Natural selection

Natural selection is a process in nature by which the organisms best suited to their environment are the ones most likely to leave offspring. This process has been called *survival of the fittest,* though a more accurate term would be *reproduction of the fittest.* The theory of natural selection was first explained in detail in the 1850's by the British naturalist Charles R. Darwin. He believed all plants and animals had *evolved* - -that is, developed by changing over many generations--from a few common ancestors by means of natural selection. Plants and animals produce many offspring, but some of the young die before they can become parents. According to Darwin's theory, natural selection determines which members of a species die prematurely and which ones survive and reproduce.

The theory of natural selection is based on the great variation among even closely related individuals. In most cases, no two members of a species are exactly alike. Each has a unique combination of such traits as size, color, and ability to withstand cold or other harsh conditions. Most of these traits are inherited.

Only a limited supply of food, water, and other necessities of life exists for all the organisms that are produced. Therefore, the organisms must constantly compete for these necessities. They also struggle against such dangers as being destroyed by animals that prey on them or by unfavorable weather. In any environment, some members of a species have combinations of traits that help them in the struggle for life. Other members have traits that are less suitable for that environment. The organisms with the favorable traits are most likely to survive, reproduce, and pass on those traits to their young. Organisms that are less able to compete are likely to die prematurely or to produce few or inferior offspring. As a result, the favorable traits replace the unfavorable ones in the species.

If the environment changes, different traits or combinations of traits may become favorable to survival, and the overall character of a species might change. In this way, a species adapts to its environment and avoids extinction. If two populations of a species live in different environments, they will probably develop differently. Eventually, they may differ so much that they become two separate species.

In 1858, Darwin and another British naturalist, Alfred R. Wallace, presented similar theories of natural selection. Many biologists rejected the idea at first. They incorrectly thought that natural selection and evolution would eventually stop because a species would have used up all its possible variations. Since then, scientists have learned that the cells of every living thing have tiny structures called Gene which determine the organism's hereditary traits. An organism inherits a set of genes from each parent. Variations occur in part because genes for new traits are constantly being introduced into a species and shuffled among individuals by reproduction. See Gene ; Heredity Heredity .

Virtually all biologists believe that natural selection is an important process in evolution. But some religious groups reject the theory because it conflicts with their beliefs about the creation of life.

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