

LECTURE 1: Theory of evolution

1. Evolution is the scientific idea of the gradual development of the various types of plants, animals etc from fewer a simple to a more complex ones.
2. Evolution is a gradual change in development of organisms.
3. Evolution is an example of basic concepts of biology. It is a process that has produced the fantastically diverse array of organisms that are alive today. From the primitive particulate aggregate of organic molecules that arise over several billion years ago to the exceedingly complex and highly integrated multi-cellular organisms of the present.
4. Evolution can be seen as a modeling force, which are more specifically natural selection.
5. Edger Anderson (1960) wisely put evolution “as the origin of cultivated plant” as a process not an event” and by this he certainly must have meant that the evolution of plant species did not cease, but on the contrary becomes more intense and diversified.
6. Darwin (1859) defined evolution as descent with modification. Modification may result from the differential success in reproduction by individuals possessing different heritable characteristic.
7. Evolution can also be seen as a change in the genetic composition of a population.

The needs of the people give rise to evolution which give rise to the modification in different types of organisms, and the various forces interaction that are involved make the subject become more complex Many scientists and people believe that evolution occurs and still occurring and strongly contributes to diversity of existing organisms.

Diversity: Is the condition of being different or having differences.

Descent: family origin of the stated type. i.e Ayola is a yoruba descent.

Similar organisms are closely related by descent. In general, the more closely related two groups are the more similarity is there between them and vice versa.

Therefore, the central theme of evolution is that all existing organisms are descendant of the types of simple primitive organisms, that first occurred several billion of years ago. **2.0.**

THEORY OF EVOLUTION

Darwinian theory of evolution, (1868).

Many scientists have proved the theory of evolution but a comprehensive and convenience prove come from Darwin. His careful and objective collection and compilation of evidences indicated that the species have changed and do change. He was able to present a very convincing, logical, and convenience explanations for the occurrence of these changes, i.e. natural selection

Though Darwin was not the first to introduce the concept of natural selection but he was the first to fully comprehend the relationship between natural selection and heritable change in a population.

The basic tenants of Darwinian Theory of evolution can be summarized as follow.

1. The number of individuals in any population tends to increase geometrically when the condition permits the survival of all progenies. There is no exception to this rule that organic beings are naturally increased at so high rate that if not destroyed the earth will soon be covered by a progeny of a single pair. **(Individual in population increase geometrically).**

2. The potential for rapidly increase is seldom realized in the case of every species. Many different pairs acting at different periods of life and during different seasons, or sometimes year.

(potential for rapid increase is seldom)

3. Darwin deduced from this fact that a competition or struggle for survival occurs in which many individuals are eliminated, as more individuals are produced that can possibly survive there must in every case be a struggle for existence. **(Competition or struggle for survival).**

4. Variation in the form of individual differences exists in every species or populations. Individual differences are of highest important as they are often inherited. Evolution of organisms depends on variability within and between the species existing in natural conditions and the variability created by man. **(Variation exists in species/population)**

5. From the observed differences between individuals as well as close related variety. Darwin deduced that elimination processes are selective. The surviving one are considered to be more fit, but fitness doesn't define in the limited sense of the organism relative ability to struggle to recomplete for food, space or simply by chances of escaping predation and disease. Darwin analyzed that fitness is best defined as the relative capacity to live offspring behind. **(Elimination processes are selective).**

6. Evolution is a gradual change in the hereditary make-up of the species. **(Evolution is a gradual change).**

However, the modern ideas of evaluation include several features that were not part of Darwin theory.

They have various names e.g.

1. Modern Synthesis

2. The Neo-Darwinism Synthesis

3. Neo- Darwinism

In these syntheses, natural selection is still the model force but our knowledge about particulate nature of things enables one to understand more fully the origin of variation by mutation. The preservation of conceived variation in different organisms and in the shift of genes by genetic recombination, so that new combinations are always available for natural selection to act upon.

Evaluation can be seen as 2-part process:

1. The origin of variation

2. The modification of the variation by natural selection