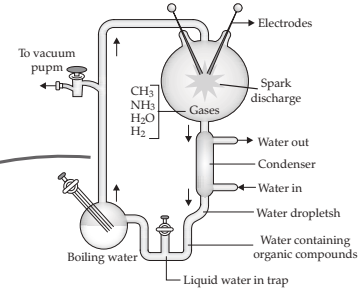
MIND MAP : LEARNING MADE SIMPLE

CHAPTER - 7

Evolution

- Theories
  - Theory of Biogenesis
  - Theory of Chemical Evolution
  - Theory of Panspermia
  - Theory of Spontaneous Generation
- Origin of Life- Urey and Miller's Experiment

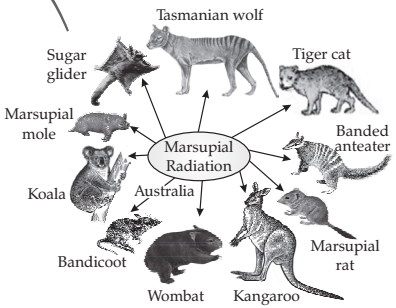


- Human Evolution

Human ancestors	Origin period
Dryopithecus	20-25 mya
Ramapithecus	14-15 mya
Australopithecus	3-4 mya
Homo habilis	2 mya
Homo erectus (java man)	1.5 mya
Homo sapiens neander-thalesis (primitive man)	1,00,000-40,000 years ago
Homo sapiens sapiens (modern man)	75,000-10,000 years ago

- Hardy Weinberg
  - Factors affecting
    - Gene Migration
    - Genetic drift
    - Mutation
    - Genetic recombination
    - Natural Selection
- Mechanism
  - Saltation by De Vries
  - Single Step Mutation
- Theories of Biological Evidences
  - Lamarckism
    - Proposed by Lamarck.
    - E.g. Long neck of giraffe.
  - Darwinism
    - Proposed by Charles Darwin as Theory of Natural Selection.
- Evidences
  - Paleontological Evidence
    - By study of fossils
    - Fossils help to study phylogeny, connecting link and about extinct animals.
  - Morphological & Anatomical
    - Homologous Organs
      - Human hand, Whale's flippers, Bat's wing, and Cheetah's foot.
      - Thorns of Bougainvillea and tendrils of Cucurbita.
    - Analogous Organs
      - Wings of insects and wings of birds.
      - Eyes of Octopus and mammals
      - Flipper of Penguins and Dolphins.
      - Sweet potato (modified root) and Potato (modified stem).
  - Bio Geographical
    - Adaptive Radiation
      - Darwin Finches

      - Marsupial Radiation



  - Placental Mammals
    - E.g., Placental wolf and Tasmanian wolf-marsupial.
  - Bio-Chemical
    - Similarities in proteins and genes.
  - Embryological
    - Similarities in embryo development.