‘Abdu’l-Bahá’s Response to Darwinism: Its Historical and Philosophical Context

By Keven Brown

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[Note: This electronic version contains some discrepancies with the published version. For example, to make this text readable to all web browsers the transliteration of Arabic letters requiring subscript dots has been removed. In addition, this version contains some new material and revisions added by the author since publication, most of which are indicated by brackets.]

Foreword to *Evolution and Bahā’ī Belief*

It is now 140 years since Darwin published his famous book *The Origin of Species*, but the intense controversy surrounding his theory of evolution has not died down, especially in America. The classical world view that predominated up until the middle of the nineteenth century understood all species as having been created by God in essentially their present form all at one time. Modification of populations was allowed in recognition of the fact that organisms do adapt to changing environmental conditions, but any change beyond the strict bounds of a species’ essential characteristics was not considered possible. This is also the view accepted by many contemporary fundamentalist Christian denominations, a view that a 1993 Gallop poll found to be supported by 47% of Americans.[1] This view, however, stands in stark contrast to the position put forward by Darwin, and now accepted by the scientific community, which holds that no act of supernatural creation is necessary to explain the origin of the diverse biological populations that inhabit our planet. Instead, the mechanical processes of random variation and natural selection of the fittest are sufficient to account for all the divergent organisms that exist on earth today. In contrast to the classical view, which believes that all kinds were specially created for a preexisting purpose, many modern writers propose that no preexisting plan or purpose is necessary for the origin of man or any other species.[2]

Darwin’s theory had profound repercussions not only for every scientific discipline (including history and social science), but also for religion. By denying special creation, Darwin’s theory threatened to undermine one of the most cherished doctrines of religion. If the diversity of species didn’t need a creator, the role of God was diminished. If speciation is arbitrary and occurs through a blind, natural process, then the laws that govern human beings could also be arbitrary and constructed on a merely pragmatic basis, not in accord with an intelligible order created by God. Social Darwinism, which viewed society and the economy as an arena in which the fittest nation should rise to the top at the expense of other nations, was one

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[1] Cited by Chet Raymo, *Skeptics and True Believers* (New York: Warner, 1998), p. 122.

[2] Richard Dawkins, *Gods Utility Function.* Scientific American, 1995. **273**(5): pp. 80-85.

consequence of this view. Materialism, which denied the existence of an incorporeal soul and a spiritual world, also gained fresh converts on account of Darwin's theory.

It is not surprising, therefore, that during the twentieth century religion and science have continued to find themselves at odds with each other, not only in people's minds but in the courts. In 1925, a young biology teacher named John Scopes was put on trial and fined $100 for defying a Tennessee state law prohibiting the teaching of "any theory which denies the story of the Divine creation of man as taught in the Bible" in public schools. Although the Tennessee appellate court overturned the verdict two years later, such laws were not declared unconstitutional until 1968. In the late 1970s, Arkansas and Louisiana passed laws requiring that whenever evolution is taught in public schools "creation science" must also be taught. A number of other states introduced similar "creation science" bills in their state legislatures before the United States Supreme Court rejected such laws in 1987.[3] The latest effort to promote "creation science" in public schools occurred in 1999 when the Kansas Board of Education voted to remove evolution theory from the state's science curriculum, while not formally banning its instruction or insisting on equal time for "creation science."

At the beginning of the twentieth century, the controversy between the materialistic interpretation of Darwin's theory and biblical special creation was even more intense in the public mind. Fundamentalists saw it as a confrontation between "theism versus atheism, morality versus immorality, angel-man versus monkey-man," while scientists and others saw it as a contest between "reason versus superstition, enlightenment versus obscurantism, scientific skepticism versus blind commitment to religious dogma."[4]

It was in this divisive atmosphere that ʻAbdu'l-Bahá, during his visits to Europe and America between 1911 and 1913, presented the Bahá'í principle that true religion and sound science are complementary and can never oppose one another. `Abdu'l-Bahá repeated this principle again and again in his talks to Western audiences. For example, in Paris on November 12, 1911, he said:

> If a religious statement is found which categorically contradicts reason and science, then that statement is mere fancy….Therefore make all of your beliefs congruent so that science and religion are in harmony, for religion is one wing of man and science is the other. Man can fly with two wings but not with one. All religious beliefs that are contrary to reason and science are not part of the reality of religion. Rather, such blind beliefs and absolute convictions are the cause of hatred and enmity between the children of men. But if religion is made congruent with science, the truth will appear. Therefore, let your aim be this: to make science in accord with religion and religion in accord with science.[5]

In a talk given at a Unitarian Church on June 9, 1912, he affirmed:

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[3] Ashley Montagu, *Science and Creationism*, pp. 4-5; Stephen Jay Gould, "Dorothy, It's Really Oz," *U.S. News and World Report* (August 23, 1999), p. 59.

[4] Raymo, *Skeptics and True Believers*, p. 121.

[5] ʻAbdu'l-Bahá, *Khitábát* vol. 1, pp. 155, 157-158; seems to correspond to *Paris Talks*, 11th edition, pp. 141-146, though the original English translation contains much material that is not in the Persian.

> Science must recognize the truth of religion, and religion must recognize the truth of science. A perfect relationship must be obtained between them, for this is the root of truth….Therefore, we must abandon superstitions and investigate reality, and that which we see corresponding to reality, we should accept. That to which science does not assent and reason does not accept is not reality; rather it is blind imitation. We must cast these misguided beliefs far away from us and hold fast to reality. Any religion that is in harmony with science and reason is worthy of acceptance.[6]

It was from this perspective of the complementarity of religion and science, and the need to maintain harmony between them, that ‘Abdu'l-Bahá addressed the question of evolution. Although ‘Abdu'l-Bahá accepted evolution, as he understood the meaning of this word, as a fact, he did not accept Darwin’s theory as it was taught by the scientists of his time. Instead, ‘Abdu'l-Bahá presented an understanding of evolution harmonious with the religious idea of creation and the philosophical concept of essences. The details of his manner of reconciling evolution and creation are discussed in the articles that follow.

It is important to detemine here what ‘Abdu’l-Bahá means by the term “science” (*‘ilm*), since it is obvious ‘Abdu’l-Bahá is referring to something that does not necessarily accord with any particlular scientific theory or even with the scientific consensus of an age. Let us consider the following statement:

> You have asked how we can harmonize scientific theories with the ideas of religion. Know that this material world is the mirror of the Kingdom, and each of these worlds is in complete correspondence with the other. The correct theories of this world which are the result of sound scientific thinking are in agreement with the divine verses without the slightest divergence between them, for the truth of all things is laid away in the treasuries of the Kingdom. When that truth is manifested in the material world, the archetypes and realities of beings attain realization. If a scientific theory does not correspond with the divine verses, it is certain that it is the essence of error.[7]

In other words, the Bahá’í principle of the harmony of science and religion is based on the assumption that the world of the Kingdom (i.e., the atemporal, placeless dimension) contains all the realities and potentialities upon which the material world is founded. Since divine revelation is also based upon the same source, its true meaning cannot be in conflict with any categorical facts of the external world. In the same letter quoted above, ‘Abdu’l-Bahá goes on to explain how for over a thousand years learned consensus followed the Ptolemaic system in which the earth was viewed as the fixed center of the universe around which the sun moved, while two verses of the Qur’án, according to ‘Abdu’l-Bahá’s interpretation, indicated the fixity of the sun relative to the planets and the movement of the earth around it.

This does not mean, however, that particular religious ideas and doctrines are inherently superior to particular scientific theories, and vice versa, because ‘Abdu’l-Bahá also explains that the criteria by which humans judge the veracity of a proposition (i.e., sense perception, reason,

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[6] Ibid., vol. 2, pp. 136-137; *Promulgation of Universal Peace*, 175-176, revised translation.

[7] ‘Abdu’l-Bahá, *Makátíb-i ‘Abdu’l-Bahá*, vol. 3 (Collected Letters) (Cairo 1921) pp. 172-173.

scriptural authority, and inspiration) are all liable to error due to human subjectivity. Consequently, he concludes that the most reliable standard of judgment is all four in combination:

> But a statement presented to the mind accompanied by proofs which the senses can perceive to be correct, which the faculty of reason can accept, which is in accord with traditional authority and sanctioned by the promptings of the heart, can be adjudged and relied upon as perfectly correct, for it has been proved and tested by all the standards of judgment and found to be complete.[8]

In another place, he adds that the standard of the "inmost heart" (*mízán al-fu'ád*) through the aid of the Holy Spirit is capable of apprehending the truth of things.[9] In summary, the Bahá'í principle of the harmony of science and religion not only implies the essential unity of the material and spiritual dimensions of existence, but means that human beings must rely upon both science (empirical data interpreted through reason and inspiration) and religion (scripture interpreted through reason and inspiration) to obtain a truer picture of reality.

Originally this volume was planned to include three articles, one by a historian, one by a physical scientist, and one by a practicing evolutionary biologist. Unfortunately, the third article being prepared by Dr. Ronald Somerby, the biologist, was not ready in time and he has urged us to publish without him. As such, the views presented do not represent the full richness of different backgrounds that this subject deserves. Somerby's article proposed to cover such questions as the meaning of complementarity, the principle of "unity in diversity" in modern evolutionary theories, and the need for a new paradigm shift that transcends both classical metaphysics and the modern mechanization of nature. We urge him to complete his article soon.

Eberhard von Kitzing's article, "The Origin of Complex Order in Biology," focuses on `Abdu'l-Bahá's concept of the *originality of species*, places it within the context of the nineteenth century conflict between the views of classical biology and Darwin's theory of evolution, and compares `Abdu'l-Bahá's views with concepts in modern biology and cosmology. Kitzing explains that his essay is based on the assumption that `Abdu'l-Bahá's statements on the subject of evolution are not intended to be explanations of biological fact. In other words, `Abdu'l-Bahá was not a biologist; rather he approached the subject from the standpoint of religious knowledge. As such, his arguments reflect his interest in the philosophical and spiritual consequences of Darwinism as it relates to questions of religion, such as the purpose of life. He was especially concerned with the theory's potential, as popularly represented by "certain European philosophers," to undermine the essential principles of religion.

If all of 'Abdu'l-Bahá's statements on evolution are to be understood literally as referring to biological fact, then these statements need to be supported by evidence from applied biology just like any other hypothesis, if they are to be taken seriously. Kitzing proposes that the *parallel evolution model*, which results from interpreting 'Abdu'l-Bahá's statements literally and as doctrine, not argument, "produces more problems than it solves." He presents a series of five questions that he believes need to be successfully answered for parallel evolution to be accepted

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[8] 'Abdu'l-Bahá, *Promulgation*, p. 255.

[9] 'Abdu'l-Bahá, *Min Makátíb-i 'Abdu'l-Bahá*, vol. 1 (From the Collected Letters) (Rio de Janeiro: Editora Baha'i Brasil, 1982), p. 85.

as a serious theory by scientists. Kitzing also gives a non-literal interpretation of ‘Abdu'l-Bahá’s statements on evolution that he finds more in harmony with current scientific thought. For should the literal meaning of ‘Abdu’l-Bahá’s statements become categorically proven to contradict biological facts, Bahá’ís will have to answer this question posed by historian Susan Maneck: “Should Bahá’ís feel compelled to accept that earlier theory [of parallel evolution] because of ‘Abdu’l-Bahá’s use of it, or is it sufficient to simply accept the point of it all, that our Reality is ultimately related to our intended end, not our origins, and allow science to figure out the rest of it?”[10]

My own article, “‘Abdu'l-Bahá’s Response to Darwinism,” presents in detail the philosophical and historical context within which ‘Abdu'l-Bahá spoke and from which he and his audience drew the understanding which informed their discourse. I start with the conflict between the essentialists and Darwinists during the latter half of the nineteenth century in Europe and America, and then move to the parallel controversy that took place over Darwinism in the Near East. Since ‘Abdu'l-Bahá indicated in one of his talks that his views on evolution are generally congruent with the system of thought of the “philosophers of the East,” by which he means Plato and Aristotle, and the philosophers of Iran, I devote a lengthy chapter to examining the ideas of these philosophers as they relate to the concepts of “species,” “essence,” and “becoming.”

With the views of the “philosophers of the East” presented as necessary background, my last chapter is devoted to a careful analysis of ‘Abdu'l-Bahá’s teachings on evolution based on the context presented in the first three chapters. The original Arabic or Persian writings and talks of ‘Abdu'l-Bahá are relied upon throughout, and revised translations are provided where necessary.

My approach is to assume that ‘Abdu’l-Bahá intended his words on this subject to be taken at face value, and that he was responding to Laura Clifford Barney’s questions on “the modification of species” and “the theory of the evolution of beings” with unambiguous and non-symbolic language.

Both authors agree, however, that `Abdu'l-Bahá’s response to Darwinism was more philosophical in nature than scientific and that his main objective was to establish by *rational arguments* the existence a divinely ordained purpose for life, the special place of humanity in creation, the need of final causes (i.e. teleology), and the existence of timeless natural laws in the universe.

Numerous religious leaders and scientists during the twentieth century have found science and religion to be not the least bit contradictory. Each, working in the sphere that it knows best, gives us a fuller and truer picture of reality than either could by itself. Neither should dominate the other, but each should recognize the complementary and mutually beneficial role of the other in human society. As ‘Abdu'l-Bahá desired: “Science must recognize the truth of religion, and religion must recognize the truth of science. A perfect relationship must be obtained between them, for this is the root of truth.”[11]

The Catholic Church is to be praised for its recent efforts to harmonize the teachings of the Bible with the facts of science and the fruits of reason. As the Vatican II Council expressed it: “Research performed in a truly scientific manner can never be in contrast with faith because

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[10] Susan Maneck on Baha’i Studies List, August 1, 2000.

[11] ‘Abdu’l-Bahá, *Khitábát*, vol. 2, p. 136.

both profane and religious realities have their origin in the same God."[12] The Catholic Church therefore deems evolution and Christianity to be compatible. It holds that "God created the matter and laws of the universe" and that "evolution is the manner in which these laws have unfolded."[13] In another move on the side of science and reason, Pope John Paul II recently declared that "rather than a place, hell indicates the state of those who freely and definitively separate themselves from God." He added that hell is "not a punishment imposed externally by God" but the natural consequence of the unrepentant sinner's choice to live apart from God.[14]

The Bahá'í principle of the harmony between science and religion is connected to another Bahá'í principle which holds that "religious truth is not absolute but relative."[15] This means that religious statements should be understood from the perspective of the historical and cultural context within which they were revealed and in the light of the purpose for which they were revealed. It is with respect to the purpose of religious statements that universality applies, whereas the literal words and images of sacred writings are very time and culture bounded. The changing understanding of the concept of hell is illustrative of this point. According to a Catholic scholar, "to people living in early Christian centuries, infernal images of hell no doubt conveyed quite effectively the horrific consequences of rejecting God. One thing people feared most then was the burning and pillaging of their towns. If you had described hell to them in terms of relationships and psychological experiences like loneliness, they wouldn't have known what you were talking about."[16]

Such time- and culture-bound concepts and statements are also found in the writings of Bahá'u'lláh and 'Abdu'l-Bahá. For example, when Bahá'u'lláh refers to "the fourth heaven" of classical astronomy in the Kitáb- Íqán, Shoghi Effendi explains that this book "was revealed for the guidance of that sect [the Shí'ah]," where "this term was used in conformity with the concepts of its followers."[17] In the same manner, such terms as "essence," "species," "evolution," and "creation" have specific meanings to 'Abdu'l-Bahá relative to the cultural and philosophical background with which his audience was familiar. One should not automatically assume that such terms, or 'Abdu'l-Bahá's usage of them, are limited by that background. But their meaning should be properly understood through a careful study of their original context, and then they should be interpreted and applied in terms that make sense today. This is in keeping with the dynamic character of the Bahá'í Faith, which Shoghi Effendi says, has the capacity "even as a living organism, to expand and adapt itself to the needs and requirements of

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[12] Qtd. in Robert Root-Bernstein, "On Defining a Scientific Theory," in *Science and Creationism*, p. 82.

[13] Ibid., p. 83.

[14] Qtd. in "Hell hath No Fury," *U.S. News and World Report* (January 31, 2000), pp. 45, 48.

[15] Shoghi Effendi, *World Order of Bahá'u'lláh*, p. xi.

[16] Rev. Thomas Reese, qtd. in "Hell hath No Fury," *U.S. News and World Report* (January 31, 2000), p. 49.

[17] Quoted in a letter written on behalf of the Universal House of Justice dated 3 November 1987.

an ever-changing society" and "has been so fashioned" as "to keep it in the forefront of all progressive movements."[18]

How should the Bahá'í Community interact with scientists and discuss scientific theories? With a combination of frankness and humility, in the spirit of a fellow seeker searching for the truth about reality, questioning assumptions that preclude the existence of metaphysical causes, but willing to discard preconceptions and always being open to new perspectives. Why is this important? Because, as 'Abdu'l-Bahá states: "religion is one wing of man and science is the other. Man can fly with two wings but not with one."[19] Furthermore, 'Abdu'l-Bahá explains that "if religion is contrary to science and reason, it is not possible for it to instill confidence in the heart….Therefore, religious teachings must be congruent with reason and science so that the heart may be assured and mankind find true happiness."[20]

The articles presented in this volume have as one of their aims, in addition to exploring the philosophical and historical background of the evolution question in Europe and the Near East at the end of the nineteenth century, presenting interpretations of 'Abdu'l-Bahá's statements on evolution (from the side of religion) that may be more congruent with reason and scientific facts. The full answer of how evolution and creation work together to bring the universe into existence is very complex, and many more questions need to be explored and answered. It is our hope that this volume will help stir our fellow Bahá'ís and interested scientists to work harder to raise the science and religion dialogue to new heights of agreement and understanding.

