

## Theories of Evolution

Pre-Darwinian Ideas of Evolution — This can be divided into three parts (1) Theory of eternity i.e. life forms remain unchanged forever (2) Theory of special creation i.e. everything in the world is created by God (3) Theory of Catastrophism introduced by Cuvier, a palaeontologist believed that catastrophes bring about the <sup>death of</sup> old fauna and their extinction causes creation of new fauna.

Lamarck's Theory — Inheritance of acquired characters — The first modern theory of evolution was put forward in 1809 by the French biologist Lamarck. His theory can be resolved into three factors (1) influence of the environment — i.e. individuals of same species grown under diff. environmental conditions show marked differences which accumulate through successive generations to produce new species.

(2) Use and disuse of parts — These differences in changes in case of animals are brought about by use and disuse of body parts. Use results into development of that part and disuse results into degeneration of that part. (3) Inheritance of acquired characters i.e. new characters, however minute are preserved and transmitted to the offspring ex — long neck of Giraffe.

Darwin's Theory : Natural Selection — In 1859, an English biologist Charles Darwin published his book "Origin of Species" in which he propagated his theory of natural selection

It is based on three important factors (1) Over-production of offspring and consequent struggle for existence i.e. if all the offsprings are going to live increase in population will go on a competition for food, water and space and that will result into destruction of large no. of individuals (2) Variation and their inheritance i.e. no two individuals, even coming out of the same parents are exactly alike. There are always some variations, however minute they may be. Some variations are related to the environmental conditions while others are not. These minute variations are preserved and transmitted to the offspring although no cause for these variations was assigned by him (3) Survival of the fittest — in the struggle for existence the individuals with favourable variations survive and these variations are transmitted to the offspring and those with unfavourable variations perish. Survivors gradually and steadily change generation after generation and ultimately give rise to new forms, which are better adapted to the environment (4) Natural selection — All the above mentioned theories lead to species change steadily. It is environment that selects and preserves the better types and destroys the unsuitable forms.