

# Evolution: The basic science



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The Natural History speaks about all seen in Nature. This phrase was used first by Aristotle and Plini. The living, the others, astronomy and technology were seen as Natural History. Later, to distinguish the knowledge of the various life forms or species, two scholars – Lamarck and Treviranus – coined the term 'biology' which speaks about creatures' structure, life style, multiplication, reproduction and genealogy. The species' adaptations are symptomatic of the time when they originated. It is only the evolutionary biology, a branch of science, which has given us this understanding. "But for evolutionary insights, our knowledge of biology would have become meaningless," said Dobzhansky, a geneticist and evolutionary scientist.

## **Science and religion**

The time when modern scientific theories were born was dominated by the Catholic institution which imposed an

unquestioning loyalty on the people. All contrarian initiatives against the religious belief in vogue were smashed. "The earth is globular, revolving around Sun," said Galileo Galilei. Offended by his theory, the chief Catholic priests and experts pushed the scientist to be confined to his residence and done to death miserably. About 350 years thereafter, the religious leadership has sought public pardon for the injustice done to Galileo for having uttered a statement which has become the basic scientific truth today. We agree on the republican concept that religious people's sensibilities must be respected. But at the same time, we cannot deny the rights of those pursuing truth.

### **Theory of evolution**

Charles Darwin is hailed as the Father of Evolutionary Science. His book 'On the Origin of Species' was published in 1859. His contemporary Claude Bernard's (1813-1878) concept of the Constancy of the Internal Environment added strength to Darwin's theory.

Several inadequacies that emerged in the Darwinian theory were set right by the genetic theories put forward by the Austrian monk Gregor Johann Mendel and the theory of mutation propounded by Hugo de Vries. Subsequently, neo-Darwinistic and neo-Lamarckistic theorists' researches paved the way for the new Theory of Evolution. Today it has been accepted as a scientific truth that both man and tailless monkey were descended from the same branch. Paul Amos Moody said in the epilogue to his book 'Introduction to Evolution': "The Bible is the book of faith, not the book of science." It is this clarity of thought which distinguishes us from the religious fundamentalists.

A religious believer need not present proofs or evidence for what he/she believes is right. Faith is a matter of individual right. But science is unlike religion. Science will accept only what has been repeatedly proved by experiments and examination.

### **Evolutionism, a discipline of science**

Evolutionism is a discipline rooted in the scientific fundamentals. It is a field based on evidences thrown up by various disciplines including archaeology, cellism, genealogy and bio-chemistry. All species ranging from micro-organism to Homo sapiens are made of cells. The way the cells function is common to all species.

The basic structure of the displacement organs in all mammals - fish, frog, lizard, bird and man - is the same. In different groups, these organs have evolved in many ways such as fins, legs, and wings. The hemoproteins and endocrine glands found in humans and apes have important common characteristics.

Just as in computer programming, a program functions in a fetus. It can be called genetic algorithm. As a fetus evolves into a human child, its evolutionary history happens again. It passes through the stages of a single-celled organism, double-stranded species, worm, fish, frog and mammal - before attaining the human form. "The progress of a foetus is a re-happening of the evolutionary history," said Ernst Haeckel.

Evolution theory and concept of equality

If the 160 crore years when the evolution of species happened is compared to 24 hours of a day, we can say that the arrival of the primitive man happened at 23.55 at midnight.

Then, how did man, who arrived at the end, acquire 1.6 billion years of life adaptations and behavioral components? Each generation has done its job preserving the components of behavior as collective memory and passing them on to the next generation. No doubt, man inherited his attributes from those animals. In that respect, man is the relative of all species.

Coral reefs are diverse. The shape of the reef that each coral species form is unique. No matter how many times the reefs are demolished, the servant termites rebuild the nests in just two months, with the same shape and sophistication, to almost the

same size. It is strange how the servant termites, with a life span of only 60 days, learn this art and pass it on to the younger generation. The plan of the nest/burrow that bees and termites form, and the architectural sophistication are part of the collective memory of group experiences passed on from generation to generation. Evolutionary science is all about memory and follow-up.

### **Need for alternative to anthropocentric view**

In the Indian context, it has been happening since time immemorial that religious beliefs are invoked to uphold the caste hierarchy system. The Tamil-speaking world has put forward a

wonderful concept: "Birth is common to all living beings." This means that all human beings are equal. The view that man is the supreme of all beings is also against nature. It is an anthropocentric concept that the human race claims superiority on the basis of the evolutionary hierarchy. It is an extension of this view that nature and other living beings can be destroyed for fulfilling the needs of man. In fact, it is micro-organisms who are our primogenitors. In fact, the best perspective is to turn the evolutionary ladder upside down. The best way to transcend the anthropocentric outlook is to understand the evolutionism.

Finally, to deny the theory of evolution is tantamount to denial of science. The efforts to negate truth will hurtle mankind back to the Stone Age. Such efforts must be nipped in the bud. Educational institutions like the NCERT must reconsider the idea of removing the evolutionary science subject from the school curriculum. The Government of Tamil Nadu should also act to stall such an eventuality.

**Translated by V. Mariappan.**