Keven Brown
March 2001

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[18] Shoghi Effendi, *The World Order of Bahá'u'lláh*, pp. 22-23.

[19] `Abdu'l-Bahá, *Khitábát*, vol. 1, p. 158.

[20] Ibid., vol. 2, p. 227; *Promulgation of Universal Peace*, pp. 298-299, revised translation.

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Acknowledgments

I would especially like to thank Eberhard von Kitzing for encouraging me to write this article. It was he who, in the beginning, asked me if I would assist him by checking the original Persian and Arabic writings of ‘Abdu’l-Bahá on the subject of evolution and by examining the philosophical background with which ‘Abdu’l-Bahá was familiar. He has remained throughout this project a source of support and of constructive criticism. I would also like to give a special thanks to David Garcia who took the time to read this essay carefully and respond with many specific criticisms that helped me to see new perspectives on ‘Abdu'l-Bahá’s words. Without his input the subject of this essay would have received a less balanced treatment. Equally critical was the feedback of Ronald Somerby, who pointed out to me the importance of reading Arthur Lovejoy’s book *The Great Chain of Being* and Ernst Mayr’s *The Growth of Biological Thought*. Both books proved to be indispensable sources for the subject of this article. Lastly, thanks to Stephen Friberg for reading the manuscript and helping me to avoid the dangers of excessive “historical contextualism.”

Preface

Many Westerners first became acquainted with ‘Abdu’l-Bahá (1844-1921) during his missionary journeys to Europe and America between 1911 and 1913 for the purpose of spreading the teachings of his father, Bahá’u’lláh, founder of the Bahá’í Faith. During his busy schedule of meeting his American followers, visiting dignitaries, speaking at churches, social organizations, and universities, and associating with people from all walks of life, he emphasized his father’s progressive social principles, which included such teachings as the equality of men and women, the oneness of the human race, the establishment of a world federal government, the adoption of a universal auxiliary language, and the harmony of science and religion.

‘Abdu’l-Bahá’s views on the theory of evolution, as it was understood at the beginning of the twentieth century, fall within the context of the last principle. In one talk of ‘Abdu’l-Bahá at the Open Forum in San Francisco, dated 10 October 1912, he speaks particularly about the theory of evolution and contrasts the modern Western idea of the transmutation of species with the idea of evolution within a species of the “philosophers of the East” (*falásifiyyih sharq*), with whom he associates his own views (see Section 3). Among these philosophers he includes “Aristotle and Plato, and the philosophers of Iran.”[1] ‘Abdu’l-Bahá had previously discoursed on this subject to Laura Clifford Barney, an American who visited him in ‘Akká’ between 1904 and 1906. She records at least five talks of ‘Abdu’l-Bahá specifically addressing the questions of evolution and the diversification of species. In several of his letters, ‘Abdu’l-Bahá also writes on this subject.

In order to accurately analyze ‘Abdu’l-Bahá’s ideas and compare them to the understanding educated Westerners had of Darwin’s theory at the time, it will be necessary to use the original texts of ‘Abdu’l-Bahá and ensure their accurate translation into English. It will also be necessary to study in depth the views of the “philosophers of the East” and the responses of Darwin’s contemporaries to his theory. The tasks to be accomplished in this article, therefore, are four-fold: (1) to present revised translations of ‘Abdu’l-Bahá’s writings and talks on the subject of evolution where necessary;[2] (2) to explain the relevant theories of certain Greek and Islamic philosophers on the ideas of “species,” “essence,” and “becoming”; (3) to describe the contemporary response to Darwinism during the last half of the nineteenth century and the beginning of the twentieth century in Europe and, more especially, in the Arab world; and (4) to analyze ‘Abdu’l-Bahá’s doctrine in the light of this historical context and philosophical background.

After having accomplished these tasks, I believe it will be demonstrated that ‘Abdu'l-Bahá is a teleologist (or essentialist), who maintains the original creation of “species” by God outside of time, and that he was a proponent of evolution in a sense that is harmonious with the doctrine of creation. As the essay will attempt to make clear (especially in sections 2 and 3), ‘Abdu'l-Bahá is not an Aristotelian essentialist but a Platonic one. In other words, ‘Abdu'l-

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Notes for Preface

[1] ‘Abdu'l-Bahá, *Khitabát* (Talks of ‘Abdu'l-Bahá) (Hofheim-Langenhain: Bahá'í Verlag, 1984) vol. 2, p. 299; *The Promulgation of Universal Peace* (Wilmette: Bahá'í Publishing Trust, 1982), p. 356, revised translation.

[2] All of the revised translations of ‘Abdu'l-Bahá’s writings contained in this essay are provisional and have not been authorized by the Universal House of Justice.

Bahá's essences (*máhiyát*) and species (*naw'iyát*) are equivalent to Platonic Forms, not to Aristotelian substances and the logical essences derived from them.

Section 1: The Historical Context

Europe[3]

Darwin's *The Origin of Species by Means of Natural Selection* (published in 1859) disturbed the scientific community, for it struck at the foundations of a long established worldview in which religion and science worked side by side without interfering in any fundamental way in the domain of the other. That God had created all species according to a divine plan and linked them together in the great Chain of Being was taught by religion and almost universally accepted; it was the role of scientists to discover the material details of that plan and reveal the wisdom of the Creator. English naturalist John Ray's work *The Wisdom of God Manifested in the Works of the Creation* (1691) is typical of the thinking of the time. The pre-Darwinian worldview was well summed up by Newton, who said: "A God without dominion, providence, and final causes, is nothing else but Fate and Nature....All the diversity of natural things which we find, suited to different times and places, could arise from nothing but the ideas and will of a Being necessarily existing."[4]

1.1. Teleological Thinking vs. Population Thinking

The assumption of the design and creation of the natural world by a supreme being are fundamental to teleological thinking, which had been dominant since the days of Plato and Aristotle, and which is still favored by the general American population.[5] In this view, each species was created by design and for a purpose in the great plan of life. In other words, it is not by chance that humanity is at the apex of the animal kingdom. According to the Judeo-Christian tradition, every species of plant and animal was independently created prior to the creation of Adam. Called "special creation," this view holds that an essential discontinuity separates species from each other. As the French biologist, Georges Cuvier (1769-1832), wrote to a friend: "We imagine that a species is the total descendence of the first couple created by God."[6] The British

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Notes for Section 1: The Historical Context

[3] The description of the reception of Darwinism in Europe in this chapter depends heavily on two works: David L. Hull's *Darwin and His Critics: The Reception of Darwin's Theory of Evolution by the Scientific Community* (Cambridge: Harvard University Press, 1973), which is largely a collection of reviews of Darwin's published works by his peers, and Ernst Mayr's *The Growth of Biological Thought* (Harvard University Press, 1982).

[4] Quoted in Ernst Mayr, *The Growth of Biological Thought*. *Diversity, Evolution, and Inheritance* (Cambridge: Harvard University Press, 1982), p 141.

[5] A U.S. News poll conducted in 1994 indicated that 93 % of Americans "believe in a benevolent God who hears prayers and is able to intervene in human events" (*U.S. News & World Report*, April 4, 1994, pp. 48-49). A Gallop poll conducted in 1993 found that 47% of Americans believe "God created humans pretty much in their present form at the same time within the last 10,000 years." (Raymo, *Skeptics and True Believers*, p. 122.)

[6] Quoted in Mayr, *Growth of Biological Thought*, p. 257.

physiologist, William Carpenter (1813-1885), summed up the prevailing belief at the time Darwin published *The Origin of Species*:

> Now it seems to be a received article of faith, both amongst scientific naturalists and with the general public, that all these reputed species have a real existence in nature; that each originated in a distinct act of creation; and that, once established, each type has continued to transmit its distinctive characters, without any essential change, from one generation to another, so long as the race has been permitted to exist. This idea of the *permanence of species*...is commonly regarded at the present time [1860] as one of those doctrines which no man altogether in his right senses will set himself up seriously to oppose.[7]

At the present time, this view of the special creation of species is still widely believed, especially among fundamentalist Christians for whom it is an essential doctrine. One of the leading contemporary proponents of special creation is Dr. Duane Gish of the Institute for Creation Research. He explains:

> By creation we mean the bringing into being of the basic kinds of plants and animals by the process of sudden, or fiat, creation described in the first two chapters of Genesis….We do not know how God created, what processes He used, for God used processes which are not now operating anywhere in the natural universe. This is why we refer to divine creation as special creation….
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> During the creation week God created all of the basic animal and plant kinds, and since then no new kinds have come into being, for the Bible speaks of a finished creation (Gen. 2:2)….
>
> The concept of special creation does not exclude the origin of varieties and species from an original created kind. It is believed that each kind was created with sufficient genetic potential, or gene pool, to give rise to all of the varieties within that kind that have existed in the past and those that are yet in existence today.[8]

The problem with explaining the origin of species by special creation, argued the critics, is that it does not explain how species have actually appeared, survived, and vanished in the real world. No one had witnessed an act of special creation taking place, and it was evident by this time from the fossil record that innumerable different species had appeared and then become extinct in the long course of geologic time. Did this mean that the Creator continued to create new species independently as older species vanished? Charles Lyell, author of *Principles of Geology*, thought so; he proposed that God uniformly replaced extinct species by new special

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[7] Quoted in David L. Hull, *Darwin and His Critics: The Reception of Darwin's Theory of Evolution by the Scientific Community* (Cambridge: Harvard University Press, 1973), p. 89.

[8] Quoted in Ashley Montagu, ed. *Science and Creationism* (Oxford: Oxford University Press, 1984), pp. 245, 247.

creations after each extinction.[9] But if this was true, then an act of special creation should at some time be observable.

Darwin's theory excited the scientific community because his proposed natural mechanism for the origin of species was feasible and explained many observable facts of nature that had not been satisfactorily explained by earlier theories. In short, it brought the explanation of species forms into the realm of science and out of the realm of theology. Darwin was saying that most ancient extinct species did not really vanish but were earlier evolutionary stages of the species on earth today.[10] His field observations of structurally similar but reproductively isolated populations in close geographic proximity suggested to him that biological species are not specially created by divine intervention nor are they fixed realities of nature. Instead, he proposed that the diversity of species is due solely to the natural selection of the random individual variations of organisms which best suit them to adapt to a changing environment. All the species existing today have resulted, he said, from the gradual transformation of one or several first primitive forms into which God breathed the spirit of life. Although Darwin allowed special creation for the first primitive form, the new theory contradicted the fundamental premise of special creation: the real existence of distinct species in nature and their essential discontinuity from each other.

Darwin's view is called "population thinking" by modern biologists because it considers only the individual members of populations as real, not the "species," which is a mental construct used for classification. Darwin explained: "I look at the term species as one arbitrarily given, for the sake of convenience, to a set of individuals closely resembling each other."[11] Since every individual has variations or unique characteristics, Darwin proposed that if some members of a homogeneous population become geographically separated from the parent population, they can become--through the gradual evolution of those unique variations--a new reproductively isolated population, or a new "species." Darwin felt he had found sure evidence of this with many similar but reproductively isolated species on the Galapagos Islands.

Mayr explains: "The concept of a static type is replaced by that of a highly variable population. New variations are produced continuously, some of them superior and some of them inferior to the existing average."[12] Superior variations that help the population adapt to changes in the environment or compete better with similar populations tend to be preserved in the gene pool--this is natural selection.[13] The random variations, according to Darwin, occur accidentally, but their "selection" is neither accidental nor predetermined. Beneficial variations are simply preserved because they better meet the survival needs of an organism. Given time and geographic isolation, this is how Darwin conceived of new species gradually deriving from

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[9] Mayr, *Growth of Biological Thought*, p. 376.

[10] One of Darwin's critics, Richard Owen, noted that ancient species also could have disappeared for the same reasons species disappear today: not adapting to a changing environment, destruction by another species, etc. (Hull, *Darwin and His Critics*, p. 196).

[11] Charles Darwin, *The Origin of Species by Means of Natural Selection*, 6th ed. (London: E. P. Dutton, 1928), p. 67.

[12] Mayr, *Growth of Biological Thought*, p. 490.

[13] Ibid., p. 491.

parent species. By implication, Darwin postulated that all organisms, including man, have descended from common ancestors by a continuous process of branching. Each animal, plant, or micro-organism is but a link in a chain of ever-changing, never-repeated forms, and these forms are *determined solely by the environment*.

The significance of this change of view to Western thought has been eloquently expressed by Thomas Kuhn:

> All the well-known pre-Darwinian evolutionary theories--those of Lamarck, Chambers, Spencer, and the German *Naturphilosophen*--had taken evolution to be a goal-directed process. The "idea" of man and of the contemporary flora and fauna was thought to have been present from the first creation of life, perhaps in the mind of God. That idea or plan had provided the direction and the guiding force to the entire evolutionary process. Each new stage of evolutionary development was a more perfect realization of a plan that had been present from the start. For many men the abolition of that teleological kind of evolution was the most significant and least palatable of Darwin's suggestions. The *Origin of Species* recognized no goal set either by God or nature. Instead, natural selection, operating in the given environment and with the actual organisms presently at hand, was responsible for the gradual but steady emergence of more elaborate, further articulated, and vastly more specialized organisms. Even such marvelously adapted organs as the eye and hand of man--organs whose design had previously provided powerful arguments for the existence of a supreme artificer and an advance plan--were products of a process that moved steadily *from* primitive beginnings but *toward* no goal. The belief that natural selection, resulting from mere competition between organisms for survival, could have produced man together with the higher animals and plants was the most difficult and disturbing aspect of Darwin's theory.[14]

Darwin never pretended to explain how life arose to begin with. He proposed that God had breathed life into one or several first primitive forms. Then he thought God had stepped back from His work and allowed the mechanism of natural selection, which Darwin had just discovered, to take over and "select" the random variations best suited for survival in an ever-changing environment. The forms of the species resulting over the vast course of time were determined strictly by natural forces, not by conscious design. "There is a grandeur in this view of life," explained Darwin, "with its several powers, having been originally breathed by the Creator into a few forms or into one; and...from so simple a beginning endless forms most beautiful and most wonderful have been, and are, being evolved."[15] Although his theory dealt a blow to teleology, as traditionally understood, he allowed that God had established the general laws of nature but not the details. In his words:

> There seems to me too much misery in the world. I cannot persuade myself that a beneficent and omnipotent God would have designedly created the Ichneumonidae with the express intention of their feeding within the living bodies of Caterpillars, or that a cat

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[14] Thomas Kuhn, *The Structure of Scientific Revolutions*, 2nd ed. (Chicago: University of Chicago Press, 1970), pp. 171-172.

[15] Darwin, *Origin of Species*, p. 463.

> should play with a mouse. Not believing this, I see no necessity in the belief that the eye was expressly designed....On the other hand, I cannot anyhow be contented to view this wonderful universe, and especially the nature of man, and to conclude that everything is the result of brute force. I am inclined to look at everything as resulting from designed laws, with the details, whether good or bad, left to the working out of what we may call chance.[16]

1.2 Evidences Favoring Darwinism

Just as Newton had deduced an invisible force called gravity to explain the movements of the heavenly bodies (now more accurately explained by Einstein's general theory of relativity), Darwin deduced his theory from a wide range of observable evidence, which gave his theory scientific credibility. That scientists were not able to find a particular set of "essential characteristics" universally distinguishing one biological species from another was an apparent victory for the Darwinists. Geometrical figures and atomic elements are universally and clearly defined, but the situation with organic species, when these are defined by reproductive isolation, is more problematic. For example, except for inability to interbreed, two or more species of finches may look and act nearly identical to each other. By what then are their essences (i.e., their essential characteristics) distinguished?[17] Still, Darwin's critics saw no reason for one species to evolve into another; this would be, they thought, like lead evolving into gold.[18] To them, the kinds of biological organisms required by nature should be just as fixed as the kinds of elements in physics.

Other evidences used by Darwin and his followers to support evolution include the following: (1) The existence of vestiges or rudimentary organs no longer used suggests that the species has evolved from a form in which those organs were necessary. (2) The similarity of reproductively isolated species in geographic proximity suggests that they have branched from each other recently. This is especially evident in the case of the animals in Australia, which bear a family resemblance. (3) The taxonomic hierarchy and morphological similarity of organisms is evidence of descent from a common ancestry (the tree model of evolution).[19] (4) The stages of embryological development (ontogeny) appear to recapitulate the stages of evolution (phylogeny). For example, if biological species had been specially created, asked Darwin, why shouldn't their ontogeny take them by the most direct path to the adult stage, so that the wing of a bat or the fin of a porpoise would be "sketched out with all their parts in proper proportion, as soon as any part became visible [in the embryo],"[20] but instead we find detours, such as the

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[16] Darwin, May 22, 1860, *Life and Letters* (1887) 2:105; quoted in Hull, *Darwin and His Critics*, pp. 62, 65-66.

[17] For an essentialist answer to this objection, see Section 1:4.

[18] Hull, *Darwin and His Critics*, p. 71.

[19] Today's biologists would add that the similarity continues down to the fundamental steps of biochemistry. The genetic code is the same in all organisms as well as the mechanism that translates the genetic message into proteins.

[20] Darwin, *Origin of Species*, p. 422.

embryos of land-living vertebrates going through a gill-arch stage. (5) Darwin's strongest evidence, he felt, was in the ability of breeders and domesticators to alter the shape and constitution of wild species. Given time and a larger gene pool, nature should be able to alter a species into a completely different species. Based on such evidences, Darwin asserted against the essentialists: "On the ordinary view of each species having been independently created...I do not see that any explanation can be given."[21]

1.3 Essentialist Objections to Darwinism

(1) The Role of Natural Selection and Chance. What biologists who favored the special creation of species by a transcendent, ruling mind (such as Lyell, Herschel, Cuvier, Owen, Agassiz, and von Baer) found most objectionable in Darwin's theory was, as Frederick Hutton put it, "its reliance on *natural* causes and *chance* in effecting the changes. We should be more inclined," he continued, "to refer to the modifications which species of animals or plants have undergone to the direct will of God."[22] Most essentialists accepted that random variations did occur in nature, but these variations, they claimed, could never stray from the limits set by the "species essence."

