Why is Evolution True?

[Name of the Writer]

[Name of the Institution]

Why Evolution is True?

**Introduction:**

Evolution is the process through which a certain species characteristics change over the passage of time through the reproduction in the upcoming generations and dependent on the mechanism of the natural selection (The individuals who are more likely to adapt to the changing surrounding will be able to survive and reproduce but for those who are not being able to do such will have a less chance of survival and reproduction, which gradually causes evolution in them). Evolution is reluctant on the idea that the species tend to change gradually over time. Several philosophies, non-scientists people have contemplated the idea of evolution. They have believed the idea of the population to be fake or untrue which has raised an undefeatable debate not admitted by both parties. There were some ideas that believe in the existence of the evolution. However, some arguments state the contrary. Life on the earth developed and evolved gradually with minor changes that occurred generation over aa generation and started from one species, a molecule that was living in nature more than 3.5 billion years ago. After that, it started reproduction, creating its copies, mutating and reproducing in every upcoming generation, and creating a diversity of many crops, but the mechanism that underlies every process is the natural selection. The sense of the evolution in the minds of some people still occurs that it never happened because of the uncertainty created by some scientists and can cause complication. In this essay, the concept of the evolution will be highlighted as well as the development and the understanding of the idea. The noted ideas will be presented in the light of philosophical, theological, and sociological reflections to demonstrate the scientific understanding of evolution. Additionally, the critique of the ideas that were presented in Jerry A. Coyne ‘s book, *Why Evolution is true?.*

**Discussion:**

 It should be duly noted that Darwin did not comment on how the life originated, rather than to make an image of it and compare it with the concepts and contrast the biochemical origin of "evolution." The concept of evolution is different than the origin of life. With the preface of the origination of life, there is a very little number known of hypotheses discussed that supported the idea regarding the origin of life. But on the other hand, the evidence supporting the idea of evolution are redundantly large in number. This evidence is manipulated in such a way supporting the life is present on the planet among all forms, arisen from a single ancestor common for all the species, i.e. protists and due to genetic regulation, expression, and mutation, it evolved over the passing by of billion years. However, with a lot of sources supporting the idea, evolution is still a complex and a difficult thing to understand. The best evidence the supports the idea of evolution is genetic evidence. The variety of a species, the recurring genetic complexity, and diversity among the DNA of every species can be an addition to the evidence.

 The genetic sequences of the living organisms are known to be very similar, but there are mistakes in their sequences, which are known as the mutations. These mutations tend to be shareable among the species that have a close relationship in the evolutionary tree of the organisms. The differences can be copied in such a way that the species that were a little bit different from one another are from the same group on the evolutionary tree. This supports the idea of Evolution in terms of branching that the species were created through the same branching line of genetics, but through the natural selection over every generation of a species, every species strived to be the fittest for their survival, passing those abilities to the next generation and the species showing less capability for the resources usage wouldn’t be able to survive.

 In 1859, when Darwin published the *Origin of Species,* each type of life has arisen from a common ancestor or a common ancestor with decent modifications. But this didn’t address the evolutionary changes taking place. However, the underlying mechanism that was proposed for the Evolution was Natural Selection.

**Natural Selection:**

Darwin didn't propose or said a word about the evolution of the organism, but instead, he proposed a mechanism through which the organism evolved. This mechanism was Natural Selection, a mechanism which appeared logical and elegant to the senses. The mechanism shows a better approach to the explanation of how the population evolve and become better in their suited environments.

 Following are the several key steps which highlight Darwin's concept of Natural Selection:

***Heritable Traits:***

 In living organisms, those traits are called heritable which have the ability to transfer from parents to offsprings, or some of the characteristics are passed, for example, eye color, walking style, etc. Darwin at the time knew that this was happening. However, he didn't know that genes are responsible for this

***More production of offsprings than their survival:***

 Organisms have the capability of producing more offs springs than their environment can support. This raises a competition among the species to survive in the toughest conditions among a limited number of resources.

***Offsprings show variation in their heritable traits:***

 As many of the features will be heritable as mentioned earlier, but there can be a possibility in the next or any generation that the trails (characters), will be slightly different from one another.

