

## Charles Darwin: Evolution Theory

Evolution theory aims at explaining the origin of life and the principles of its development. For many centuries, scientists offered different ideas about how life emerged; however, they were not able to provide any credible evidence to support their statements. The discussion was mostly conducted within the borders of natural theology; naturalists believed that the world exists due to the effort of an intelligent creator who also defines the rules according to which everything in the world functions. In 1809, the French scientist Jean Lamarck familiarized the scientific world with the first idea of the evolution mechanism which he defined as “the inheritance of acquired characteristics” (Freeman 24). Lamarck used the example of salamanders to corroborate his theory. Particularly, he argued that salamanders lived in grassland, which made it difficult to use their short legs. With the course of time, leg muscles became unnecessary, as they were not actually used. Salamanders passed this information to their children, which led to emergence of legless salamanders. However, the scientist was not able to present any experimental evidence for his idea, and as a result, his theory collapsed (ibid.).

Charles Darwin, born February 12, 1809 in England, became a famous scientist having presented his theory of evolution. His first profession was medicine; however, he gradually distanced from it plunging into the scientific world. During his youth, Darwin was fond of reading about nature; he spent most of his time exploring the environment around him and collecting samples of plants and insects. He believed that life originated from a common ancestor and gradually developed over millions of years (Darwin 3).

Darwin took part in the British science expedition in 1831-1836 as a naturalist. In 1831, he embarked on a journey to South America to carry out surveying work. In the course of his trip, he read *Principles of Geology* by Charles Lyell which made him interested in land forms (Darwin 10). He studied the aftermath of earthquakes and investigated fossil shells of marine organisms. He supported Lyell's idea that over time, earthquakes and geologic processes changed land forms. He focused on the idea that the species that lived on the land affected by the forces of nature had to adapt to the changes. He explored remote regions where he collected and recorded information about plants, animals and fossils of extinct organisms that were similar to the modern species. As the expedition extended to different places, Darwin continued collecting samples for his further studies. It was in the Galapagos Islands in the Pacific Ocean that he noticed variations among plants and animals of the same type in comparison with those he had observed in South America.

In 1836, he returned to England where he spent considerable time investigating the samples that he had collected. Charles focused his attention on finches from the Galapagos Island – this helped him formulate the notion of natural selection. He sent this specimen to an ornithologist who reported that he had collected 13 similar but separate species of finches (Darwin 20).

Darwin observed that birds that lived on one island differed from those on another island based on several criteria including the shape of their beaks. He assumed that this was the impact of different environments the birds lived in.

The difference in the shape of birds' beaks drew scientists' attention. They supposed that these distinctions were based on the kind of food that the birds ate. The

creatures had to adapt to their new environments; gradually their appearance changed automatically in the optimal way, and the birds felt comfortable in their area (Darwin 26). Birds that had appropriate beaks for eating a cactus survived in the arid areas while the ones that had beaks fit for nectar survived in other environments. Studies on the fossils led to the classification of the remains of extinct mammals. Darwin spent several years looking for evidence on his fossil record. His experiment involved fossils of different ages, and he observed that fossils of similar ages had much in common comparing with those of other ages. Darwin compared their homologous structures, viscera and embryological developments of living species. He observed the changes in domestic animals species and plants breeds and experimented with plants seeds. Considering the similarities found during the observation of finches, Darwin concluded that the birds had a common ancestor. The similarities between the fossils of the mammals and the modern mammals led him to believe that species changed with the course of time (Freeman 34).

Darwin concluded that evolution actually exists and that it was gradual over a long period of time. He also observed that the evolution mechanism developed through the process of natural selection and that the different species today originated from one ancestor through a branching process called speciation. He noticed that in the process of natural selection, the animals or plants with characteristics that best suited to their environment were more likely to survive and reproduce while the weak ones became extinct – he called this “survival for the fittest” (ibid.). The desirable characteristics were passed on to the offspring, and with the course of time, they became common, which brought change to the whole species.

In 1838, Charles read *The Essay on the Principle of Population* by Thomas Malthus (Darwin 16). The ideas offered by Malthus made Darwin think about how populations competed for resources in order to survive: resources are scarce, and the population, therefore, has to struggle for them. This competition implies that the weak species die giving the individuals with advantageous variations the opportunity to survive and reproduce.

In 1859, Charles Darwin published his theory to explain the origin of life in the entire human, animal and the plant species in a book titled *The Origin of Species* (Freeman 28). His concept of natural selection states that life came from one common ancestor. Particularly, this theory argues that life developed from non-life through a process of natural selection. The process of natural selection explains that complex creatures evolve from simple creatures over time due to preservation of advantageous mutations that guarantee survival (Darwin 30).

Complex organs are formed gradually through numerous slight modifications. As the process of natural selection progresses, the inferior species disappear. Charles Darwin, however, believed that variations are not the result of the environmental impact but exist independently. The nature just automatically selects individuals and plants that suit its conditions. In the natural process, the favorable traits in the species are passed on to the other generations through reproduction.

To sum up, the process of evolution, according to Darwin, is characterized by variations in every population; species have to compete for scarce resources and reproduce offspring with traits suitable for survival; in turn, the offspring bears genetic

traits that fit the environmental conditions – the whole process was defined by Darwin as a natural selection (Darwin 46).

Darwin's theory was given numerous critical arguments. His paradigm was attacked by the religious view of world that was supported by many people including those who devoted many years to studying the issue of the origin of life. Darwin's ideas got mixed reaction from the religious bodies who believed that life is the result of God's creation, as explained in the Bible. Darwin's theory, therefore, suggested that God did not manage to create perfect creatures from the beginning. The idea of changes in species collided with the Christian faith where humans had a special place in the world and were superior to all other creatures (Darwin 40). This opposition led to emergence of the paradigm of intelligent design: it tried to link science and theology. The intellectual movement, in turn, tries to challenge the naturalistic evolutionary theories by bringing understanding of the divine action. This paradigm aims at explaining why the significance of miracles should be considered in evolution; it also emphasizes the questions that were not raised in the natural theology.

Unlike his predecessors, Darwin offered ideas that were supported with indisputable evidence. This theory overshadowed believes that life was created by God. Many scientists became convinced that life was as a result of natural selection (Freeman 48). Darwin's theory is still relied upon by the modern scientists and used as the background for further investigations.

## Works Cited

Darwin, Charles. *The Origin of the Species By Means Of Natural Selection*. Uk John Murray: 1959.

Freeman, Derek. *The Evolutionary Theories of Charles Darwin and Herbert Spencer*. London: Taylor & Francis, 1974.