Darwin's critics held that every species has an immutable essence, or law, or idea present in the mind of God which determines the essential attributes of its biological counterpart, such as the important organs, basic body structure, and behaviors necessary to fulfill a niche in an environmental system. These remain constant through time and make each species what it is. Accidental properties, like color, amount of body hair, and size, in contrast, may vary from individual to individual depending on the environment. Natural selection, from this perspective, merely serves to ensure that accidental characteristics that stray too far from the norm are eliminated, while the essential form is preserved through time. This was the general position of classical biology, which is designated today as *typological thinking*, because of the assumed close correlation between fixed essences (types) and static biological populations.

Classical biology also held that these essences and their biological counterparts formed an unchanging, continuous Chain of Being. The Creator "did not make kinds separate without making something intermediate between them," so that a "wonderful linkage of beings" exists, wherein "the highest species of one genus coincides with the lowest of the next higher genus, in order that the universe may be one, perfect, and continuous."[23] The static understanding of the Chain of Being, however, began to change after Leibniz (1644-1716) added the concept of dynamic becoming to it (see Section 1.4).

One of Darwin's arguments was that natural selection could, over time, transmute the so-called essential form just as domesticators modified animals and plants by artificial selection. But Agassiz countered:

> It is not true that a slight variation, among successive offspring of the same stock, goes on increasing until the difference amounts to a specific distinction. On the contrary, it is a

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[21] Ibid., p. 145.

[22] Quoted in Hull, *Darwin and His Critics*, p. 299.

[23] Extracts from Albertus Magnus, Thomas Aquinas, and Nicolaus Cusanus qtd. in Arthur Lovejoy, *The Great Chain of Being* (Harvard University Press, 1964), pp. 79-80.

> matter of fact that extreme variations finally degenerate or become sterile.[24]...Our domesticated animals, with all their breeds and varieties, have never been traced back to anything but their own species, nor have artificial varieties, so far as we know, failed to revert to the wild stock when left to themselves.[25]

Darwin remained adamant, however, that it is precisely the accidental properties, the chance individual variations, that, if beneficial, in time could become typical of a group, and hence, the basis of a new species. He stressed: "Unless such [profitable variations] occur, natural selection can do nothing."[26]

Herschel in his *Physical Geography of the Globe* objected strongly to this line of thinking:

> We can no more accept the principle of arbitrary and casual variation of natural selection as a sufficient condition, *per se*, of the past and present organic world than we can receive the Laputan method of composing books [by randomly striking the keys of a typewriter] as a sufficient account of Shakespeare and the Principia....Equally in either case, an intelligence, guided by a purpose, must be continually in action to bias the directions of the steps of change--to regulate their amount--to limit their divergence--and to continue them in a definite course. We do not believe that Mr. Darwin means to deny the necessity of such intelligent direction. But it does not, so far as we can see, enter into the formula of this law; and without it we are unable to conceive how far the law can have led to the results.[27]

(2) The Lack of Intermediate Forms. The slow and gradual change of an older species into a new species was another component of Darwinism that nineteenth century essentialists found difficult to accept. On the whole, the essentialists agreed that Darwin's theory was based on assumptions. If what Darwin proposed was true, then there should be a wealth of transitional fossil forms in the geological strata, which would prove that one class of animals had gradually evolved from another. For example, there should be many intermediates between fishes and amphibians, between reptiles and mammals, and so forth. Many of the essentialists were paleontologists, and what they found in the fossil record was exactly the opposite of what

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[24] Francis Hitching relates that Ernst Mayr, one of Darwin's staunchest twentieth century supporters, conducted an experiment on *Drosophila* which ironically supported Agassiz's point: "He selectively bred successive generations of flies to try to increase or decrease the number of bristles they grew, normally averaging thirty-six. He reached a lower limit, after thirty generations, of twenty-five bristles; and an upper limit, after twenty generations, of fifty-six bristles. After that the flies rapidly began to die out. Then, Mayr brought back nonselective breeding, letting nature take its course. Within five years, the bristle count was almost back to average" (*Neck of the Giraffe*, p. 41).

[25] Quoted in Hull, *Darwin and His Critics*, pp. 436, 441.

[26] Darwin, *Origin of Species*, p. 82.

[27] Herschel (1861) 12; quoted in Hull, *Darwin and His Critics*, p. 61.

Darwin required. Instead, they said, species appear suddenly in the fossil record, persist relatively unchanged for most of their existence, and then abruptly disappear from the fossil record. As the British paleontologist, Richard Owen (1804-1892), observed:

> When we see the intervals that divide most species from their nearest congeners, in the recent and especially the fossil series, we either doubt the fact of progressive conversion, or, as Mr. Darwin remarks...one's "imagination must fill up very wide blanks."...The last ichthyosaurus, by which the genus disappears in the chalk, is hardly distinguishable from the first ichthyosaurus....The oldest pterodactyle is as thorough and complete a one as the latest.[28]

The same objection was put forth by the American paleontologist, Louis Agassiz (1807-1873):

> [Darwin's] doctrines, in fact, contradict what the animal forms buried in the rocky strata of our earth tell us of their own introduction and succession upon the surface of the globe....Let us look now at the earliest vertebrates, as known and recorded in geological surveys. They should, of course, if there is any truth in the transmutation theory, correspond with the lowest in rank or standing. What then are the earliest known vertebrates? They are the selachians (sharks and their allies) and ganoids (garpikes and the like), the highest of all living fishes, structurally speaking....The Silurian deposits follow immediately upon those in which life first appeared, and should therefore contain not the highest fishes, but the fishes next in order to the myzonts ["fishes structurally inferior to all others"]....The presence of the selachians at the dawn of life upon earth is in direct contradiction to the idea of a gradual progressive development.[29]

Cuvier had similarly objected against Lamarck's evolutionary theory: "If the species have changed by degrees, we should find some traces of these gradual modifications; between paleotherium and today's species we should find some intermediary forms: This has not yet happened."[30] He also called attention "to the fact that the mummified animals from the Egyptian tombs which were many thousands of years old were quite indistinguishable from the living representatives of these species."[31]

Though Darwin recognized the lack of evidence in the geological strata for intermediate forms, he attributed such lack of evidence to "the extreme imperfection of the geological record."[32] Today evolution biologists claim to have discovered a number of preserved transitional species in the fossil record. One of the most famous is *Archaeopteryx*, considered to

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[28] Quoted in Hull, *Darwin and His Critics*, p. 211.

[29] Quoted in Hull, *Darwin and His Critics*, pp. 442-443.

[30] Quoted in Mayr, *Growth of Biological Thought*, p. 368.

[31] Mayr, *Growth of Biological Thought*, p. 365.

[32] Darwin, *Origin of Species*, p. 293.

be an intermediate between reptiles and birds. Contemporary evolutionists Stephen Jay Gould and Niles Eldredge do not argue against transitional lineages between kinds, but they do contest Darwinian gradualism between them. Their theory of punctuated equilibrium, says Gould, accounts for "two outstanding facts of the fossil record—geologically 'sudden' origin of new species and failure to change thereafter (stasis)."[33]

Another paleontologist, Francois Jules Pictet (1809-1872), pointed out another problem with the gradual development of intermediate forms:

> Admit, for instance, that they [birds] sprang from a common progenitor with mammals and reptiles. The wing then must have been formed by successive alterations in the anterior limb of the prototype. But I do not see how natural selection could act for the conservation of future birds, since this modified member, this future wing, being neither a real arm nor a real wing, could not possibly be of any physiological value.[34]

He also noticed that the explosion of diverse, complex life forms appearing in the earliest part of the fossil record, with nothing more complicated than bacteria beforehand, contradicted Darwin's idea of life starting from only one or a few primitive types.[35]

1.4 Essentialist Alternatives

For some essentialists, such as T. H. Huxley and William Bateson, the only way evolution was viable was by the sudden origin of new species by saltation, i.e. evolutionary jumps in which earlier species are used as building blocks for new species via an extensive mutation.[36] In this way, distinct species essences are preserved and act as the laws defining the field of favorable mutations. This idea was also noticed by the physical scientist, Fleeming Jenkin. In 1867, he wrote in *The North British Review*:

> If...the advantage given by the sport [a radical mutation] is retained by all descendants...then these descendants will shortly supplant the old species entirely, after the manner required by Darwin. But this theory of the origin of species is surely not the Darwinian theory [of gradual change]; it simply amounts to the hypothesis that, from time to time, an animal is born differing appreciably from its progenitors, and possessing the power of transmitting the difference to its descendants. What is this but stating that, from time to time, a new species is created? It does not, indeed, imply that the new specimen suddenly appears in full vigour, made out of nothing.[37]

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[33] Quoted in Montagu, *Science and Creationism*, p. 123.

[34] Quoted in Hull, *Darwin and His Critics*, p. 150.

[35] Hull, *Darwin and His Critics*, p. 149.

[36] Mayr, *Growth of Biological Thought*, p. 508.

[37] Quoted in Hull, *Darwin and His Critics*, p. 318.

Jenkin also argued that just as there is a set number of chemical elements and possible combinations of these, the forms of species and possible variations are also limited, though seemingly infinite. He explained that

> organized beings may be regarded as combinations, either of the elementary substances used to compose them, or of the parts recurring in many beings, ...[so it is not] surprising that newly discovered species and varieties should almost invariably occupy an intermediate position between some already known, since the number of varieties of one species, or the number of possible species, can only be indefinitely increased by admitting varieties or species possessing indefinitely small differences one from another.[38]

Another possibility, which was foreshadowed by Leibniz, is that evolution is really change within the same species, in other words, the temporal unfoldment of the preexisting potentialities of the original kinds created by God. Leibniz stated:

> Although many substances [species] have already attained a great perfection, yet on account of the infinite divisibility of the continuous, there always remain in the abyss of things slumbering parts which have yet to be awakened, to grow in size and worth, and in a word, to advance to a more perfect state....There is a perpetual and a most free progress of the whole universe in fulfillment of the universal beauty and perfection of the works of God, so that it is always advancing towards a greater development.[39]

According to Mayr, although Leibniz's idea "helped to prepare the ground for evolutionary thinking," it was not a genuine theory of evolution, in a strict Darwinian sense, since it did not allow for the transmutation of one species into another. Transformation *within* a species and the development of varieties out of original kinds does not count as "evolution" to Mayr. He argues that Leibniz's view, which maintains fixed underlying essences but allows for the gradual transformation of physical forms toward greater perfection, should be called, as Lovejoy coined it, "the temporalizing of the Chain of Being."[40] In other words, the Chain of Being became construed by Leibniz and his followers "as a process in which all forms are gradually realized in the order of time."[41]

Although the British naturalist, Thomas Wollaston (1821-1878), chose special creation over evolution, he allowed a greater range of plasticity within the species limit to help account for Darwin's observations: "Whilst 'individual variation' in each species is literally endless, it is at the same time strictly prescribed within its proper morphotic limits (as regulated by its specific range), even though *we may be totally unable to define their bounds.*"[42] Because of this, "if a

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[38] Quoted in Hull, *Darwin and His Critics*, p. 338.

[39] Quoted in Mayr, *Growth of Biological Thought*, p. 324.

[40] Ibid. pp. 129, 326-327.

[41] Lovejoy, *Great Chain of Being,* p. 256.

[42] Quoted in Hull, *Darwin and His Critics*, p. 135.

formerly acknowledged species can be shown to be descended from another formerly acknowledged species, then these two forms were not actually species but varieties [even if they can no longer interbreed]."[43] This again is a form of "evolution" *within* an original species or kind, and can be termed "parallel evolution" since the original kinds develop in parallel or independently from each other. (The modern concept of "microevolution," which recognizes the undisputable fact that living things change as they adapt to their environment, is amenable to both the supporters of special creation and of parallel evolution.) These two essentialist alternatives will be examined again when we come to the writings of 'Abdu'l-Bahá on this subject.

As early as 1690, the English philosopher John Locke had given an answer as to why a particular set of "essential characteristics" universally distinguishing one biological species from another would never be found. This, as mentioned in Section 1:2, was one of the main objections Darwinists held against the essentialist claim that each natural species has an essence which determines it. Locke granted the existence of "real essences" that are known by God, but he distinguished these from the purely "nominal essences" conceived by human beings. Because of the essential limitation of human knowledge and its inability to encompass every detail of an entity, he proposed that the precise boundaries of real essences cannot be known. Thus, he says, "our distinguishing substances into species by names is not at all founded on their real essences; nor can we pretend to range and determine them exactly into species, according to essential internal differences."[44] In other words, real essences, just like real laws of nature, can never be completely defined and will always be the subject of further inquiry. What humans deal with are nominal and provisional representations of these real things.

Morphologists also answered this same objection by proposing that there is no one-to-one correspondence between the species essence and what Darwinists define as a biological species. In other words, mutual interbreeding does not define a single species in the metaphysical sense; instead an ideal type determining a common form and common function in a certain environmental niche underlie the evident variability of things.[45]

Under the naturalists' definition of "real species" as "all forms related by blood descent to a common ancestor," Darwin would have to say, had he believed in species as other than nominal constructs, that there is only one or several species and countless varieties. This is because Darwin allowed special creation to one or several first primitive organisms, from which everything else has subsequently derived by slow and gradual variation. But, as already mentioned, Darwin's theory represents a radical change in thinking, because he proposed that God had no preconceived plan for how the first organism(s) should evolve. This was left to the mechanism of chance variations followed by their necessary selection by the environment.

Since Mayr says most biologists did not agree on the significance of natural selection as the main agent of evolution until the "evolutionary synthesis" of the 1930s and 40s, we can assume that during 'Abdu'l-Bahá's visits to Europe and American between 1911 and 1913, the

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[43] Quoted in Hull, *Darwin and His Critics*, p. 141.

[44] John Locke, "An Essay Concerning Human Understanding," Book 3, Chapter 6, in *Classics of Western Philosophy* (Cambridge: Hackett, 1990), p. 673.

[45] Mayr, *Growth of Biological Thought*, pp. 270, 458.

debates between the essentialists and the Darwinists were far from settled.[46] The implications of the two alternatives (species as fixed realities of nature determining biological populations versus biological populations as productions of natural selection and species as mere theoretical constructs) would not have been lost to his educated audience. We may now turn to the reception of Darwinism in the Arab world.

The Arab World[47]

Under the impact of Western ideas, the late nineteenth century in the Arab world was a period of intellectual ferment and increasing interest in secular learning and social change. One of the most important vehicles for the dissemination of Western scientific ideas into the Arab world was the magazine *al-Muqtataf*, founded by Yaqub Sarruf and Faris Nimr in Beirut in 1876. It moved to Egypt in 1885. The editors of *al-Muqtataf* were open-minded Christian Arabs who were generally favorable to Darwin's theory. The discussion on Darwinism in *al-Muqtataf* was frequently countered by the journal *al-Mashriq*, founded in 1898 by an Arab Catholic, Father Louis Cheikho.[48] Darwin's theory was introduced and discussed in *al-Muqtataf* in its first volume in an article by Rizqullah al-Barbárí.[49]

1.5 Rizqullah al-Barbárí's Description of Darwinism

Barbárí commences with the biblical view that the first man was created at once by God's power, not by evolution. Contrary to the Biblical view, he says that certain ancient philosophers believed in the spontaneous generation of all organisms. "They assumed that the earth was full of the 'seeds' or 'germs' of all organic species, which then evolved of their own accord with the appearance of suitable conditions."[50] Some modern scientists have returned to this view, Barbárí continues, which teaches that creatures arise "from inert matter by their own power when conditions are right...emerging by natural causes without needing an intelligent creator. To be sure, many natural scientists oppose this...and say that every living thing is due to fixed natural laws."[51]

Darwin, he says, is not to be counted among the materialists, because he accepts a Creator as the cause of existence. Both groups agree, though, that "all the differences among

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[46] Although scientists today accept evolution as a fact, they are still engaged in scientifically healthy debate over exactly how species originate. For example, Darwinian gradualism and the role of natural selection are both being challenged. (See Augros, *New Biology*, Chapter 8.)

[47] For the general Arab response to Darwinism, I have relied on Adel A. Ziadat, *Western Science in the Arab World: The Impact of Darwinism: 1860 - 1930* (New York: St. Martin's Press, 1986). For the details, I have referred to the original works of Arabic speaking authors.

[48] Adel A. Ziadat, *Western Science in the Arab World: The Impact of Darwinism: 1860 - 1930* (New York: St. Martin's Press, 1986), pp. 13-14.

[49] R. al-Barbari, "Fí Asl al-Insán" (On the Origin of Man), *al-Muqtataf* 1 (Beirut 1876), pp. 242-244, 279-280.

[50] Ibid., p. 242.

[51] Ibid., p. 243.

animals and plants occur solely from natural causes without the interference of a conscious power in their production."[52] At the end of his article, Barbárí refutes this theory for four reasons: (1) Matter or the original germ cannot by itself differentiate into all that exists today; an intellectual power is needed. (2) Although Darwin did not deny the existence of God, his theory leads to the refutation of all the proofs for God's existence. (3) This theory requires that everything now existing was generated from a single germ in the space of 500 million years by a natural action; but no proof for this exists. (4) This theory is against sound intelligence.[53]

As Ziadat notes, "Arab interest in Darwinism centered on its philosophical, social, and political implications, rather than on its status as a biological theory."[54] In other words, the educated public was more interested in knowing how this theory affected their religious and political views than in understanding how well it stood up to empirical evidence. This explains Barbárí's cursory review of Darwinism and his focus on its philosophical and theological meaning. In the Arab world, Darwin's *The Origin of Species* was not known firsthand until 1918 with the translation of the first five chapters by Ismail Mazhar. Before that, Darwin's theory was known through translations of works by some of his commentators, like Herbert Spencer, Ernst Haeckel, and Ludwig Büchner, and through articles in journals like *al-Muqtataf*.

