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Neo-Darwinism

B.Sc (H) / B.A. Zoology  
Page No. \_\_\_\_\_  
Date 12/08/20

Darwinism was generally accepted by Biologists in the latter part of the last century. But about (1890) doubts began to be thrown upon it and around (1910), some critics proclaimed the death of Darwinism due to following facts. Darwinism became purely speculative involving selection to explain anything & everything without requiring proof & providing any explanations, with the discovery of mutations it is said that hereditary changes proceeds by large jumps. Mendel contributed force necessary to establish Darwin's concept and its general acceptance. Darwin's natural selection theory contained a number of defects which can not explain the entire process of evolution. For example, it failed to differentiate acquired characters & inheritable variation. Secondly natural selection is limiting and not an initiating force. In the light of modern developments Huxley, Haldane, Goldschmidt, Dobzhansky, Fischer & others put forth the theory which supported Darwinism and this is named as Neo-Darwinism. As to Darwin, evolutionary changes in animals are small variations & inheritable variations under the force of natural selection survived. This is something true & several important evidences of natural selection have come to light. For example, if an area of Mosquitoes is sprayed with DDT to kill them. Mutant forms have been found to have evolved which showed great tolerance to DDT. Thus Neo-Darwinism has a genetic basis, it lays special emphasis



ON the occurrence of mutations. Neo-darwinism only involves the Germinal mutations. Thus by various experiments & statistical analysis, it has been shown that the Gene frequency in a population will remain constant from generation to generation, if (a) Mating is a random process, (b) if genes mutations are balanced, and (c) if the population is large. This is known as Hardy-Weinberg Law (HWE) which states that, when a population is in Genetic equilibrium, the rate of evolution is zero. When two individuals with mutually acceptable traits mate the Genes, which control such traits will increase in number through the offspring & spread through populations. Individuals with mutually undesirable traits are not likely to mate & so their Genes don't spread through population. Thus non-random mating in a population means natural selection. As a result some Genes spread more rapidly than others in a population, the Gene frequencies will become altered upsetting the Hardy equilibrium. This represents, evolutionary change natural selection operating for or against given Genes. To sum up, Darwinism today is very much alive. In certain respects, even modern evolutionary theory is more Darwinism than Darwin had himself. Darwin's special contribution to the evolutionary problem was the theory of natural selection, but owing to the rudimentary state of knowledge in certain

Biological fields, he was forced to bolster this up with subsidiary Lamarckian hypothesis of inheritance of the effect of use & disuse and of modifications produced by the direct agency of environment.

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