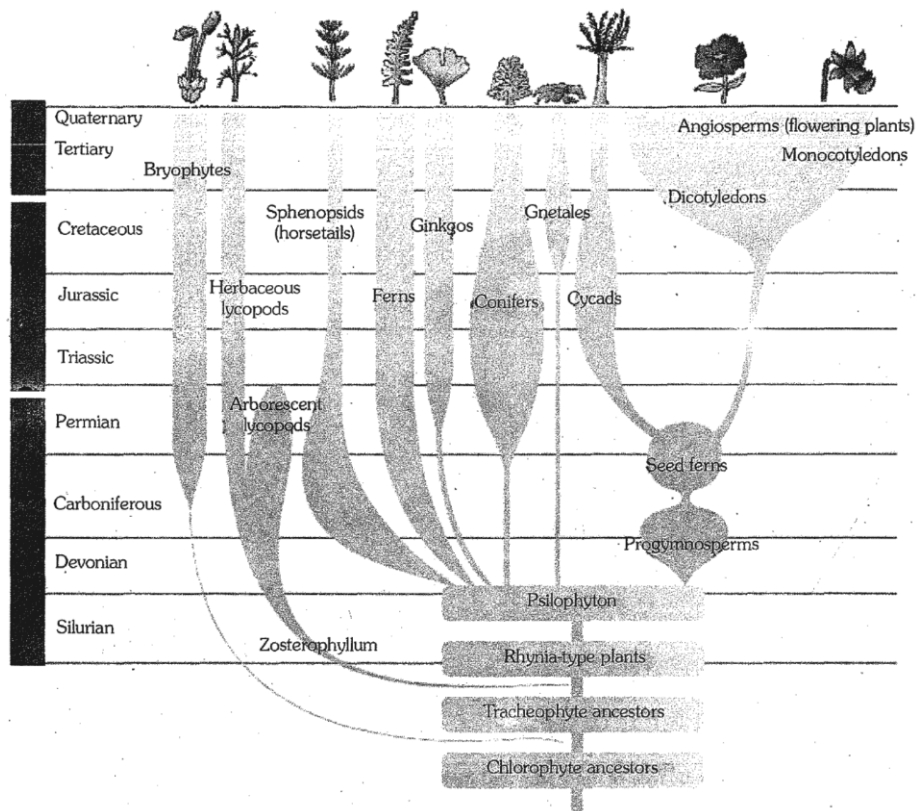
- Fish with stout and strong fins could move on land and go back to water. This was about 350 mya. In 1938, a fish caught in South Africa happened to be a Coelacanth which was thought to be extinct.

- These Coelacanth or lobe-fins evolved into the first amphibians that lived on both land and water. There are no specimens of these left with us. However, these were ancestors of modern day frogs and salamanders.
- The amphibians evolved into reptiles. They lay thick shelled eggs which do not dry up in sun unlike those of amphibians. Again we only see their modern day descendants, the turtles, tortoises and crocodiles.
- Synapsids were the mammal like early reptiles which gave rise to mammals.
- Sauropsids were the lizard like early reptiles which gave rise to different dinosaurs, modern reptiles and birds.



- In the next 200 million years or so, reptiles of different shapes and sizes dominated on earth.
- Giant ferns (pteridophytes) were present but they all fell to form coal deposits slowly.
- Some of the land reptiles went back into water to evolve into fish like reptiles probably 200 mya (e.g. Ichthyosaurs).
- The land reptiles were, of course, the dinosaurs. The biggest of them, was Tyrannosaurus rex about 20 feet in height and had huge fearsome dagger like teeth.

- About 65 mya, the dinosaurs suddenly disappeared from the earth. We do not know the true reason. This may have happened due to (i) Climatic changes killed them or (ii) Meteorite collisions killed them. The truth is still unknown.
- Small sized reptiles of that era still exist today.
- The first mammals were like shrews. Their fossils are small sized.
- Mammals were viviparous and protected their unborn young inside the mother's body. Mammals were more intelligent in sensing and avoiding danger at least.
- When reptiles came down mammals took over this earth.



A sketch of the evolution of plant forms through geological periods