The real debate over Darwinism began in 1882 when an American professor, Edwin Lewis, gave a speech appearing to favor Darwinism to the graduating class at the Syrian Protestant College in Beirut. As a result, several professors who sided with Lewis were forced to resign. The debate continued in the pages of *al-Muqtataf* between Louis, supported by *al-Muqtataf's* editor, Yaqub Sarruf, and an Egyptian, Yusuf al-Há'ik, on one side, and James Denis, an American theologian, and other dissenters, on the other side.[55]

1.6 Yaqub Sarruf's Article Supporting Darwin

Darwin's position, explains Sarruf, is that everything on earth, whether extinct or living, has derived gradually from something else, so biological species, in this case, could not be independently created. This chain of descent goes back to one or several roots for all plants and animals. Sarruf reminds us that Aristotle also spoke of the "great Chain of Being" and saw nature as one interconnected whole linked together from the lowest plant to the highest animal with very little difference between neighboring links, but it was a fixed and eternal whole that did not evolve.[56] Arabic speaking philosophers, states Sarruf, adopted Aristotle's concept of a fixed Chain of Being, but they added to it the ideas of creation and "progress toward perfection" (*taraqqí ila'l-kamál*), "not in the sense that man was an ox and became a donkey, then a horse, an ape, and finally man," but in the sense that independently created species progress within

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[52] Ibid., p. 279.

[53] Ibid., p. 280.

[54] Ziadat, *Western Science*, p. 23.

[55] Y. Sarruf, "al-Madhhab al-Darwiní " (Darwinism), *al-Muqtataf* 7 (1882) 65-72; 121-27; J. Denis, 7 (1882-1883) 233-236; Edwin Lewis, 7 (1882-1883) 287-290; Y. al-Há'ik, 7:290-292.

[56] This idea of a fixed chain of being dominated biological thinking until Darwin. Aristotle had no concept of evolution. Cf. Section 3.1.

themselves. For example, according to medieval natural science, gold is a metal that gradually reaches perfection by first passing through less perfect stages. So first it is lead, tin, copper, and silver, before becoming gold, but all the while it has remained within the same species.[57] In other words, these metals were not recognized as separate elements in essence. Sarruf says this view is called "independent creation" (*al-khalq al-mustaqill*), wherein species have remained independent from each other since the beginning of their creation.[58] The position of Sarruf's "Arabic speaking philosophers," by which he probably means those after Suhrawardí (see Section 3.8), is obviously very similar to that of Leibniz (see Section 1.4).

In the remainder of the article, Sarruf discusses some of the problems with the independent creation of biological populations. First, he says, as more and more species became classified scientists began to recognize that they could no longer find unique attributes distinguishing one species from another. For example, butterflies were found to consist of many different species with no apparent fixed distinction between them.[59] "Furthermore," continues Sarruf, "when scientists examined the composition of plants and animals, they found that all plants and animals belonging to one taxon or one class are formed according to a common pattern, so that vertebrates, for example, all have bones according to one pattern, no matter how different the species....Thus the bones in the hand of a man, the foot of a horse, the wings of a bird, and the fins of a fish are all homologous."[60] This similarity of structure indicates common descent.

Another evidence against independent creation, explains Sarruf, was the discovery of trace organs, or vestiges, no longer being used by a species. For example, the whale has teeth which never break through its gums and the boa constrictor has vestiges of legs hidden under its skin, each of which indicate its descent from other vertebrates which had use for these organs.[61]

Scientists also used to believe, he says, that just as mature animals differ in their forms, their embryos similarly differ. But then it was proven by close examination that the embryos of different species are virtually indistinguishable, a sign of their common origin. If the species were independently created, why don't their embryos differ?[62]

With the discovery of fossils buried in the strata of rock, scientists found that the living animals of one region resembled the extinct animals of the same region, although their species were apparently different; thus the marsupials of Australia resemble the extinct marsupials of the same continent, and these species are not found elsewhere. The same geographical isolation and species resemblance was found with the armadillo and its extinct predecessors, which are found only in South America. "Therefore," asks Sarruf, "if the species of animals had been created independently, why do the animals living now in one country resemble those that lived there

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[57] Y. Sarruf, "al-Madhhab al-Darwiní," *al-Muqtataf* 7 (1882), p. 65.

[58] Ibid., p. 66.

[59] Ibid., pp. 66-67.

[60] Ibid., p. 67.

[61] Ibid.

[62] Ibid., pp. 67-68.

formerly and are now extinct?"[63] He proposes that Darwin's answer is more satisfying: "some species descended from others, so those living today are naturally similar to their now extinct ancestors."[64]

The fossil remains in the great depths of sedimentary rock also provided evidence favoring Darwin's theory, claims Sarruf. "It was found that the animals of the earth since the beginning of its existence until today had succeeded one another gradually....The most ancient layers of rock contained nothing but sea shells and the bones of fishes very different from those living today....The next layer contained traces of animals having legs."[65] Sarruf concludes that the more recent geological strata contain the fossils of mammals and primates, and that those animals more recent in time resemble each other more closely than those more distantly separated. "The links connecting these species to each other," he explains, "are not seen because it is said that one species has changed into another species gradually by the change of its individual members."[66] Although he adds that the discovery in America of the fossilized remains of an animal with the body of a bird and the jawbone and teeth of a reptile provides a link between the reptile and the bird.

As for the reason organs change and variations appear, Sarruf holds that this is due to an organism's need to adapt to the environment to survive. For example, the giraffe's long neck developed from its need to feed on the leaves of high branches. "God did not create its front legs longer than its hind legs or its neck very long, as is widely believed, but it was compelled to eat the leaves of trees; its preference for this over moving to a more verdant region changed its body from its original form."[67] The snake, he says, also lost its legs because of its need to adapt to a changing environment.

Darwin's great law of natural selection, by which beneficial variations are preserved, depends on two things, says Sarruf. The first is that all creatures multiply in large numbers in a short time, but only the fittest survive to reproduce and carry on subsistence. Were it not for this the earth would soon become overpopulated and resources would become depleted. The second is that offspring inherit the characteristics of their parents, so if a parent has a characteristic that increases its life span or ability to reproduce, it is sure that some of its offspring will inherit this quality, and they, in turn, will pass it on to their descendants. In this way, over a long period of time, the species changes.[68] Darwin's most famous evidence for this, continues Sarruf, is in how far human breeding of domesticated plants and animals has altered them from their wild relatives. Nature does the same thing, only much more slowly.[69]

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[63] Ibid., p. 68.

[64] Ibid., p. 69.

[65] Ibid.

[66] Ibid.

[67] Ibid., p. 71.

[68] Ibid., pp. 121-122.

[69] Ibid., pp. 122-123.

As for species that do not change over time, Sarruf says this is because they are well-suited to their environments, and this situation may continue indefinitely.[70] As for how today's species reached their present state from one origin, "it is not," clarifies Sarruf, "that the flea became a frog, the frog became an eagle, the eagle became an ox, and the ox became an elephant, but their first ancestor was the same. The flea was produced from one branch [of the evolutionary tree] and the elephant from another over a long period of time."[71] So it is not correct to say that man has descended from the ape, because these are contemporary species, but both descended from a common primate ancestor.[72]

Sarruf ends his defense of Darwinism by acknowledging that certain of its proofs are weak, as Darwin also admitted, but he says, despite this, "it contains established truths, has greatly benefited scientists, and opened a number of doors to hidden mysteries."[73] His depiction of Darwinism is surprisingly accurate and very similar to Mayr's construction, which I have summarized in section 1.1-2.

1.7 James Denis' Refutation of Darwinism

Referring to Sarruf's article and Edwin Lewis' address, the theologian, James Denis, complains that Darwin completely separated religious truth from the conclusions of science and denied God's role in creating plants and animals as they appear today. He accuses Darwin of being an unbeliever and rejecting the truth of the Bible. The whole of Denis' refutation consists in summoning authorities to back him up. The Apostle Paul, for example, refutes Darwin, when he wrote: "For by Him were all things created that are in heaven and that are in earth, visible and invisible" (Colossians 1:16). Denis next turns to certain scientists of his time: A German naturalist states that "none of the human fossils found so far prove that man was at one time inferior to his present state."[74] The French philosopher, Pouchet asserts: "Species are not theoretical concepts created by human intellects, but they are created by the all-powerful Hand of God in numerous stages. They cannot change into other species, but they change independently...and are limited by certain timeless laws."[75] The American Geologist, Professor Dana, claims: "The distance between man and the ape is enormous. The area of the brain in the lowest humans is 68 square inches and in the highest apes only 34....No links between man and the apes have been found in the geological strata."[76] In short, many brilliant scientists, including Agassiz, Dawson, Beal, Pasteur, and Owen, have objected to Darwin's theory. Denis ends by arguing that Darwin's theory should not be confused with a religious theory of "evolution by a

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[70] Ibid., p. 124.

[71] Ibid., p. 125.

[72] Ibid., p. 126.

[73] Ibid., p. 127.

[74] J. Denis, *al-Muqtataf* 7 (1882-1883), p. 235.

[75] Ibid.

[76] Ibid.

divine power" (*al-irtiqá' bi-quwat ilahiyah*), because evolution may be a law by which the Creator operates, so long as self-creation and the transmutation of species are not included.[77]

1.8 Edwin Lewis Responds to James Denis

In his response to Denis, Lewis focuses on his belief that science and religion are in essential harmony. Denis had accused Darwin of being an unbeliever. Lewis explains that Darwin only meant that one's relationship with God is a personal matter, which does not conflict with a scientist's duty to investigate reality impartially. Whatever we think of Darwin's theory, he was a model example of using the scientific method to further our knowledge of reality. "We should not make a rigid judgment against the value of this theory, since it hasn't been sufficiently tested yet."[78] Lewis continues: "It is clear that the scientific method correctly applied does not make men turn away from their religion," and Darwin had testified to God's greatness and acknowledged Him as the Creator of the laws of nature. "By studying nature, we learn about the way God established it, but through revelation we learn who and what God is."[79] Lewis concludes that whoever follows a revealed religion should rejoice in God and in the progress of science, for whatever appears in one contrary to the other will vanish in the course of time and the reality will be made manifest.[80]

1.9 Yusuf al-Há'ik Responds to One of Lewis' Critics

A scholar had written a letter to *al-Muqtataf* objecting to Lewis' speech to the graduating class at the Protestant College. The scholar wrote: "He [Lewis] referred to Darwin as a model scientist, showed esteem for his ideas, and did not attempt to refute them, nor did he mention that many of the greatest scientists of our time consider them to be absurd and devoid of proof."[81] Há'ik counters this criticism in a reasonable manner:

> We know that many of the scientists are unbelievers, but this does not mean their works, discoveries, and inventions should not be accorded great respect....True religion does not contradict science...for what is science except an explanation of the laws by which God causes the universe to operate. Both scientists believing in God and those who don't agree in investigating realities, but they differ in that the former recognize God as the originator of the laws and the latter do not. There is no objection, therefore, if a believer refers to the theory of a learned nonbeliever in a scientific meeting....If it is not correct, science itself will disprove it; if it is correct, man will not be lowered from his high station.[82]

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[77] Ibid., p. 236.

[78] Edwin Lewis, *al-Muqtataf* 7 (1882-1883), p. 288.

[79] Ibid., p. 289.

[80] Ibid., p. 290.

[81] Y. al-Há'ik, *al-Muqtataf* 7 (1882-1883), p. 290.

[82] Ibid., p. 291.

1.10 Shiblí Shumayyil and Ludwig Büchner

In 1884, Shiblí Shumayyil, a Lebanese Catholic, published his translation of Ludwig Büchner's commentary *Sechs Vorlesungen über die Darwinsche Theorie*[83] in his book *Falsafat al-Nushú' wa'l-Irtiqá'* (The Theory of Evolution), raising a vehement intellectual response among Muslims and Christians alike. The reason for this response was that Shumayyil, via Büchner, understood Darwin's theory as a call to materialism. Büchner wrote, in defense of materialism: "Perhaps the greatest philosophical achievement of Darwin's theory is its removal, by categorical proofs, of the belief in final causes from the sphere of the natural sciences and from science in general....His theory has explained to us the correct causes [of speciation], and its proofs are derived not only from philosophy but from nature and living specimens as well."[84]

The materialist does not accept as explanations for natural phenomena what the senses or scientific instruments cannot detect. Thus Shumayyil states: "Man...and whatever is in him derives from nature. This is the truth, and there is no reason for doubting it today....Nothing in his composition indicates a connection to the world of spirit or to a hidden reality....He is like the animal physiologically and like the mineral chemically. He is distinguished from them only in quantity, not quality, and in form not essence."[85]

Büchner held that matter never disappears but is simply transformed from one form or state into another according to the law of change, which applies not only to living organisms, as Darwin demonstrated, but to energy and the atomic elements as well. All result from the continuous transformations of matter.[86] Matter and its motion, therefore, are the ultimate, self-evident basis of all that exists.[87] Shumayyil says that Darwin proved the transmutations of biological populations with scientific certainty and disproved the fixity of species through special creation, showing instead that they are produced necessarily by the laws of nature and never cease to be generated and destroyed as one succeeds another.[88]

One of Shumayyil's followers, Salama Musa, wrote *Muqdimat al-Superman* (The Advent of Superman) and *Nazariyat al-Tatawwur wa Asl al-Insán* (The Theory of Evolution and the Origin of Man). He was very interested in eugenics and wished his countrymen to discontinue

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[83] The full title is *Sechs Vorlesungen über die Darwin'sche Theorie von der Verwandlung der Arten und die erste Entstehung der Organismenwelt* (Six Lessons on Darwin's Theory of the Transmutation of Species and the First Origin of the World of Living Things). 3rd ed. Leipzig: Thomas, 1872.

[84] Shiblí Shumayyil, "Lesson Two," *Falsafat al-Nushú' wa'l-Irtiqá'* (The Theory of Evolution and Progress) (Cairo 1910), p. 129.

[85] Shumayyil, *Falsafat al-Nushú'*, pp. 39-40.

[86] Shumayyil explains that the modern concept of "ether" is identical to the idea of matter: "Whether we call the original substance of the universe ether or matter, and the forces which are its transformations energy or motion, the meaning is the same" (*Falsafat al-Nushú'*, p. 35).

[87] Shumayyil, *Falsafat al-Nushú'*, p. 33.

[88] Ibid., pp. 40-41.

allowing physically or mentally handicapped persons to marry. Instead of natural selection, which he felt was no longer feasible in the case of human beings, he wanted to use artificial selection to produce children with optimum physical and mental characteristics.[89]

1.11 Refutations of Materialism

The editors of *al-Muqtataf*, unlike Shumayyil, denounced materialism. Faris Nimr in an address titled *Fasád Falsafat al-Máddiyín* ("The Falsity of Materialistic Philosophy"), published in *al-Muqtataf* in 1883,[90] rejected the opinion of the materialists that the actions of the soul are no more than the effects of matter, and likewise that feelings, intelligence, and human will are merely the actions of the brain.[91] He upheld instead that mind is independent of the brain, which is only the instrument of the former.[92] Sarruf, in his own commentary against materialism at a latter date, called World War I the end result of materialistic philosophy unguided by morality and disbelieving in the divine force that created, organizes, and controls the world.[93]

Another critic of the materialists' use of "struggle for survival" to justify the war was Jurji Zaydan, the editor of *al-Hilal*. Influenced by Henry Drummond's philosophy in *The Ascent of Man*, that "love, cooperation, and friendship are also laws of nature and are necessary for evolution in all living organisms," he emphasized that the more a society exhibits cooperation and self-sacrifice, the more evolved it is.[94]

A letter of 'Abdu'l-Bahá (which will be discussed in Section 4) makes the very same points. Although not favoring religion, Ismail Mazhar also opposed materialism because it did not answer the question of the origin of life. He admitted that the forces acting to produce speciation were still unknown and he interpreted the law of struggle for survival to mean "struggle against an adverse environment," whereas "mutual aid governed living organisms."[95]

1.12 Arabic Speaking Essentialists

Among the Arab Christians, Father Louis Cheikho took a strong stand against Darwinism and opposed the moderates at *al-Muqtataf*. In regard to species, he held that each was a special creation, similar to a "small seed which contains in it the roots, branches, and flowers of a tree," such that "wheat seeds do not produce beans and the seeds of beans do not yield wheat.

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[89] Ziadat, *Western Science*, p. 41.

[90] *al-Muqtataf* 7 (1883), pp. 606-612.

[91] Ibid., p. 606.

[92] Ibid., p. 609.

[93] *al-Muqtataf* 48 (1916), pp. 299-300; 397-399.

[94] *al-Hilal* 23 (1925), pp. 464-468; cited in Ziadat, *Western Science*, pp. 57-58.

[95] *al-Usur* 2 (1928), pp. 678-680; cited in Ziadat, *Western Science*, p. 60. Contemporary authors Robert Augros and George Stanciu present convincing evidence that Darwinian struggle for survival does not characterize the relationship between species in the natural state, but rather harmony and cooperation is the norm. See *The New Biology*, chapters 4 and 5.