 Individuals that had favorable characteristics had a higher chance of survival as compared to the individuals having less favourable characteristics for them.

 On the basis of these observations, it was concluded that

 As many of the traits are heritable and over the number of generation, they show variation in their offsprings, which will lead to the evolution of the species.

 In a population, some individuals will obviously inherit the traits that will help them to survive and reproduce among an environment where there are limited food sources and a precaution of predators. The individuals who have better traits of survival and reproduction will leave more peers in the community than the lesser ones. This leads to the evolution of that certain species in terms of survival and having the capability of reproduction even in the toughest environment.

 According to Darwin, inheritance works through the physical presence of “*hereditary substances”* from the two parents. The produced offspring will be an intermediate (Red and white combination of paint would result in a pink paint color).

**Jerry A. Coyne’s *Why Nature is true*?**

 According to Coyne, “if evolution meant only gradual genetic change within a species, we’d have only one species today—a single highly evolved descendant of the first species. Yet we have many… How does this diversity arise from one ancestral form? splitting, or, more accurately, speciation,” which “simply means the evolution of different groups that can’t interbreed” (Coyne, 2010). If there was such thing that Darwin's theory was true, there should have been a record of some species in the fossils, with the terms of branching showing that one species are mutating or through natural selection, a new wild species could be seen into the light of the records.

 However, if Darwin was right about the origin of species which evidence shows that he was, but on the contrary, there was no supporting evidence relating to the idea that evolution is true. But in the light of seeing that Darwin is right, the fossil record that was discussed under his idea of the natural selection, there must be evidence which supports the hypothesis that most of the species originate from one specie; that for a number of species, line of descent can be one. However, there are a number of species, that are linked to one group of ancestors like birds have reptiles and that of fishes have amphibians. It is to be remembered that Darwins ideas and evidence only support idea of evolution, but not the origin of species. The supporting evidence is found in the speice distributed patterns around the earth like fossils buried in the lands during his Voyage of the Beagle, and other which concludes the development of an organism from its embryos, and the extinction of the vestigial organs which are of no further use anymore. However, other than the origin of species, evolution of the specie can be true keeping in mind each evidence supported by Darwin from the Voyage of the Beagle.

 The concept of evolution is undeniably true if the underlaid concept of evolution coincides with the definition that species goes through a number of major or minor changes over the passage of time, which can be seen in their offsprings, or that some forms/things of the species that are being existed today did not exist in the past. But, according to Darwins idea which states that all species share a common ancestor. But, in Jeryy A. Coyone’s Book *Why Evolution is True,* he claims that the certain mutations in DNA and the natural selection as well have produced these modifications, which can either argue or support the claim because the DNA mutations, not just evolve a certain organism, but are responsible for the presence of certain genetic diseases and complications in the living organisms.

 **Fossils:**

The first precedent found by Coyne that related to the idea of evolution is the fossil record, However, in the light of the statements which was to find any of that evolutionary changes occurring in the fossil records. The buried and the oldest rocks would contain the fossils of the primitive species, and as the rocks layers progresses to its younger stages, fossils become more complex. The organism which are relating to the present day species are commonly found in the most recent layers of rocks. This shows that species tend to change over time as seen in their fossil records, from older to younger fossils, the specie will be more complex. And these species also tend to form a lineage which means they have a tendency and modify over a period of time, The species that are found in the recent rocks should show a line of decency with the previous rocks.

 In the Darwin’s book, The Origin of Species, he clearly presented an acknowledging argument in the favour of the fossils that fossil record proposed compications and diffciluties to conclude an appealing sense in the theory. In his Natural Selection Theory, all the living species of today are interconnected to each other through some sort of way, and all species that are present today have geniusly linked to one parent genus, and the species that were present in the early living environments of the world, are not that much of a different than the species of the present day, If there is a presence of some immediating or some transitioning links that can be found within the species that are living and for that which are extinct can be great in some sense. But, the major animal or plants, which are called collectively as “phyla” showed no such evolutionary change. They are still in the same form as they were in the earliest of the centuries, when found in their fossil-bearing rocks. These fossils were deposited at earliest geological period, Cambrian. For the theory to be true, it should have been for each living organisms that existed and should show evolutionary changes throughout the progression in each era. But, they showed consistence and persistence in their characteristics which were known to show evolution in other living organisms like human beings. This makes the theory inexplicable and goes against the statement of the idea that evolution is true and undeniable.

