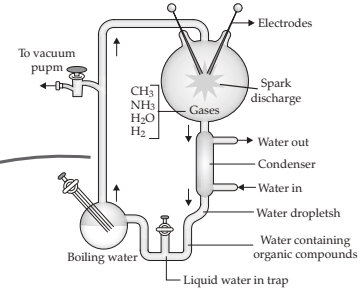
MIND MAP : LEARNING MADE SIMPLE

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

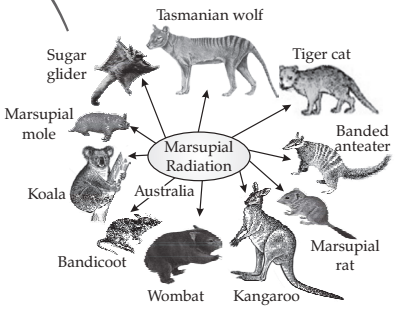


- **Human Evolution**

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

- **Mechanism**
  - Hardy Weinberg
    - Factors affecting
      - Gene Migration
      - Genetic drift
      - Mutation
      - Genetic recombination
      - Natural Selection
  - 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.

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