Therefore, animals could not produce humans or man evolve from animals."[96] Another Christian, Rufail Hawawini, writing in 1906 in the Arabic paper *al-Kalimah* published in New York, said that "all species were created separately and that man, no matter how diverse, came from one root, Adam."[97]

1.12.1 Jamál al-Dín al-Afghání

Among Muslims, Jamál al-Dín al-Afghání was a firm opponent of Darwin's theory. He wrote *al-Radd 'ala al-Dahriyín* (The Refutation of the Materialists) in 1881 in Persian; it was later translated into Arabic by his follower, Muhammad Abduh, and published in Egypt. Although he was not well-informed about Darwin, whom he classified among the materialists, his views were typical of many of his fellow Muslims. He commences by reminding his readers that one of the first materialists was Democritus, who believed that the "whole universe is composed of small hard particles that are naturally mobile, and that they appear in their present form by chance."[98]

Referring to Darwin and his supporters, he explains that they "decided that the germs of all species, especially animals, are identical, that there is no difference between them, and that the species also have no essential distinctions. Therefore, they said, those germs transferred from one species to another and changed from one form to another through the demands of time and place, according to necessity and moved by external forces."[99] Mistakenly, he relates that Darwin has man descending from the ape and the orangutan. In short, he is especially critical that the diversity of species and the perfection of organs could occur by chance without the benefit of intelligent direction. He says:

> If one asked him [Darwin]: What guided those defective, unintelligent germs to the production of perfect and sound external and internal members and limbs, whose perfection and soundness the wisest men are unable to fathom, and whose benefits the masters of physiology are unable to enumerate; and how could blind necessity be the wise guide of the germs toward all these perfections of form and reason--naturally he could never raise his head from the sea of perplexity.[100]

Against the idea of some materialists that the simple elements form themselves into complex and stable forms, he asks:

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[96] *al-Mashriq* 9 (1913), pp. 694-695; quoted in Ziadat, *Western Science*, p. 79.

[97] Ziadat, *Western Science*, p. 81.

[98] Jamál al-Dín Afghání, *al-Radd 'ala al-Dahriyín*, trans. Nikki Keddie in *An Islamic Response to Imperialism* (Berkeley: University of California Press, 1968), p. 133.

[99] Ibid., p. 135.

[100] Ibid., p. 136.

> How did these separate, scattered particles become aware of each other's aims and by what instrument of explanation did they explain their affairs? In what parliament and senate did they confer in order to form these elegant and wonderful beings? And how did these separate particles know that if they were in a sparrow's egg they must there take on the form of a grain-eating bird, and that its beak and maw should be so formed as to make its life possible?[101]

1.12.2 Hussein al-Jisr

Hussein al-Jisr, a Shi`ite jurist from Lebanon, won a prize from his patron, Sultan 'Abdu'l-Ḥamíd, for his book *Al-Risála al-Hamídíya fí Haqíqa al-Diyána al-Islámíya wa Haqqíya al-Sharí`a al-Muhammadíya* (The Praiseworthy Epistle on the Truth of Islam and Islamic Canon Law) published in Beirut in 1887. In one part of the book he argues against Darwin's theory and supports "the theory of creation and the independence of species" (*madhhab al-khalq wa istiqlál al-anwá`*). He is reasonable enough, however, to state that should the evolution "hypotheses become established by categorical proofs which haven't a chance of contradiction or refutation, Muslims should accept them" and interpret the Holy Book so that the two views are compatible.[102] But he is clear that Muslims would continue to hold God as the real First Cause of the universe, who had chosen to create the world via natural laws and secondary causes. Whether God created the species independently and all at once in the beginning or gradually by means of evolution, deriving some from others, Jisr maintains that "either of these two beliefs...would suffice Muslims to prove the existence of God and to ascribe to Him the attributes which these signs indicate."[103]

Jisr argues, however, that the proofs for the theory of evolution are weak and against the obvious meaning of the Qur'án and the Bible, which indicate that God created species independently, not derivatively (cf. Genesis 1:10-31). He adds that although the Holy Texts are clear on independent creation, they are not clear on whether species were created all at once or gradually.[104]

As for the proofs used to support Darwin's theory, Jisr relates and then refutes three of them, saying that none are categorical evidence for evolution. The first proof is that the existence of trace members or vestiges, which now have no use, indicate that the species has changed. If each species was independently created, why are these useless vestiges present? They must have been of use to an earlier species which has since evolved so that they are no longer necessary, and only their traces remain; or they indicate that the species is currently changing into something else where they will be of use.[105] In response, Jisr asks: "What prevents these vestiges

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[101] Ibid., p. 137.

[102] Hussein al-Jisr, *Al-Risála al-Hamídíya fí Haqíqa al-Diyána al-Islámíya wa Haqqíya al-Sharí`a al-Muhammadíya* (The Praiseworthy Epistle on the Truth of Islam and Islamic Canon Law) (Beirut 1887), pp. 293, 300.

[103] Ibid., p. 297.

[104] Ibid., p. 303.

[105] Ibid., pp. 310-311.

from having a use? They may have a wisdom which is hidden to you, just as the uses of many things existing in plants and animals are hidden from you."[106]

The second proof is that the oldest layers of sedimentary rock contain fossils of the most primitive plants and animals, and the layers higher up contain more evolved species. If the theory of independent creation is true, both the most primitive and the most advanced species should be found in each of the geological strata, but this is not the case. Consequently, the origin of the higher species must be the ancient primitive species, which changed in form and evolved until they appeared as they do today.[107] Jisr counters that God may have created the most primitive plants and animals first in accordance with the earth's primitive state. Then when the earth's environment began to change, He created independently a new group of more advanced species suitable to the new conditions, not deriving them from the more primitive species. The old species became extinct due to natural disasters or from competition with the new species. This process of new independent creation and extinction continued, proposes Jisr, until the present species appeared and accounts for the fossils of ancient extinct species found in the strata of rocks.[108] This was also the position of the British geologist Charles Lyle mentioned above.

The third proof constitutes the four laws by which the transmutation of species and the extinction of the primitive by evolution take place. The first is the law of inheritance, which states that the offspring will inherit the characteristics of the parents. The second is the law of variation, which means, inheritance notwithstanding, the offspring will differ in some characteristics from the parents. The third is the law of struggle to survive, in other words, species compete with each other to acquire the means of subsistence, and some are destroyed by others or by natural disasters. The fourth is the law of natural selection, which means the strongest and most fit will endure, while the weakest and least fit will perish.[109] Jisr accepts two of the laws without hesitation, because they do not contradict creation. He says: "As for the law of inheritance, this is an evident thing which Muslims do not deny....Similarly, we do not object to the struggle to survive. As a result of this law some species survive while others perish and return to God."[110] But he interprets the law of variation in a different way. Similar to other essentialists, he says the variations which occur in individuals are accidental and not essential, so that they cannot become the means of transforming one species into another.[111] Even if the variations of individuals within a species continue for millions of years, this could not change the species, which is fixed. The law of natural selection, explains Jisr, is a natural consequence of the other three, so it is also compatible with the existence of species by creation.[112] With his refutation finished, Jisr concludes that the theory of creation is superior to that of evolution.

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[106] Ibid., p. 314.

[107] Ibid., p. 311.

[108] Ibid., pp. 316-317.

[109] Ibid., pp. 311-312.

[110] Ibid., p. 318.

[111] Ibid., p. 319.

1.12.3 Abu al-Majd al-Isfahání

The last Muslim thinker to be considered here, also a contemporary of ‘Abdu'l-Bahá, is Abu al-Majd Muhammad Ridá al-Isfahání, a Shi`ite theologian from Iraq. He was acquainted with the views of Darwin’s critics and supporters and wrote a two volume work called *Naqd Falsafah Darwin* (Critique of Darwin’s Philosophy), which appeared in 1914. Of all the critiques of Darwinism yet presented, his is the most knowledgeable and penetrating. He accepted evolution in a special sense, as long as God remained the Creator of all things by design (*qasd*) and choice (*ikhtiyár*). In his introduction he warns his fellow believers to not thoughtlessly reject Darwinism, and he castigates the materialists for denying God:

> As for how things were created, although all these species were created independently and came into existence from the seal of nonexistence without changing from what they were at the beginning of their creation, there is no clear text in the Book or the Sunna which is in opposition to this theory. Whether the primordial ancestor of the camel was a camel or not, or the most distant ancestor of the elephant was an elephant or not, the evidence of their creation in each case is manifest and testifies to the existence of a wise Creator. Therefore the rejoicing of the materialists over this theory and making it the basis of their heresy is most strange.[113]

By the materialists, Isfahání means specifically Ludwig Büchner and his Lebanese follower, Shiblí Shumayyil, who were promoting a concept that Isfahání considered extremely dangerous to the positive teachings of religion. He is eager to disassociate Darwin’s name from the materialists and he affirms that Darwin was a believer in God by quoting his words in *The Origin of Species*: “ ‘The origin of all these genera is five or six [ancestors] into which the Creator breathed the spirit of life.’ But,” laments Isfahání, “the ignorant among his supporters eclipsed this star and brought the utmost dishonor upon him and his theory.”[114] Another reason Isfahání admired Darwin was because he admitted the hypothetical nature of his ideas, and Isfahání quotes him again, this time from *The Descent of Man*: “Many of the ideas I have proposed are very hypothetical and I do not doubt that some will be disproved by categorical proofs.”[115]

Isfahání believed that scientific theories can only be established by categorical proofs, and that no categorical proofs can contradict the essential truth of religion. The believers, he is quick to point out, do not deny the natural laws by which the Creator causes things to occur.[116]

Despite his praise for Darwin, Isfahání has some serious criticisms of Darwin’s theory. He starts with Darwin’s affirmation that man is able to change just like other animals and is

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[112] Ibid., p. 323.

[113] Abu al-Majd al-Isfahání, *Naqd Falsafah Darwin* (Critique of Darwin’s Philosophy), 2 vols, (Baghdad 1914), vol. 1, pp. 16-17.

[114] Ibid., p. 19.

[115] Ibid., p. 39.

[116] Ibid., pp. 39-40.

subject to the law of inheritance, which allows the transmission of new characteristics to the offspring.[117] He observes: "The utmost that is proved by the capacity to change is the possibility of transformation, but the acquisition of the human form by this means does not refute its occurrence by another cause, like creation."[118]

A second proof of Darwin for the descent of man from the animal is based on the similar construction of their bodies, so that the pattern of human bones, muscles, nerves, blood vessels, cells, and brain are like that of an ape, bat, seal, and so on, indicating that man is physiologically closely related to the animal and that they share common descent. Isfahání states that Muslim thinkers have long noted the physiological similarity between men and certain animals, especially the ape, but they have not deduced from this their descent from a common ancestor. That the organs are analogous does not mean they are also homologous, i.e., they may be similar by design but not necessarily because of a common physical ancestor. He includes an especially interesting statement attributed to the Imam Ja`far al-Sádiq, according to al-Mufaddil, from the *Kitáb al-Tawhíd*:

> Ponder upon the creation of the ape and its resemblance to man in most of its organs, i.e. its head, face, and shoulders. Its intestines are also like the intestines of man. It is endowed with a mind and nature by which it understands its master and imitates many of the things it sees man doing, so much so that it is the nearest among created things to man. Its characteristics...serve as an example to man with respect to himself that he should know he is from the clay of beasts and their origin....Were it not for the excellence which makes man superior to the beasts in thought, intellect, and speech, he would be like some of the beasts. Although the ape has different features in the nose-mouth structure, hanging tail, and hair enveloping its body, this would not prevent the ape from catching up to man, were it given thought, intellect, and speech like those of man.[119]

Notwithstanding physiological similarity, Isfahání argues that "mere resemblance between two things does not require their transmutation from a third thing, or the change of one into another," because these species are different in essence.[120]

Darwin's third proof is that the embryo of man in the beginning is almost no different from the embryos of other vertebrates, then gradually differences appear, indicating that the legs of lizards, the limbs of mammals, the wings of birds, and the arms and legs of man have all evolved from one original form. Isfahání rejects this idea that ontogeny recapitulates phylogeny, firstly, because of the revelation of Haeckel's forgeries of the stages of embryonic forms, but also for the following reasons: (1) the comparison is limited to species that reproduce sexually; (2) some animals jump from one stage to another but omit the stages in between; (3) some animals may advance, then decline, then advance again. As an example of the second, Isfahání says: "You find two animals of one species...whose embryos grow in different ways. Frogs

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[117] Ibid., p. 49.

[118] Ibid., p. 51.

[119] Quoted in Isfahání, *Naqd Falsafah Darwin*, vol. 1, p. 53.

[120] Isfahání, *Naqd Falsafah Darwin*, p. 54.

usually pass through the stage of having gills, but in America there is a species of frog that doesn't pass through this stage."[121]

Darwin's fourth proof is that the existence of vestiges, or trace organs, in man and the higher animals, such as breasts in the human male, the wisdom teeth, etc. indicate common descent. They have become vestiges due to lack of use.[122] Isfahání counters that the science of physiology, which studies the functions of organs, did not at first know the functions of many of the organs. For example, heart valves used to be considered trace organs until their use in the circulation of the blood was discovered. The small number of remaining vestiges may also have functions of which we are still unaware.[123] Isfahání also undermines the proof in another respect:

> If we agree there is no actual use for these organs now, how do we know they were functional to man in the past. Perhaps they will be functional in the future. According to evolution, the organs do not come into existence all at once, but they are completed gradually....They began to appear in one of the ancient epochs and did not cease to become more perfected over millions of years until they reached maturity and were ready to perform their functions. It is evident that in those past eras, these presently active members would have been considered an excess.[124]

As an example, Isfahání says the breasts of a girl at first are not functional, but they grow gradually until maturity, when their function is realized for nursing children. He holds that such changes to species through evolution do not negate the immutability of the species forms of things. He concludes: "The utmost they have proven is that these organs were in man formerly, and he had need of them, but is now independent of them. This does not prove that he was an animal, even according to their principles....Rather, the hand of divine wisdom produced them [changes in organs] as they were needed."[125]

Isfahání also discusses the discovery of fossil remains like Neanderthal and Java man, which were being put forward as intermediate links to prove the descent of man from the animal. He says of Java man: "Its skull being intermediate in size between apes and man does not prove that its owner was intermediate between them. Some men have brains smaller than some animals, and some animals have larger brains."[126] In regard to the discovery of Neanderthal man, he similarly concludes: "All that these discoveries succeed in proving is the existence of a kind of primate...nearer to man than the presently evolved apes. The descent of man from it is not proved."[127]

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[121] Ibid., p. 66.

[122] Ibid., p. 69.

[123] Ibid., pp. 71-72.

[124] Ibid., pp. 73-74.

[125] Ibid., pp. 76-77.

[126] Ibid., p. 98.

The depth of Isfahání's understanding of Darwinism is evident in his criticism of some contemporary scientists who were trying to find a link between man and present-day apes. Iṣfahání asserts they have misunderstood an important aspect of Darwin's theory, which is that no present forms derive from other present forms; rather Darwin holds that each species is the end of a long series of transformations from a common unknown ancestor.[128]

Similar to Jisr's response to the four laws of evolution above, Isfahání has no trouble accepting them from the standpoint of religion, except for the law of variation. Darwin based this law on the premise that no two individuals are alike. Everything has some new variations, and these variations are the cause of new species by continuous deviation from the parent population.[129] Isfahání responds: "These philosophers insist that this [i.e. random variation] is the cause of all beings....but it is necessary for them to prove that these variations are not limited by a law or that there is not a law behind the species which derives some of them from others."[130] Later in his book he perceptively notes that the main problem with Darwin's "theory are the laws of differentiation, which still aren't known, and are preserved for the twentieth century to discover."[131]

At this point, Isfahání has arrived at the heart of the controversy between the essentialists and the Darwinists, and he is commendably candid about the problems both sides face on the issue of speciation: "What they say [i.e. in favor of Darwinism] could be true if there is no distinction between accidental and essential attributes, or they are able to prove that variations apply to essential things."[132] He next quotes Büchner's response to the essentialists:

> The opponents of Darwin...claim changes apply to accidents only, like color, skin, and stature, and say such changes do not apply to the essence (*jawhar*), but Darwin explained the error of their claim and established that the tendency to change does extend to the essence. He said that the distinction between the species and the variants is difficult to ascertain and scientists maintain many differences over this issue; they do not have an accepted definition for it [species].[133]

Isfahání answers Büchner in a manner reminiscent of John Locke and Thomas Wollaston (see 1.4 above): "We say that establishing [the limits of] the species is a question belonging to the

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[127] Ibid., pp. 101-102.

[128] Ibid., p. 102.

[129] The difference in understanding between the essentialists and the Darwinists on the role of variation illustrates precisely the point at issue between teleological and population thinking.

[130] Isfahání, *Naqd Falsafah Darwin*, pp. 133-134.

[131] Ibid., vol. 2, p. 33.

[132] Ibid., vol. 1, p. 135.

[133] Quoted in Isfahání, *Naqd Falsafah Darwin*, pp. 135-136.

Exalted Wisdom, and it cannot be attained by way of the natural sciences."[134] In other words, Isfahání believes that the laws determining independent species are known only to God and cannot be ascertained by physical classification.

