Origin of life

THEORIES FOR THE ORIGIN OF LIFE

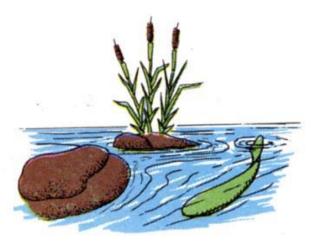
The various theories that have been offered to explain the original of the life are as under:

- 1. Theory of Spontaneous Generation
- 2. Theory of Special Creation
- 3. Theory of Cosmozoa
- 4. Theory of Panspermia
- 5. Theory of Chemosynthesis (Phase I-VI)

Spontaneous Generation

- For much of history, people believed that animals could come from non-living sources. They thought:
 - Frogs developed from falling drops of rain
 - mice arose from sweaty underwear
 - and flies arose from decaying meat.
- This is called abiogenesis
- Also known as spontaneous generation







Spontaneous Generation

ABIOGENESIS- creation without life.

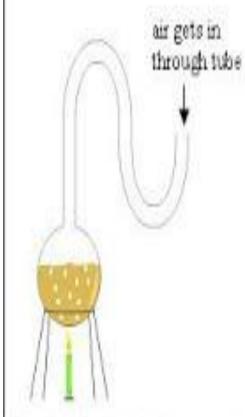
Spontaneous Generation was the mistaken idea that life can arise from non-living materials. We now believe the cell theory. The cell theory states that all cells come from pre-existing cells.

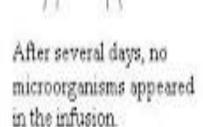
- Ancient Egyptians believed that eels and frogs came from the mud of the Nile.
- Aristotle "active principle" responsible for life:

fleas come from sweat
mice come from garbage
flies and maggots come from dead and
decaying meat

FIGURE 1.4

Pasteur's Experiment





microorganisms

trapped in curve



The flask was tipped to allow the trapped microorganisms to enter the infusion.



Microorganisms quickly multiplied in the infusion.

The infusion was boiled for a long time to kill all microorganisms present.

- Until the middle of 19th century, life was presumed to be created some super natural power or creator once or at successive interval
- This theory holds that all life forms have been specially designed a created by the "creator" or "God"
- This view point, common to most religion, including Islam is the older hypothesis
- The Biblical story of creation of life and world within six days was given by Spanish monk Father Suarez (1548-1617 AD).
- He described that earth and heaven were created on the <u>first of</u> and sky on the <u>second day</u>. Plants and animals originated on the <u>third day</u>, while the sun, the moon and stars were created on <u>four day</u>; the <u>birds and fishes</u> appeared on <u>fifth day</u> and finally men a <u>beasts</u> were created on <u>sixth day</u>. The woman was constricted <u>seventh day</u> from the 12th rib of man

- 2. Cosmozoic theory (panspermia theory):
- ✓ Richter in 1865
- Life on earth came from different planet in the form of spores or microorganisms.
- ✓ This is called cosmozoa or panspermia which were preserved inside meteorites.
- These meteorites struck into barren earth to release cosmozoa and helpin development of various creature.

Crick and Orgel: panspermia theory

STAGES OF CHEMOSYNTHESIS

- Formation of simple organic compounds.
- Formation of major organic macromolecules.
- Formation of cell-like aggregates called coacervates.
- Coacervates become more organized with use nucleic acids.
- Beginning of evolutionary development.
- Appearance of <u>autotrophic bacteria</u>.