 Darwin acted defensive for his theory by citing that the geological record could be imperfect. He argued that the fossils can be denatured and destroyed by various environmental conditions and stress such as erosion, heat and pressure. That was because the Precambrian fossils were either too soft or too small to be matching the inclusion criteria for fossils. Many of the today’s palaentologists of today have argued that the Precambrian fossils that existed were either destroyed in their formation or didn’t remain in their conserved states. Since 1859, many of the Precambrain fossils were either too microscopic in nature of soft-bodied.

 Coyne account of the evolutionary changes and history goes back grom 600 million years to 400 millions years, without the contextual explanation of 540 million year old Cambrian explosion. Fossils that are discovered recently, showed a close a relative of whales wth a raccoon sized animal which was known as Indohyus. It was a raccoon sized animal, living around 48 million years ago, which was pretty smiliar and showed a close analogy to that ancestral whales. This was recorded as the evolutionary transition. Another specie, which existed 52 million years ago, known by the name of Pakicetus, was derived from a fossil skull and was wolf-sized. Pakicetus is more 4 million years old, and more similar to Whales than Idohyus. To a Darwinist, it should fall in the category of Indohyus and the modern whales, regardless of the evidence shown by the fossils. Within the premises of the Darwinian theory, no fossil descent showed such drastic evidence.

 **Embryos:**

For the better provision in the terms of evidence other than fossils for evidence supporting evolutionary history, Darwin considers Embryology. Embryos of the most distinct species which belong to the same class, are pretty similar, but they show dissimilarities when they those species embryos were fully developed. But this still shows community descence. Since, Darwin was not an embryologist, he used by citing the German Embryologist, Karl Ernst von Baer.

In *Why Evolution is True*, Coyne states that modified aspects van be seen in the evolutionary and developmental sequences of various organs. For a proper growth and make sure that a certain living organism has those properties and characteristics.. the vertebrae needs to go through developmental stages, and those developmental stages should follow the evolutionary sequence of its ancestors. As the specie starts to evolve, the descendent should beer the characteristics and traits of its ancestors. It is seen those things are to be developed in them in the later life. All vertebrates are known to develop which looked like a robust for the basic development as all of vertebrates are known to be fish like as thhe embryonic fish as we are descended fron ancestors that are fishlike.

However, at the embryonic stages, living organisms are not what they are at their adult stages. Fossil embryos are rare, but as per accordance with the Darwin’s theory, fish are our true ancestral forms and human embryos look alike fish embryos. Furthermore, vertebrate embryos are are only smiliar in their early developmental stages, but, vertebrate embryos, donot resemble in their earliest stages. In The Origin of Species, Darwin argued again that through the occurrence of the vestigial organs (such organs that are previously in use but not anymore), is an evidence. In the Decent of Man, Darwin says that human appendix is a vestigial organ. But Darwin was mistaken, as the human appendix is the organ which was used in anto-body producing blood cells and an integral part of the immune system. Appendix also serves as the portion for those beneficial bacteria which are involved in the digestion, this shows that the appendix is not useful.

Like Darwin, in *Why Evolution is True?* Coyne cites that human appendix is a vestigial organ. But, coyne concludes with the fact they are maybe of small use because the numerous parts of the tissues that function as an immune system. But, the appendix can be used as a refugee site for the useful bacteria that are essential in creating the microbiota of the gut. But, it is concluded that the appendix is still considered as a vestigial organ, as it is no longer performing the function for which it is created and evolved.

In the Origin of the Speices, Darwin states with theological arguments which are dominant; stating the living things geographical distribution made no sense, but if the orgin of the species was done properly, but it was making a contextual reference in the light of the Darwin’s theory.