The next part of Isfahání's criticism turns upon the supposition of the Darwinists that random variation and natural selection are sufficient to explain the countless variety of living beings. These laws do not explain, he argues, "the causes by which things exist" nor the causes of their order and perfection. "They only explain the causes of their survival and the reason they are not destroyed after their existence."[135] Like Pictet (see section 1.3), he objects to the idea that natural selection by itself should select organs that as yet have no benefit, and which may even be detrimental to the organism's immediate survival, because "nature according to them [Darwin and his supporters] is blind; if this is so how can it single out the augmentations which have no benefit except after a long period of time?"[136]

Isfahání, having undermined Büchner's materialistic interpretation of Darwinism, explains that "what is meant by the philosophy of creation is the theory of the independence of species (*istiqlál al-anwá`*) and their non-evolution from each other. If we have defended this philosophy, it is a purely scientific defense, not religious."[137] Although upholding independent creation, Isfahání combines it with a special understanding of evolution. A definition of evolution (*al-irtiqá'*), which he finds acceptable is the following: "It is the movement of living bodies toward perfection."[138] "The universe," he says, "has a wise director who brings all things into existence as they are needed and annihilates them when they serve no purpose. He does so gradually, both bringing into existence and destroying, according to the requirements of the divine system."[139]

In other words, he believes that species are more or less evolved in relation to themselves but not in relation to each other, because each creature is perfect in its place and its organs suit its environmental niche. So he argues against Spencer who defined evolution as a decrease in homologous organs and increase of diverse organs:

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[134] Isfahání, *Naqd Falsafah Darwin*, p. 136.

[135] Ibid., p. 144.

[136] Ibid., p. 147. Elsewhere Isfahání notes that Darwin has the eye evolve gradually from a light-sensitive spot through limitless transformations solely by natural selection. He is amazed at this view and asks: "How can it be hidden from them that these organs are among the greatest proof of the existence of a Creator and His wisdom and providence....Eternal Providence prepares organs for animals over a long period of time, according to their needs, then He completes their creation and they become capable of performing their function" (*Naqd Falsafah Darwin*, vol. 2, p. 40).

[137] Ibid., p. 179.

[138] Ibid., p. 221. Isfahání's understanding of evolution as "progress toward perfection" recalls Leibniz (see section 1.4) and Sarruf's statement that this idea was added by the Arab philosophers to Aristotle's concept of the great chain of being (see section 1.6).

[139] Ibid., p. 180.

> In short, if one organ fulfills a number of functions without deficiency and fulfills all the animal's needs, then there is no need for other organs to divide up its functions; nay, those organs would be an excess and could be harmful....The existence and state of these things is not evolution and their lack is not considered a decline. For example, you may consider the mole primitive because its eyes are undeveloped, but it does not need its sight.[140]

As for how evolution and creation work together, Isfahání concludes with the following conception:

> What can we say against the Divine Power if He created the horse after numerous transformations due to His knowledge that it cannot at once become the form of a horse, but according to the most perfect system, must first wear other more primitive forms? Or what can we object if different exigencies due to different times, new changes in the environment, and changes in the means of subsistence, required the forms of the ancestors of the horse to change, so that the shape in each stage was conformable with what suited the circumstances and conditions of the environment. How absurd to consider the destruction of the pillars of teleology the fruit of this philosophy![141]

* * *

In summation, Muslim thinkers, in general, rejected Darwin's theory insofar as it called for speciation by random variation and natural selection alone and failed to allow for the role of God's wisdom in the creation of species. This is because they belonged to the same teleological worldview supported by a large number of Darwin's contemporaries in Europe (see section 1.1). Very few Arab thinkers, whether Christian or Muslim, accepted materialism, and most rejected it as a dangerous and unworkable doctrine. The editors of *al-Muqtataf*, Sarruf and Nimr, can be considered deists like Darwin who believed that God had set the laws of nature into motion but did not preplan the boundaries of species.

From the writings and talks of 'Abdu'l-Bahá on the subject of evolution, which will be examined in Sections 2 and 4, it is evident that 'Abdu'l-Bahá was familiar with the contemporary debate on this theory in the Arab world and knew, generally, the views of Darwin's supporters and detractors. It is also possible that 'Abdu'l-Bahá subscribed to the journal *al-Muqtataf*, and that he had an opportunity to familiarize himself with the issues.[142] In his table talks, published as *Some Answered Questions*, given to Laura Clifford Barney in 'Akká', Palestine, between the years 1904-1906, 'Abdu'l-Bahá does not mention by name any of Darwin's supporters. He calls those who uphold speciation by transmutation "certain European philosophers," and designates those who believe in the divine creation of species "theologians" (*iláhíyún*). He reserves the term "materialists" (*máddíyún*) for those who allow for no ultimate reality beyond matter.

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[140] Ibid., p. 225.

[141] Ibid., vol. 2, pp. 30-31.

[142] Personal communication with Professor Amin Banani, Department of Near Eastern Languages and Cultures, University of California, Los Angeles, June 1996.

Section 2: The Originality of Species

Among the key concepts that ‘Abdu'l-Bahá proposes in his talks on evolution is the concept of the “originality of species” (*asálat-i naw‘*), which is pivotal to understanding his response to Darwinism. By “originality” here is probably meant the state of being “the source or cause from which something arises” or “not secondary or derivative.” The expression *asálat-i naw'* (originality of species) is used by ‘Abdu'l-Bahá in *Some Answered Questions*,[1] twice in Chapter 47, twice in Chapter 49, and once in Chapter 50 in the variant form *aslíyah*. In each case, it is used as an alternative to the Western theory of the “transmutability of species” (*taghyír-i naw'*) proposed by “certain European philosophers” (i.e., Darwin, Spencer, Büchner, etc.). The position of the latter theory is that all species, including man, are successive modifications of earlier species through the natural selection of random variations in the struggle to survive. ‘Abdu'l-Bahá, standing within the teleological tradition, counters this theory by asserting that species are not derived from each other; rather each has its own originality, or primary reality (*asálat*), and independence (*istiqlál*).

While affirming that evolution (*taraqqí*) of the biological form has occurred, he qualifies this by saying that “progress and development take place within the species itself,” not “from the genus to the species.”[2] Various Arabic words have been used by Arabic speakers to translate “evolution,” such as *taraqqí*, above, and its variant *irtiqá’*, both of which mean to ascend, progress, and advance. The word *nushú’*, meaning to grow and develop, is also used, and the theory of evolution has been specifically termed *madhhab al-nushú’ wa-l-taraqqí*. These words, however, do not capture the significance of Darwin’s particular use of the term “evolution,” which implies the transmutation of one species into another without any underlying goal. It is clear that when ‘Abdu'l-Bahá uses “evolution” favorably, it is not in the particular Darwinian sense of the word, but in the general sense of progress leading to greater complexity and perfection over time. Confusion may arise for the reader of ‘Abdu'l-Bahá’s writings because he uses the same term to refer both to Darwin’s theory, and to his own idea of evolution within the boundaries of species. Because of this, it is important to remember that when ‘Abdu'l-Bahá uses the term “evolution” (*taraqqí*) favorably, he means it in the general sense of the term.

Some may maintain that what ‘Abdu'l-Bahá is supporting is not evolution at all but rather the temporalization and continuous becoming of the great Chain of Being, a concept posited by some of the philosophers already discussed. This is true if one defines “evolution” in the Darwinian sense, but it is clear that “evolution” has many other connotations, all of which are widely accepted in the English language and all of which would be acceptable to ‘Abdu'l-Bahá. For example, *Merriam Webster’s Collegiate Dictionary* (10th edition) defines “evolution” as (1) “a process of change in a certain direction: unfolding”; (2) a process of continuous change from

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Notes for Section 2: The Originality of Species

[1] This book, known in Persian as *Mufávadát*, is Laura Clifford Barney’s collection of the table talks that ‘Abdu’l-Bahá gave in ‘Akká’ between the years 1904-1906. It was later corrected by ‘Abdu’l-Bahá and he encouraged Miss Barney to publish it.

[2] ‘Abdu'l-Bahá, *Má’idiy-i Ásmání* (The Heavenly Table) (New Delhi: Bahá'í Publishing Trust, 1984; reprint of vols. 2, 5, and 9 formerly published in Tehran), vol. 2, p. 69.

a lower, simpler, or worse to a higher, more complex, or better state"; (3) "a process of gradual and relatively peaceful social, political, and economic advance"; (4) "the historical development of a biological group (as a race or species): phylogeny"; (5) "a theory that the various types of animals and plants have their origin in other preexisting types and that the distinguishing differences are due to modifications in successive generations"; (6) "a process in which the whole universe is a progression of interrelated phenomena." Since only definition number five is the Darwinian definition, it is fully justified to say that ‘Abdu'l-Bahá supported evolution in the general meaning of this word.

The doctrine of the originality of species and the idea that species only progress within themselves but do not transform gradually into other species are consistently maintained by ‘Abdu'l-Bahá in both his talks and his letters. For example:

> Question.--What do you say with regard to the theory held by some European philosophers on the evolution of beings? Answer....Briefly, this question will be decided by determining whether species (*naw‘*) are original or not. For instance, has the species (*naw‘íyah*) of man been established from the beginning, or was it afterward derived from the animal?[3]
>
> Now assuming that the traces of organs which have disappeared actually existed, this is not a proof of the lack of independence and nonoriginality of the species (*naw‘*). At most it proves that the form, appearance, and organs of man have progressed. But man has always been a distinct species (*naw‘*), man, not animal. So, if the embryo of man in the womb of the mother passes from one form to another so that the second form in no way resembles the first, is this a proof that the species (*naw‘íyah*) has changed? that it was at first an animal, and that its organs evolved until it became a man? No, indeed! How puerile and unfounded is this idea and this thought! For the originality of the human species (*naw‘*), and the independence of the essence (*máhíyah*) of man, is clear and evident.[4]
>
> In regard to "creation," say to the historian that in the same way that "divinity" and "lordship" have no beginning, "creativity" and "provision," and the other original divine perfections, also have no beginning and no end. In other words, creation has existed from the beginning that has no beginning and will last until the end that has no end. The species (*naw‘íyah*) and essences of all things are permanent (*báqí*) and established (*bar qarár*). Only within the limits of each species (*naw‘íyah*) do progress and decline occur.[5]

In these quotations, as well as in other passages on this subject, ‘Abdu'l-Bahá frequently uses the term *naw‘íyat* (specificity or species-ness), which is the abstract noun form of *naw‘*

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[3] ‘Abdu'l-Bahá, *Mufávadát* (Table Talks) (New Delhi: Bahá'í Publishing Trust, 1984), pp. 135-136; *Some Answered Questions* [hereafter abbreviated as *SAQ*] (Wilmette: Bahá'í Publishing Trust, 1981), p. 191, revised translation.

[4] `Abdu'l-Bahá, *Mufávadát*, pp.130-131; *SAQ*, p.184, revised translation.

[5] `Abdu'l-Bahá, *Má'idiy-i Ásmání*, vol. 9, p. 27.

(species). Since translating *naw'íyat* as "specificity" or "species-ness" is awkward in English and also confusing, both *naw'* and *naw'íyat* have been translated in this article by the single English term "species." What is critical now is to determine what 'Abdu'l-Bahá intended by the term "species" (*naw'* and *naw'íyah*).

It is the opinion of the author that 'Abdu'l-Bahá had a particular meaning in mind for "species" different from what most modern readers understand by this term. Today, "species" primarily indicates the theoretical classification of a biological form as determined by its ability to reproduce sexually with similar organisms. This view was probably also held by many of 'Abdu'l-Bahá's European and American listeners in 1912 under the influence of Darwinism. Although 'Abdu'l-Bahá often does use the term species in a biological sense,[6] it is evident that he understood "species" primarily in a Platonic sense. This is supported by the fact that he uses "essence" (*máhíyah*) correlatively with "species" above. Among the philosophers of Iran the term *máhíyah* has two precise philosophical meanings. Professor Izutsu explains:

> *Máhíyah* in Islamic philosophy is used in two different senses: (1) *máhíyah* "in the particular sense" (*bi-al-ma'ná al-khass*), which refers to what is given in answer to the question about anything "what is it?", the expression, *má huwa* or *má hiya* "what is it?" being the source of the word *máhíyah* in this sense; and (2) *máhíyah* "in the general sense" (*bi-al-ma'ná al-'ámm*) referring to that by which a thing is what it is, i.e. the very "reality" (*haqíqah*) of the thing.[7]

Máhíyah in the particular sense is best translated by the term "quiddity," which refers to "what something is" without requiring its actual existence. In other words, it is strictly a concept in the mind, such as when we think of "man" in general apart from any concrete instances of man. *Man*, in this sense, is called a "universal," which in philosophy means the logical classification of individual beings under a certain general type. Thus, individual human beings are classified under the "species" humanity, which has been conceptually abstracted from those same individuals, and so forth for other species. "Species," "quiddities," and "universals" in this sense refer to mental constructs derived from actual biological particulars. This is exactly the way modern science uses the concept of "species" and it was also Aristotle's understanding. But 'Abdu'l-Bahá is not using the terms *máhíyah* and *naw'íyah* in this sense.

It is the second meaning of *máhíyah*, "that *by which* a thing is what it is," which corresponds to 'Abdu'l-Bahá's meaning. This is the Platonic understanding, in which the terms *máhíyah* (essence) and *naw'íyah* (species) refer to a divine reality existing in a realm outside of space and time, not to a human concept (see sections 3.1 and 3.2 for more on the differences between Plato's and Aristotle's views). The Greek *eidé*, translated into English as Platonic "Form" or "Idea," was the same word used for "species" among the Greek philosophers. In Sufi terminology such a reality is also called a "fixed archetype" (*al-'ayn al-thábitah*), in other

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[6] For example, he says: "The species existing on this planet had a beginning, for it is established that there was a time when these species did not exist on the surface of the earth. Moreover, the planet earth has not always existed, but the world of existence has always been, for the universe is not limited to this terrestrial globe" (*Mufávadát*, p. 107; *SAQ*, p. 151, revised translation).

[7] Toshihiko Izutsu, *Concept and Reality of Existence* (Tokyo: The Keio Institute of Cultural and Linguistic Studies, 1971), p. 101.

words, the universal idea of something posited in God's knowledge prior to its actual manifestation as concrete existents in time. This usage of the term *'ayn* was commonly accepted among Islamic philosophers and mystics by the time of Mullá Sadrá, who identified *'ayn* (pl. *a'yán*) with the Platonic Ideas.[8] William Chittick points out, however, that in Ibn 'Arabí's writings *'ayn* should not be translated as "archetype," but rather as "entity," because Ibn 'Arabí did not regard it as a model for many individual things in the Platonic sense.[9] Though the archetypes of things are commonly said to be "fixed" (*thábitah*), this term would probably be better translated in the technical sense of "posited." In other words, they are posited in God's knowledge, not necessarily fixed in God's knowledge. Among Islamic philosophers, *máhíyah* is also closely related in meaning to *dhát* (quintessence) and *haqíqah* (reality).

Given this context, where "species" is the correlative of "essence" in a Platonic sense (Izutzu's second definition above), it is seen that 'Abdu'l-Bahá's concept of "species" (*naw'* or *naw'íyah*) is not equivalent to the modern scientific definition. Therefore, in order to avoid the ambuiguity that the term "species" standing alone conveys, the expression "species essence" will often be used in this essay to signal the Platonic meaning (as opposed to the modern or Aristotelian meaning) of 'Abdu'l-Bahá's concept of species. Although some readers trained in modern sciences will find this expression awkward, it is not altogether contrived, since Shaykh Ahmad also uses it (see Section 3.10).

Such species essences are necessary, according to Mullá Sadrá, for two reasons: First, there must be one director for each biological species which regulates, determines, and preserves its members; otherwise those species will not be continuous but discontinuous, so that a non-horse could eventually evolve from a horse, and a non-human from a human, etc.[10] Second, God must know things as universals before He knows them as particulars in order to have a plan (*'ináyah*) for the cosmos; otherwise the universe would not be a system but a haphazard flow of events.[11]

As an archetype, the species essence is in a special sense a universal, but in an entirely different way than the logical universal. In God's knowledge, archetypes are *causative* of actual existents, not *derivative* from them (as are logical universals). Because it is one in relation to the many that it causes, it is in this sense only a universal. Temporal or biological existents are accidents dependent on their species essences. 'Abdu'l-Bahá also follows this way of thinking. For example:

> This general [external] existence is one of the accidents occurring to the realities of beings, while the essences (*máhíyát*) of beings are the substance (*jawhar*)....Certainly, that which is the substance is superior to that which is the accident, for the substance is

[8] Fazlur Rahman, *The Philosophy of Mullá Sadrá* (Albany: State University of New York Press, 1975), pp. 29, 47.

[9] William Chittick, *The Sufi Path of Love. The Spiritual Teachings of Rumi* (Albany: University of New York Press, 1983), p. 84.

[10] Mullá Sadrá, *Al-Hikmat al-Muta'álíya fi'l-Asfár al-'Aqlíya al-Arba'a* (The Sublime Wisdom in Four Journeys of Reason) 9 vols. (Qum 1368 - 1379 A.H.), vol. 2, pp. 56-57.

[11] Ibid., vol. 6, pp. 256-257.

> the origin, and the accident is the consequence; the substance is dependent on itself, while the accident is dependent on something else; that is to say, it needs a substance through which it subsists.[12]

The word *jawhar*, usually used to translate Aristotelian "substance," is another Arabic philosophical term which is sometimes used in a sense nearly equivalent to *máhíyah*.

Inasmuch as the essences or potentialities of all possible creatures exist timelessly "with" God, 'Abdu'l-Bahá proposes that "the species and essences of all things are permanent and established."[13] In short, when 'Abdu'l-Bahá refers to a "species," he means the species reality, not its accident or reflection in matter at some particular time point in its changing reflection. Although the biological definition of a species as "able to have fertile offspring" is a good working definition, at root it is the characteristics of the definer of the species, the actual species essence, that determine the species (cf. John Locke's idea of a "real essence" in Section 1.4).

The debate, then, between 'Abdu'l-Bahá and "certain European philosophers" who have proposed the theory of the transmutation of species is more philosophical than scientific in nature. The question is: Does the present form of a biological population depend solely on material factors (such as natural selection and random mutations), or does it depend also on timeless laws designed by a transcendent Creator? This is not a scientific question, according to scientists, because its answer, one way or the other, cannot be falsified by observation and experimentation.[14] To be scientific, a hypothesis must be subject to a process of empirical verification which may falsify it. A philosophical argument, on the other hand, may have as its object things which cannot be proven or disproven by science (such as the existence of God, purpose, and timeless laws of nature) but which can be established by reason and rational proofs.

