



# GST 106: History and Philosophy of Science

## TOPIC: **The Origin and Nature of Man**

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# THE ORIGIN OF MAN

Man in this sense refers to any human regardless of sex or age. A man is a being, a creature, whose destiny is to live in the spiritual and physical or material world. Living in the spiritual world means that he is called by God to live with him in his kingdom while the physical world means that he is part of the world living among other entities such as plants and animals.

- ❖ One of the most important questions facing every man, woman, boy and girl is the question:

- ❖ where did humans come from?

- ❖ How did man originate?

Of course, this question can be answered very simply by all of us. Each person can say, "I came from my parents, and I originated from them."

- ❖ But, where did your parents come from? "They came from my grandparents!"

- ❖ And where did your grandparents come from? "They came from my great grandparents!"

- ❖ These answers are all true, but they do not get us back to the very beginning.

- ❖ We need to go back all the way to the true source.

- ❖ We know who our parents are and who our grandparents are etc.,

- ❖ but who were our first parents?

- ❖ To answer this question, the theories revealing how life on earth began will be discussed.

# Theories of the Origin of Life

1. **The theory of special creation:** Life was created by a supernatural being at a particular time.
  - ❖ This theory attributes the origin of life to a supernatural event at a particular time in the past, which cannot be studied scientifically but must be accepted on faith.
  - ❖ According to Bible (Genesis 1:1-26), the world was created within six days.
  - ❖ Plants were created on third day, fish and fowl on the fifth day and animals on the sixth day.
  - ❖ Lastly human beings were created, first man then woman.
  - ❖ It was said that, the first man (Adam), was molded by God from inanimate matter—clay, which he furnished with a soul, thus, breathing life into him.
  - ❖ The special creation theory lacks sound logic and scientifically sound evidence; therefore, it could not convince the scientists.

**2. Theory of Spontaneous Generation :** This theory believes that life originated from non-living matter spontaneously under suitable conditions.

- ❖ This concept was held by early Greek philosophers like Thales, Anaximander, Xanophanes, Empedocles, Plato, Aristotle, etc.
- ❖ It was believed that certain particles of matter contained an active principle which could produce a living organism when conditions were suitable; these particles with active principles include, fertilized egg, mud, sunlight and decaying meat which under suitable conditions will give rise to life.
- ❖ In ancient Egypt, it was believed that the mud of the Nile could give rise to frogs, toads, snakes, mice and even crocodiles when warmed by the sun.
- ❖ In China, for example, even from the earliest times, there was a belief in the spontaneous generation of aphids or other insects under the influence of heat and moisture.

- ❖ In sacred books of India there are indication of the sudden emergence of various parasites, flies, and beetles from sweat and manure.
- ❖ It has been deciphered from Babylonian cuneiform texts that worms and other creatures were formed from the mud of canals.
- ❖ Van Helmont (1557-1644) described an experiment where he used a dirty shirt, a dark cupboard and a handful of wheat grains; these gave rise to mice in three weeks. The active principle in this process was sweat.
- ❖ Some scientist like Francesco Redi (1626–1698), Van Leeuwenhoek (1632–1723) disproved this theory by saying that life existed from pre-existing life (biogenesis)

**3. Cosmozoic Theory (hypothesis of panspermia):** Life arrived on this planet from elsewhere.

- ❖ Some scientists of nineteenth century assumed that this planet was 'seeded' from space.
- ❖ cosmozoic theory was developed in 1865 by Richter and then supported by Thomson Helmholtz in 1884, Van Tieghem in 1891.
- ❖ According to this hypothesis, meteorites travelling through the earth's atmosphere are strongly incandescent only on the surface, while the interior remains cold.
- ❖ Thus, the embryos of organisms inhabiting meteorites were preserved alive in the interior of meteorites, finding fertile soil on earth, and grew and evolved to produce all the species now present.

Another hypothesis of panspermia which was developed by Arrhenius (1911) holds that spores of life together with particles of cosmic dust could be transformed from one heavenly body to another under the pressure of stellar rays

## 4. Theory of Chemical Evolution and Spontaneous Origin of Life at Molecular Level

- ❖ A Russian biochemist Alexander I. Oparin in 1924 has proposed that conditions on the primeval earth billions of years ago were definitely different from present conditions, and the first form of life, or self-duplicating particles, did arise spontaneously from chemical inanimate or abiotic substances.
- ❖ Thus, Oparin was the first to suggest that a long evolution of chemical substances occurred before life actually originated.
- ❖ In his book "*The Origin of life on Earth*", in 1924 he provided a biochemical explanation of origin of life.
- ❖ According to him, origin of life occurred alongside the origin and evolution of earth and its atmosphere.

- ❖ The primordial atmosphere of earth had water, methane and ammonia from which coacervate (colloidal body called containing a mixture of biologically important macromolecules like proteins, lipids, nucleic acids etc.) were formed as a result of a series of changes.
- ❖ These coacervates though were not living, but they behaved in a manner similar to biological systems by being subjected to natural selection, by being chemically directive and by having the capacity of reproduction by fragmentation.

# Human evolution

Some school of thought after much study believe that the line of human descent, *H. sapiens* share clear anatomical, genetic, and historic relationships to other primates. Of all primates, humans bear particularly close affinity to other members of a group known as hominoids (apes) (which includes orangutans, gibbons, gorillas, chimpanzees).

Humans are notable among hominoids for their bipedal locomotion, slow rate of maturation, large brain size, and, the development of a relatively sophisticated capacity for language, of sophisticated tool use and manufacture, and of complex social activity.

There are basically four types of men to which the present man evolved.

1. Australopithecine hominids: evolved almost four million years ago, They were the first beings who possessed traces of rudimentary human characteristics. They have short stature and an appearance similar to that of the Pongidae: a receding forehead and concave face
2. Homo habilis: was present in east Africa at least 2 million years ago. *H. habilis* was the first hominin to exhibit the marked expansion of the brain of about 750 cc. He has a very rudimentary trace of chin, very strong jaws, and a very thick skull *H. habilis* had evolved into a larger, more robust, and larger-brained species known as Homo erectus. (Handy man).
3. Homo erectus (*H. ergaster*): Cranial capacities ranged from about 900cc in early specimens to 1050cc in later ones. *H. erectus* persisted for over a million years and migrated off the African continent into Asia, Indonesia, and Europe.

*H. heidelbergensis*-*H. neandertalensis*, or Neanderthal man eventually became *H. sapiens*. (Upright man). Neanthropus, often simply called Cro-Magnon man. He is the one who represents, strictly Homo sapiens.

4. *H. sapiens*: This is the human type to which we belong. It has typically modern dentition. The chin is well formed; the face short and wide, with a high forehead, elongated nose, and almost no brow ridges. The bones of the skull are less and less thick

# Homo erectus

