

EVOLUTION IS A FACT

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Understanding evolution has become very important in recent times, because of the inane statement made by minister Satyapal Singh that Darwin's theory is scientifically wrong. The theory of evolution is probably the greatest piece of information that the human mind is capable of understanding, and certainly Darwin's greatest contribution to science. But it is antithetical to all religions (which are also created by the human mind): for example, Christianity (of which Darwin was a part) and Hinduism (of which Satyapal Singh is a part).

Part of the problem is that evolution happens on time scales that the human mind cannot easily comprehend – evolution has been happening for billions of years (the time scale of Earth's history), whereas the human mind is less than 50 thousand years old. Our current understanding is that complex multi-cellular life forms appeared on Earth only about 500 million years ago, representing about 15 percent of the entire history of life on Earth. Since humans are a part of multi-cellular organisms, all complex life on Earth had a common ancestor 500 million years ago.

It is correct to say that monkeys are our cousins since we had a common ancestor in the past. However, this monkey-like ancestor must have lived a few million years ago, and humans and monkeys evolved separately since then. Thus, the modern monkey we see today is completely different from modern humans, because both creatures represent the ends of evolutionary branches starting from a common branch. It is therefore incorrect to think that monkeys transformed into humans in the recent past, as mistakenly stated by Satyapal Singh.

The feeling that the Vedas contain all scientific knowledge known to man is not new. It was stated way

back in 1939 by Anilbaran Roy (a Vedic "scholar") in response to a speech given by Meghnad Saha at Santiniketan. Roy claimed that Hindus knew about evolution, because the incarnations (*avatars*) of Vishnu mentioned in the Vedas are just an allegory for evolution. Saha published a rejoinder in which he stated, among other things, that rebirth or incarnations is inconsistent with the theory of evolution. All these articles (translated from the original Bengali) are reprinted in the volume *Meghnād Rachanā Sankalan* (edited by Santimay Chatterjee, first edition, 1965; second enlarged edition, published by Orient Longman, Calcutta, in 1986, pp. 113–190) under the heading 'Modern Science and Hindu Religion'.

Darwin was led to the theory of evolution after a visit to the Galapagos islands, where he saw that different islands had different species of animals (like tortoises). Tortoises on different islands were sufficiently similar for Darwin to realize that they had evolved from a common ancestor (tortoise), but represented different reproductively-isolated species by the time Darwin saw them. This showed him that different species were not created at one time by god, but had evolved from a common ancestor.

In the 150 years since Darwin published his theory of evolution, the fact that evolution has been taking place for the entire history of life on Earth is incontrovertible, because it is based on evidence from fossils. Unfortunately, the record is not complete because only hard body parts will fossilize. But what we have shows unequivocally that evolution has been happening for the entire period of life on Earth. The theory is not fully complete because there is a controversy remaining among scientists about the exact mechanism for the formation of new species (with Darwin's 'theory of natural selection' being the main contender), but this should not be used to say that the theory is incorrect. □

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