The difference between how 'Abdu'l-Bahá and his Western audience understood the implications of the term "species" would account for the ambiguity that is apparent in discussions of the writings and talks of 'Abdu'l-Bahá on this subject. 'Abdu'l-Bahá concurred with the views of "the philosophers of the East," in other words, the philosophers of Islam and the Greek philosophical tradition from which they borrowed. In one of his talks, as already mentioned, he associates his views on the originality of species with these Eastern philosophers. It is this tradition which will now be examined in hopes of coming to a clearer understanding of 'Abdu'l-Bahá's position.

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[12] 'Abdu'l-Bahá, *Mufávadát*, p. 203; *SAQ*, p. 292, revised translation.

[13] 'Abdu'l-Bahá, *Má'idiy-i Ásmání*, vol. 9, p. 27.

[14] Montagu, *Science and Creationism*, p. 120.

Section 3: Species, Essence, and Becoming: The Views of the "Philosophers of the East"

3.1 Aristotle

The two variant understandings of what a species is go back to the dispute between Plato and Aristotle on the nature of form. Is a species: (a) determined solely by the biological form and, therefore, a mental construct? or (b) determined by an immaterial, archetypal form which is beyond the direct grasp of the human mind and is, therefore, a reality of nature? For Aristotle (384 - 322 BCE) the only form of things is the form *immanent* in the matter of actual existents, the form of particular individuals: this tree, this man, this horse, etc., which he called "primary substances." Mayr says that historians of science have recently recognized in Aristotle's immanent form the equivalent of the genetic program of modern biology by which the next generation assumes the form of its parents.[1]

According to Aristotle, primary substances are the fundamental realities of the world to which accidents, such as quantity, quality, relation, place, position, time, state, activity, and passivity can be predicated. "All the other things," he explained, "are either said of the primary substances as subjects or in them as subjects….If the primary substances did not exist it would be impossible for any of the other things to exist."[2] Although individual entities undergo change in respect to coming-into-being and going-out-of-existence, alteration of quality, growth or diminution, and change of place (motion), the essences of these primary substances are fixed and unchanging. In other words, it is not the substance itself, as subject, that is changing but only its accidental qualities. Change is the exchange of one accidental quality for another, and is therefore an accidental feature of reality. This type of philosophy, based on unchanging primary substances, is therefore called *substance metaphysics*--as opposed to *process metaphysics*, which places change itself into the category of substances.

The very first things predicated of primary substances, before any other qualification, are *species* and *genera*, which Aristotle termed "secondary substances." Secondary substances do not subsist independently, but because of things predicated they most reveal the primary substance, they have been honored by the designation "secondary substance." They are not, however, true substances, because they have only a mental reality. Aristotle says:

> Of the secondary substances the species is more a substance than the genus, since it is nearer to the primary substance. For if one is to say of the primary substance what it is, it will be more informative and apt to give the species than the genus. For example, it would be more informative to say of the individual man that he is a man than that he is an animal.[3]

Notes for Section 3: Species, Essence, and Becoming: The Views of the "Philosophers of the East"

[1] Mayr, *Growth of Biological Thought*, p. 88.

[2] Aristotle, *Categories* 1b.35, 2b.6.

[3] Ibid. 2b.8-12.

> As regards the primary substances, it is indisputably true that each of them signifies a certain "this"; for the thing revealed is individually and numerically one. But as regards the secondary substances, although it appears from the form of the name (when one speaks of man or animal) that a secondary substance likewise signifies a certain "this," this is not really true; rather, it signifies a certain qualification, for the subject is not, as the primary substance is, one, but man and animal are said of many things.[4]

The species form, Aristotle stated, is coincidentally identical in all members of a species but not numerically one. Only primary substances, i.e. actual individuals, are one. The logical universal abstracted by the mind from concrete individuals (which are the primary realities), such as "man" abstracted by observing human individuals, corresponds to the real specific form immanent in them. But it does not exist apart from individual concrete beings in any manner whatsoever, except as a derivative mental construct.[5]

In such a cosmos, where the individual entities themselves are the ultimate realities, Aristotle did not see the need for Forms, or Ideas, separated from the physical world, as taught by Plato, to act as causes to the biological forms of species taken as a whole. For Aristotle another member of the same species is sufficient to provide the form (concealed in the seed or sperm) unchanged to the next generation of the species. "So it is evident that there is no need at all of setting up a Form as a pattern...but that which begets [i.e., a man, a horse, etc.] is sufficient to produce and to be the cause of the form in matter."[6] In other words, the species form is passed on by the biological begetter, which is Aristotle's "efficient cause," and this efficient cause must precede that which it generates and be fully developed itself.[7]

A beginning for this process, or a source of its existence, is not envisioned by Aristotle. In Aristotle's system, God, or the First Mover, is the "final cause" of things, not actively, but passively as an object of desire, for God's only act is to eternally contemplate himself. In other words, as the supreme and most perfect being in the universe, He indirectly moves other beings to emulate Him and thus obtain their own inherent perfection.[8] God does not bestow existence on anything, nor is He concerned with the other beings in the universe, since He confines His activity to contemplating himself as the only object worthy of His thought. Unlike Plato, for whom species are planned by a ruling, ordering Mind (*Phaedo* 97c) and are materially created in time, for Aristotle biological species are causes-to-themselves, always have been as they are, and repeat themselves endlessly in a universe co-eternal with God. There is no possibility of an act of divine creation in the biblical or qur'ánic sense in Aristotle's system, nor for any form of evolution. However, his conception of species as mental constructs and not realities of nature,

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[4] Ibid. 3b.10-18.

[5] Aristotle, *Metaphysics* vii.13, 1038b - 1039a.

[6] Ibid. vii.8, 1034a; cf. xii.3, 1070a.25.

[7] Ibid. xii.7, 1073a.

[8] Ibid. xii.7, 1072a.20 - 1072b.30.

and his emphasis on the individual, is almost identical to the position held by modern population biologists.

3.2 Plato

Plato (428 - 348 BCE), on the other hand, taught the existence of a Creator existing independently of the physical universe, who fashioned the cosmos out of pre-existing materials, which were in a state of chaos, by means of eternal, primary patterns, which Plato called Forms, or Ideas.[9] These are not the conceptual universals originated and comprehended by the human mind taught by Aristotle, but eternal, objective, incorporeal realities, such as "Beauty itself," "Justice itself," "Man himself," etc. Plato arranged these realities (not beings) into a hierarchy of more universal and less universal Ideas, and said it is only possible to know them in this world by the process of dialectic.

The Ideas, which in modern terms are equivalent to laws of nature, correspond to reality itself. To know them is to know the truth about the best order of things, the pursuit of which Plato called the purpose of human existence. For example, Socrates, Plato's principal speaker in the dialogues, would ask: "What is it that makes a beautiful thing beautiful or a just act just?" If what makes something beautiful or just is only relative to the thing itself, as the Sophists claimed, then how is an objective criterion for these attributes in the real world possible? Socrates' answer was that beauty and justice are not relative; rather they subsist in themselves, apart from their particular, temporal expressions, as part of an intelligible natural order of things. It is by the degree of their reflection of "Justice itself" that the acts of particular human beings can be called just. The best society, therefore, will be that in which the acts of its citizens mirror the principle of justice laid down in the natural order. But none of these acts are Justice itself, only imperfect approximations of it. Similarly, what makes a flower or a work of art both beautiful is their common participation in an ideal standard of beauty in the world of Forms. What determines the forms of natural species is also not relative or haphazard to Plato, since objective criteria for all species and all natural functions required for the harmonious functioning of the whole cosmos exist in the domain of separate Ideas.

Since the Forms cannot be known directly, one can only approach them through their particular likenesses in sensory experience. This requires one to use inductive reasoning and to engage in dialectic, an objective process of questioning and answering, until one finds an answer coherent with observable facts. Plato explained that insofar as such an answer is based on fluctuating particulars, it is called opinion; but insofar as it accurately reflects the Idea-Forms, it is true knowledge.[10]

Some Forms are inclusive of others, and the supreme, all-encompassing Form Plato called the Form of the Good, which provides both being and reality to all the other Forms.[11] This is a crucial point, because it implies that the system of Forms is determined by the Good. In other words, the Forms are related to each other in the way they are because this relation is good and results in the best possible universe. The Creator, who is an actual existent with a "mind," is not

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[9] Plato, *Timaeus* 28a - 29a, 52d - 53a. The Greek *eidé*, translated here as "Form" or "Idea," is the same word used to translate "species."

[10] Plato, *Republic*, v.479d - 480.

[11] Ibid. 508e; 509b.

the same as the Form of the Good, which is a reality. Plato says: "Mind in producing order sets everything in order and arranges each individual thing in the way that is best for it."[12] So the Idea of the Good contains in itself all the kinds of goodness necessary to make a cosmos out of the inherent disorderliness of the preexisting matter.[13]

Proclus, one of Plato's commentators, explains that the hierarchy of causative Ideas ranges from the most general to the most specific. He says:

> By the most general I mean those that are participated in by all beings, so that nothing at all exists without a share in them--for example, Being, Identity, and Otherness, for these extend to all things....By the most specific I mean those Ideas that are participated in by individuals, such as Man, Dog, and others of the sort. Their "makings" have as their immediate result the generation of individual unities--Man [the making] of individual men, Dog of particular dogs, and Horse and each of the rest in like manner. I call intermediate those ideas that have wider application than these, but are not active in things. Justice, for example, belongs to souls; but how could it be an attribute of bodies....Justice in itself, apart from all other ideas, illuminates only the beings that are capable of receiving it, and that is not all things in general.[14]

Two of Aristotle's criticisms of Plato's Forms, which include the species essences of biological beings, were that Plato did not explicitly locate them anywhere, nor, according to Aristotle, adequately explain how they could be a cause of material forms while they are separate.[15] To Aristotle, a form must be in a material thing to cause something, so how then can the same form be both in one particular thing and in many other things at the same time? Plato's answer, of course, was that the Form *is* separate and acts as the model for the many material forms which bear its likeness. In other words, the material (or biological) form and the archetypal form are two different things. Aristotle, it appears, did not accept Plato's explanation that the connection between the separate Form and the material form is the creative *action* of the Creator, who is the ultimate mover of the forms in matter (cf. *Timaeus* 28a, 53b, etc.). In other words, the Creator fashions the material forms as a whole by taking the eternal Ideas as His

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[12] Plato, *Phaedo*, 97c.

[13] Plato, *Timaeus*, 52d- 53c.

[14] Proclus, *Commentary on Plato's Parmenides*, trans. Glenn Morrow and John Dillon (Princeton: Princeton University Press, 1987), 2, iv, 735.

[15] Some of Aristotle's objections to Plato's Forms can be read in the *Metaphysics* i.9, 990b - 993a; vii.14, 1039a.25 - 1039b.15. The whole of Aristotle's *Metaphysics* is really a critique of the theory of separate Forms, and an attempt to set up an alternate theory based on the idea of immanent forms.

patterns, and in this sense the many "participate" in the one of which they are a likeness.[16] (The theory of Natural Law is founded upon this system of Plato.)

According to Plato, the separate Forms "always are and never become," whereas the material forms are "always becoming but never are."[17] The first are "intelligible and unchanging models" (the causes of that-which-changes), the others "visible and changing copies of them."[18] Here we have the beginning of the idea that physical beings *progress* toward a goal, which is such an important concept to the essentialists who opposed Darwin (see sections 1.4 and 1.6). In other words, physical beings are always in a state of motion and naturally inclined to fulfill the potentiality determined by their immaterial causes. Plato also proposed a third reality, akin to Aristotle's matter, as necessary for changing things to come into actual existence. He called this "the receptacle" and "the nurse of all becoming and change." It is a formless, receptive medium in which images of the models are enabled to appear and disappear as continually recurrent, similar qualities (cf. *Timaeus* 49a - 51b).[19]

In sum, both Plato and Aristotle made valuable contributions to the question of the nature of form, but from radically different perspectives. Aristotle, recognizing no transcendent cause for the *existence* of things, saw the universe as self-existent and self-ordering, and from the perspective of biology, he determined that an earlier member of one species is sufficient to pass on the specific form, forever unchanged, from one generation to the next. Plato proposed, on the other hand, that a temporal individual is insufficient to account for the existence of the specific form of the whole species, and he recognized the need of a separate organizing and existentializing cause to act as its ultimate origin. Although the terminology is different, it is amazing that here at the very beginning of Western philosophy the basic outlines of the debate between the essentialists and Darwinists of the nineteenth century are already evident.

3.3 The Middle Platonists and the Church Fathers

As time and distance separated Aristotle and Plato from latter thinkers, a movement grew, especially among Neoplatonists, to harmonize the ideas of the two greatest philosophers of the ancient world. Many forgot or overlooked that there were critical differences between the two.

As for where the Forms are located and what their relationship is to the Creator, Plato was ambiguous on this point. In one passage, he does admit that they are created by God (*Republic* x, 597b-e), though elsewhere he says they are uncreated (*Timaeus* 52a). It was left up to latter thinkers to make the connection between God and the Ideas clear. The Middle Platonist, Albinus (ca. 2nd century CE), said: "The Idea, in relation to God, is his act of thinking," and

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[16] The Ideas of species are not one in an absolute sense; rather they are one as unity-multiplicities. The Idea "Man himself" would include the Ideas of "animal," "two-legged," "rational," etc.

[17] Plato, *Timaeus* 27d.

[18] Ibid. 48e.

[19] For a fuller discussion of how Plato understood the relation between the separate Form and its concrete images, see Keven Brown, "A Bahá'í Perspective on the Origin of Matter," *The Journal of Bahá'í Studies* 2.3 (1989-1990), pp. 30-35.

Wolfson explains, that "by saying that there are Ideas he means that God acts by certain rules and plans and that the order observed in nature is not the result of mere chance."[20] Philo of Alexandria (b. ca. 15 BCE) and the Fathers of the Church placed Plato's Ideas in God's Word, or Logos, by which He created the world at the beginning of creation. Thus, the Word of God functioned as a kind of intelligible blueprint, synonymous with Plato's domain of transcendent Forms, by which God voluntarily fashioned the form of the world.

Plotinus (205 - 270 CE) posited a trinity of three universal causes each separate in substance: The One, who is beyond being; the Intellect, which is both mind and being; and the Soul, which is the intermediary between the Intellect and changing beings. Plotinus placed Plato's Ideas in the subordinate Intellect, not the One. The doctrine of the Church, on the other hand, held that the three persons of the trinity are one in essence and being, implying that since the Platonic Ideas are the living and eternal thought of the Creator, they are uncreated.

Augustine (354 - 430 CE) developed an idea, which he borrowed from the Stoics, which places him close to the thinking of Darwin's essentialist opponents on how the Chain of Being might unfold in the procession of time.[21] The early Stoics viewed God as the Active Principle containing "the active forms of all the things that are to be," which are like seeds, "through the activity of which individual things come into being as the world develops."[22] Augustine termed these "seeds" "seminal reasons" (*rationes seminales*). He has God create these seminal reasons at the beginning of the world in the humid element, and they unfold in time and manifest themselves as environmental conditions become suitable for their development. They are not purely passive, but tend to self-development. As Copleston explains Augustine:

> All plants, fishes, birds, animals, and man himself, He created invisibly, latently, potentially in the germ, in their *rationes seminales*. In this way God created in the beginning all the vegetation of the earth before it was actually growing on the earth, and even man himself….For example, God created in the beginning the *rationes seminales* of wheat, which, according to God's plan and activity, unfolded itself at the appointed time as actual wheat, which then contained seed in an ordinary sense….Each species, then, with all its future developments and particular members, was created at the beginning in the appropriate seminal reason.[23]

Similar to but not the same as the seminal reasons are the divine ideas or Platonic Forms, which for Augustine play an essential role in God's creative act. By them God knows things as

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[20] Albinus, *Didaskalos* ix.1 and 3 cited by Harry A. Wolfson, "Extradeical and Intradeical Interpretations of Platonic Ideas." *Journal of the History of Ideas* 22 (January-March 1961), pp. 4-5.

[21] Thank you, Aly Kassam Khan, for reminding me of Augustine's seminal reasons without which this chapter would have been missing a critical idea in the development of pre-Darwinian philosophical concepts.

[22] Frederick Copleston, *A History of Philosophy*, vols. 1-3 (New York: Doubleday, 1985), vol. 1, p. 389.

[23] Ibid., vol. 2, p. 77.

universals prior to their creation in time. In the *De Ideis* he explains that the divine ideas are "certain archetypal forms or stable and unchangeable reasons of things, which were not themselves formed but are contained in the divine mind eternally and are always the same. They neither arise nor pass away, but whatever arises and passes away is formed according to them."[24]

3.4 William of Ockham

The view of the Church Fathers was upheld by almost all Christian philosophers in one form or another until the time of Latin Scholasticism, when the nature of universals became an issue. Against the doctrine of Realism, which taught the independent existence of universals as unitary realities outside the human mind, the opposing doctrine of nominalism, primarily associated with William of Ockham (1299 - 1350 CE), was a return to Aristotle's emphasis on the individual form immanent in material things and the mere conceptual existence of species. The term "nominalism" implies that what we call a universal is a name only with no reality outside the human mind, so that what exists in actuality are only singular, separated individuals. It is significant that Mayr singles out scholastic nominalism as the precursor of modern population thinking.[25] Ockham's way marks the beginning of modern empiricism.

