Motoo Kimura Biography

Motoo Kimura

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Biography

One key to the theory of Darwinian evolution is the concept of natural selection. According to this concept, random mutations occur in the gene pool of any given population. Those mutations that increase the likelihood of survival among future generations survive. Those that do not, disappear. Mutations that have a selective advantage are, according to this theory, likely to increase in number in the given population. An alternative to this theory was suggested in 1968 by the Japanese geneticist Motoo Kimura. Kimura found that mutations with no apparent selective advantage can also increase in a population. His research focused on mutant genes that are not expressed phenotypically. Since these genes can not be found morphologically, they can only be detected by biochemical means. Kimura believed that the mutant genes he studied are neither more nor less advantageous to the organism than are the normal genes they replace. Therefore, evolutionary change depends not on natural selection but on the random drift of these neutral mutations. The Kimura theory of neutral evolution has not, as yet, been widely accepted by population geneticists. Some think that evolutionary effects of the mutant genes may still be found in future research.

Motoo Kimura was born in Okazaki, Japan, on November 13, 1924. After earning his master's degree at Kyoto University, he attended the University of Wisconsin, where he received his Ph.D. in 1956. After graduation, Kimura accepted an appointment at the Japanese National Institute of Genetics in Mishima. He became head of the Population Genetics Department at the Institute in 1964.