**Conclusion:**

Darwin calls for a long arugment through the Origin of Species in the favor of his theory¸ but Jerry Coyne has denied it through his range of observations and limitations. Coyne’s book *Why Evolution is True?* Tries to defend the Darwins’ theory through the rearrangement of the Fossil records. However, his presentation on the fact that vertebrate embryos are developed and same as the human embryos was mislead and inngoring the fact the functionality presence of the vestigial organs and the regions of the DNA which are functioning as a non-coding sequences, and then logically hitting the theological arguments of Darwinism as a bad design. There were some ideas that believe in the existence of the evolution. However, some arguments state the contrary. Life on the earth developed and evolved gradually with minor changes that occurred generation over aa generation and started from one species, a molecule that was living in nature more than 3.5 billion years ago. After that, it started reproduction, creating its copies, mutating and reproducing in every upcoming generation, and creating a diversity of many crops, but the mechanism that underlies every process is the natural selection. The sense of the evolution in the minds of some people still occurs that it never happened because of the uncertainty created by some scientists and can cause complication. The actual evidence propose that the fossil records were not in the favor of the Darwin to propose his idea of evolution. In the Verterbrate embryos, early development is consistent with the separate origins and share a common ancestory. Non-coding DNA is known to be essential and presented working as a fully functional part which were proposed as a contrary to that of the New-Darwinism ideas, theories and predictions.

**References**

Coyne, Why Evolution Is True, pp. 17-18, 25.

Charles Darwin, The Origin of Species, Sixth Edition (London: John Murray, 1872), Chapter X, pp. 266, 285-288. Available online (2009) here.

 J. William Schopf, “The early evolution of life: solution to Darwin’s dilemma,” Trends in Ecology and Evolution 9 (1994): 375-377.

James W. Valentine, Stanley M. Awramik, Philip W. Signor & M. Sadler, “The Biological Explosion at the Precambrian-Cambrian Boundary,” Evolutionary Biology 25 (1991): 279-356.

James W. Valentine & Douglas H. Erwin, “Interpreting Great Developmental Experiments: The Fossil Record,” pp. 71-107 in Rudolf A. Raff & Elizabeth C. Raff, (editors), Development as an Evolutionary Process (New York: Alan R. Liss, 1987).

Jeffrey S. Levinton, “The Big Bang of Animal Evolution,” Scientific American 267 (November, 1992): 84-91.

“The Scientific Controversy Over the Cambrian Explosion,” Discovery Institute. Available online (2009) here.

Jonathan Wells, Icons of Evolution (Washington, DC: Regnery Publishing, 2002), Chapter 3. More information available online (2009) here.

Stephen C. Meyer, “The Cambrian Explosion: Biology’s Big Bang,” pp. 323-402 in John Angus Campbell & Stephen C. Meyer (editors), Darwinism, Design, and Public Education (East Lansing, MI: Michigan State University Press, 2003). More information available online (2009) here.

Timothy Lenoir, The Strategy of Life (Chicago: The University of Chicago Press, 1982), p. 258. Frederick B. Churchill, “The Rise of Classical Descriptive Embryology,” pp. 1-29 in Scott F. Gilbert (editor), A Conceptual History of Modern Embryology (Baltimore, MD: The Johns Hopkins University Press, 1991), pp. 19-20.

Coyne, Why Evolution Is True, pp. 77-79.

Simon Conway Morris, “Fossil Embryos,” pp. 703-711 in Claudio D. Stern (editor), Gastrulation: From Cells to Embryos (Cold Spring Harbor, NY: Cold Spring Harbor Laboratory Press, 2004).

 Walter Garstang, “The theory of recapitulation: a critical restatement of the biogenetic law,” Journal of the Linnean Society (Zoology), 35 (1922): 81-101.

 See Chapter Five and accompanying references in Wells, Icons of Evolution. See Chapter Three and accompanying references in Wells, The Politically Incorrect Guide to Darwinism and Intelligent Design.

Michael K. Richardson, J. Hanken, M. L. Gooneratne, C. Pieau, A. Raynaud, L. Selwood & G. M. Wright, “There is no highly conserved embryonic stage in the vertebrates: implications for current theories of evolution and development,” Anatomy & Embryology 196 (1997): 91-106. Michael K. Richardson, quoted in Elizabeth Pennisi, “Haeckel’s Embryos: Fraud Rediscovered,” Science 277 (1997): 1435. Stephen Jay Gould, “Abscheulich! Atrocious!” Natural History (March, 2000), pp. 42-49. “Hoax of Dodos” (2007). Available online (2009) here