3.5 Alfarabi

Alfarabi (ca. 870 - 950 C.E.) was the first of the well-known Islamic philosophers who attempted to harmonize the views of Plato and Aristotle. Most Islamic philosophers considered themselves loyal to Aristotle in one sense or another, but they were really Neoplatonists, influenced by that unique blend of Platonism and Aristotelianism formulated by the successors of Plotinus. Many Islamic philosophers were led astray in regard to Aristotle's genuine position because of the early misidentification of Plotinus' *Enneads* with Aristotle. They did not know Plotinus by name, but knew his work as *The Theology of Aristotle*.[26]

Since Alfarabi's ideas on species are the same as Avicenna's below, I will just mention here his theory of "becoming" as representative of the Arabic speaking philosophers in general. At the basis of all material things is prime matter, which they share in common. Prime matter receives in succession alternating and contrary forms, which Alfarabi says emanate directly from the Active Intellect, an intellect intermediate between God and creation. The first things to arise from this interaction are the elements, which in turn combine into more complex bodies, such as vapors and solids. In these elements and first simple bodies "arise forces by which they move spontaneously toward the things for which they exist...and forces by which they act and are acted upon."[27] Alfarabi continues:

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[24] Quoted in Copleston, *A History of Philosophy*, vol. 2, p. 73.

[25] Mayr, *Growth of Biological Thought*, pp. 129, 264.

[26] See *Pseudo-Aristotle in the Middle Ages: The Theology and Other Texts*, eds. J. Kraye, W. F. Ryan, and C. B. Schmitt (London: University of London, 1986) for an extensive discussion of this book.

[27] Alfarabi, *Mabádi'Arά' Ahl al-Madína al-Fádila*, trans. Richard Walzer as *Al-Farabi on the Perfect State* (Oxford: Clarendon Press, 1985), p. 137; revised translation.

> From these the existence of all the other bodies follows by necessity. First the elements mix with one another, and out of that many contrary bodies arise. Then these contrary bodies mix either exclusively with one another, or with one another and with the elements, so that there will be a second mixture after the first, and out of that, again, many bodies with contrary forms arise. In each of these, again, arise forces by which they act and are acted upon....These mixtures go on being performed, one mixture following the previous one, but so that the following mixture is always more complex than the previous one, until bodies arise which cannot mix with one another....The minerals arise as the result of a mixture which is nearer to the elements and is less complex, and their distance from the elements is less in rank. The plants arise as the result of a more complex mixture than theirs, and they are a further stage removed from the elements. The animals which lack speech and thought arise as a result of a mixture which is more complex than that of the plants. Man alone arises as the result of the last mixture.[28]

Alfarabi's theory of how material things come into being is not a precursor of Darwin's theory of evolution, because the species which appear as a result of the various mixtures of the elements are predetermined by the Active Intellect, and there is no mention of any modification of form after a mixture is completed. There is also no indication here of how long this process of "becoming" takes. Another element that is missing from this description is the idea of "progress toward perfection," which Sarruf noted was a concept that the Arabic speaking philosophers added to Aristotle's great Chain of Being (see Section 1.6).

3.6 Avicenna

In his definitions of *naw'* and *máhíyah*, Avicenna (980 - 1037 CE) uses these terms in the customary manner of the Aristotelian logicians. He says: "As for the species (*naw'*), it is the essential universal which is said of many beings in answer to the question: 'What is it?'" or "The species is described as that which is said of many beings multiple in number in answer to the question: 'What is it?', like 'human' said of Zayd and 'Umar."[29] In regard to *máhíyah*, he defines it in the sense of "quiddity": "Whoever asks 'what is it?' only asks what is the quiddity (*máhíyah*)...which is realized in the sum of its essential constituents...that enter into the quiddity in the intellect."[30] Avicenna reserves the term *'ayn* for concrete, particular existents, equivalent to Aristotle's use of the term "primary substance" (see section 2.1).[31] As mentioned in Section 2, the Sufis and *Hikmat* philosophers of Iran later adopted this term and used it in the special sense of an immaterial causative essence.[32]

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[28]Ibid., pp. 139-141.

[29] Avicenna, *Naját* quoted in A. M. Goichon, *Lexique de la Langue Philosophique d'Ibn Síná* (Paris: Desclée de Brouwer, 1938), p. 405.

[30] Ibid., p. 386.

[31] Ibid., p. 257.

[32] *Hikmat* is a term referring to a form of wisdom combining the esoteric teachings of the Shí'ah Imams, the illuminationist knowledge of Suhrawardí, the teachings of Ibn 'Arabí and other Sufis,

Avicenna maintained unchanged Aristotle's division of being into substance and accident. He also misunderstood the nature of Plato's Forms and made the typical Aristotelian critique: in other words, he understood Plato to say the Forms exist both *separately* and, at the same time, *in* the many particulars of which they are the form. He logically rejects this view, saying: "It is impossible for the universal animal to be a particular real animal, for it would then have to be both walker and flyer, as well as not walker or flyer, and be both biped and quadruped. It becomes evident, then, that the idea of universality, for the very reason that it is a universal, is not an actual existent except in thought."[33]

But with his conception of God as not merely the agent of motion but also the giver of existence, Avicenna did come to a position similar to what Augustine found to be implicit in Plato: God's thoughts are the causes of the existence of all things.

> The Necessary Existent [God] is...a knower of Its own essence. Its essence is the existentiator of things according to the order in which they exist....All things are known to It, then, due to Its own essence. It does not become a knower of things because It is caused by them, but on the contrary, Its knowledge is the cause for the existence of all things. Similar to such knowledge is the (scientific) knowledge of the builder with regard to the form of the house he has conceived. His conception of the form of the house is the cause of this form in the external reality.[34]

Though Avicenna has God creating things by His knowledge, God does not create anything directly in Avicenna's system, except one thing, which is the first and only thing to emanate from God. This is based on a philosophical principle accepted by most Islamic philosophers that only one thing can emanate from what is itself one. But this first emanation, commonly called the First Intellect, has multiplicity introduced into it; it is hence a unity-multiplicity, a one-many. Avicenna says: "This intellect is not...the True God, the First. For although in one respect this first intellect is one, it is multiple inasmuch as it consists of the forms of numerous universals. It is thus one, not essentially, but accidentally, acquiring its oneness from Him who is essentially one, the one God."[35]

Avicenna did not stop, however, with the universals in the First Intellect as the formal causes of things. He went on in good Neoplatonic fashion to add nine additional separate intellects, each one emanating from the one above it, and each one also emanating a soul and a heavenly sphere corresponding to its level in the celestial hierarchy. The lowest of these

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and the heritage of the Greek philosophers. For more on this see Seyyed Hossein Nasr, "The School of Ispahán" *A History of Muslim Philosophy*, vol. 2, ed. M. M. Sharif (Wiesbaden: Otto Harrassowitz, 1966), pp. 907-908.

[33] Avicenna, *Dánish Náma-i `alá'í,* trans. Parviz Morewedge as *The Metaphysica of Avicenna*. (New York: Columbia University Press, 1973), p 33.

[34] Ibid., p. 61.

[35] Avicenna, "On the Proof of Prophecies" in *Medieval Political Philosophy*, eds. Ralph Lerner and Muhsin Mahdi (Ithaca: Cornell University Press, 1972), pp.117- 118.

intellects, called the Active Intellect, emanated not only the matter of the sublunar world but all of its forms.[36]

3.7 Averroes

Among the Islamic philosophers, Averroes (1126 - 1198 CE) was the most faithful student of Aristotle. He made it his life's work to attempt to return to the true teachings of Aristotle, from which earlier philosophers had strayed, and he was surprisingly successful. In the words of Gilson: "Aristotle had taught (*De Anima* i.1) that the notion of animal is...posterior to the individuals from which it is formed by the intellect. Averroes had concluded that the definitions of genera and species are not definitions of real things outside the soul, but of individuals, and that it is the intellect that produces universality in them."[37]

Although Averroes accepted the hierarchy of eternal incorporeal intelligences corresponding to the celestial spheres, he rejected the emanation scheme of Alfarabi and Avicenna and returned to Aristotle's position that the intelligences owe the existence of their matters to themselves, while God is their formal cause only indirectly as the supreme object of desire in the universe.[38] He also held the Aristotelian position that physical forms are due only to physical factors, not to the influence of incorporeal realities as held by Plato. His final view is summed up by Davidson: "At all events, Averroes' Long Commentary on the *Metaphysics* [of Aristotle] unambiguously excludes the Active Intellect or any other incorporeal agent from the process whereby natural forms emerge; no incorporeal being serves as...the emanating source of animate forms....In inanimate nature--according to Averroes' final view of things--mechanical physical forces bring forms already existing potentially in matter to a state of actuality."[39]

Averroes' ideas had little influence on other Islamic philosophers, many of whom did not know of his work, but they did have a lasting influence in Europe in the movement known as Latin Averroism, which in turn influenced the thinking of William of Ockham and other Latin scholastics (see Section 3.4).

3.8 Suhrawardí

With the post-Avicennan philosopher, Suhrawardí (1154 - 1191 CE), a more genuinely Platonic view of Plato's theory of Forms is seen by Islamic philosophers for the first time. Avicenna, as mentioned above, did not have a place for Platonic Forms (as he conceived them) in his system, though he did have God's knowledge, generally speaking, as the cause of the existence of things. Suhrawardí, however, revived a fully Platonic position. He criticized Avicenna for holding that only ten intellects can account for the multiplicity of species in the world while also holding to the principle that a simple cause can only emanate a simple effect.

Suhrawardí's solution, in brief, was to allow each lower intellect in the main vertical order to receive effects both directly and mediately from the intellects above it, so that a

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[36] Avicenna, *Shifá': Iláhiyyát*, ed. Ibrahim Madkour (Cairo 1960), pp. 402 - 409.

[37] Etienne Gilson, *History of Christian Philosophy in the Middle Ages* (New York: Random House, 1955), p. 482.

[38] Herbert A. Davidson, *Alfarabi, Avicenna, and Averroes, on Intellect*, (New York: Oxford University Press, 1992), pp. 227-228.

[39] Ibid., p. 250.

horizontal order of intellects could also come into being by these accidental relationships. The number of intellects in the horizontal order is finite, though as numerous as the number of species in the world and the number of stars in the heavens.[40] In Suhrawardí's system, all intellects are self-conscious, self-subsistent, abstract lights, and the horizontal order corresponds to Plato's realm of transcendent Forms. Each Platonic Form is the lord of a terrestrial species (*rabb al-naw'*) or lord of an image (*rabb al-sanam*), from which each member of a biological species ultimately derives the image of its species. The Platonic Forms, to Suhrawardí, are not realities, but self-conscious beings; they are celestial angels. He calls them "celestial lords of species images" that correspond to biological species. He argues: "The species do not occur in our world simply by chance; otherwise a non-human could appear from man, and non-wheat from wheat."[41] [He further adds, in perfect line with Darwin's essentialist opponents: "The intelligible essence (*mahíyah*) encompasses all of its individuals, perfect or deficient, but their change (*taghyír*) does not lead to a change in the essence.[42]]

In several places Suhrawardí corrects the common Aristotelian misunderstanding of Platonic Forms (i.e. understanding them as "universals" meant in logic) and explains how they can be unitary in themselves while common to the many and not in the many:

> They [Platonists] did not deny that predicates are mental and that universals are in the mind [as in logic]; but when they said, "There is a universal man in the world of intellect," they meant there is a dominating [immaterial] light containing different interacting rays and whose shadow among [physical] magnitudes is the form of man. It is a universal, not in the sense that it is a predicate, but in the sense that it has the same relation of emanation to these individuals.[43]
>
> Do not imagine that these great men [e.g., Plato, Socrates, Hermes], mighty and possessed of insight, held that humanity has an intelligible that is its universal form and that is existent, one and the same, in many. How could they allow something to be unconnected to matter yet in matter?...It is not that they considered the human archetype, for example, to be given existence as a copy of that which is below it [referring to the Aristotelian view on logical universals]. No men held more firmly that the higher does not occur because of the lower.[44]

In Suhrawardí's view, then, Platonic Forms are the immaterial roots of the biological members of species. Unlike the Church Fathers, though, Suhrawardí has the Forms function independently of their ultimate Source; in other words, they are not the contents of God's mind.

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[40] Suhrawardí, *The Philosophy of Illumination: Kitáb Hikmat al-Ishráq*, trans. John Walbridge and Hossein Ziai (Provo, Utah: Brigham Young University Press, 1999), pp. 99-100.

[41] Ibid., p. 101, revised translation.

[42] Ibid., p. 62, revised translation

[43] Ibid., p. 109.

[44] Ibid., p. 108, revised translation.

God, therefore, does not create the world through His providence, but instead it necessarily overflows from God and cannot be other than it is.[45] It will be recalled that in Plato's system, the Ideas are "realities," not "conscious beings," and that one Form, although it is unitary, can be associated with many subordinate Forms.

3.9 Mullá Sadrá

The seventeenth century Persian philosopher, Mullá Ṣadrá (ca. 1571 - 1640), was responsible for making an important innovation in the traditional substance-based philosophy of Aristotle and Plato that had been the mainstay of the philosophers of the East up until this time. Both Plato and Aristotle had taught that the world subsists by means of fixed and unchanging realities to which ever-changing, impermanent qualities, called accidents, become predicated. While for Plato the fixed realities are Forms or laws beyond this physical reality, for Aristotle they are the immanent forms (or substances) of individual material entities (see sections 3.1 and 3.2). This view of a harmonious cosmos kept in order by static essences dominated Western philosophy until the time of Darwin and underlay the thinking of Darwin's essentialist opponents. Sadrá maintained the idea of a harmonious cosmos based on static essences in God's mind, but he made the novel move of adding motion, or becoming, to the category of substance.

Traditional philosophy had categorized motion as an accident occurring in accidents, i.e., in place, quantity, quality, etc., while the substance or substratum of the moving body (its locus of being) remained unchanged. This view implies that motion as a process is subjective, not real. Sadrá argued, as Rahman explains, that "movement cannot be established on the basis of a stable entity. Such an entity can have a stable *essence*, but not a stable *being* which must consist simply of change and mutation. *There is, therefore, beneath the change of accidents, a more fundamental change, a change-in-substance*."[46] This underlying, dynamic substance, according to Mullá Sadrá, is existence itself and identical to God's self-manifestation, and it "has a natural impulsion toward taking ever new forms."[47] A "thing" for Sadrá is a particular "structure of events" or an "event system" arising from the continuous movement of existence and given temporal coherence and unity by the Platonic Forms, or stable essences, in God's mind. The substance of existence is called ambiguous (*tashkík*) by Sadrá because it remains the same while unfolding itself in ever different forms, like clay that can be molded into infinite forms yet retains its identity. The movement of existence in Sadrá's system is both evolutionary and teleological, because, driven by God's love for the beauty of His own Essence, existence moves unidirectionally and irreversibly toward states of greater perfection as it strives to realize the divine intelligible order and reveal the mysteries of the divine being.

Like Augustine and unlike Suhrawardí, Sadrá identified the contents of God's mind with the transcendent Ideas of Plato, and so with the species essences of things. He removed entirely the hierarchy of separate intellects of Alfarabi, Avicenna, and Suhrawardí, and, unlike Suhrawardí, he recognized the Platonic Forms as realities, not separate self-conscious beings.

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[45] Ibid., p. 106.

[46] Fazlur Rahman, *The Philosophy of Mullá Sadrá* (Albany: State University of New York Press, 1975), p. 96.

[47] Ibid., p. 97.

God's providence, or purposive plan (*'ináyah*), is responsible for the order of the universe.[48] Rahman explains, though, that according to Sadrá: "God and His knowledge...are not two things in any sense except in our conception of Him. Rather, God, by merely being what He is, gives rise to an ideal system of existence--which we may call His mind or the contents of His mind--and the contents of His mind, merely by being what they are, generate the universe."[49]

Despite his differences with Suhrawardí, Mullá Sadrá agrees with the former in regard to the causative function of the Platonic Forms. He says:

> If you would ponder upon the appearance of species in this world of ours, you will find that they do not occur by mere chance; otherwise those species would not remain preserved and it would be possible for a non-human to be generated from a human, a non-horse from a horse, a non-date palm from a date palm, and a non-wheat grain from a wheat grain. This is not the case; rather, these species are continuous and permanent without alteration or change....The truth is as the ancients have stated: It is necessary for each species among the physical species to have a luminous, incorporeal substance subsisting by itself, which regulates, determines, and preserves it. It is a universal to that species, but they did not intend by this that universal whose conception requires participation [in particulars, i.e. a logical universal].[50]

Mullá Sadrá argues here precisely as Darwin's essentialist opponents argued two centuries later. Biological species do not occur by pure chance; otherwise the kind of non-teleological transmutation of species that Darwin proposed would occur. Sadrá and his predecessors held that species are fixed realities of nature on account of the divinely ordained laws which determine and preserve them. Sadrá also understood that the Aristotelians, like latter population thinkers, gave the Platonic Forms, or laws of nature, a mere nominal existence. He states:

> As for the error of the Aristotelians, it is in making the divine Forms mere accidents, deficient in existence, and making what is connected to them and subordinate to them in existence [i.e. physical forms] more subsistent, substantial, and real than them....But if this error is laid to rest by making them real entities (*mawjúdát 'aynίyah*), not conceptual entities, then in this sense, they become like the Forms of Plato. As for the error of the Platonists [i.e. Suhrawardí and his followers], it is in making God's knowledge of things [which consists of these divine Forms] separate from His Essence.[51]

According to Sadrá, if existence itself is in constant flux, then the only thing that can give order to the universe are the permanent essences in God's mind. Although these essences are

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[48] Mullá Ṣadrá, *Al-Hikmat al-Muta'álίya fi'l-Asfár al-'Aqlίya al-Arba'a* (The Sublime Wisdom in Four Journeys of Reason), 9 vols, (Qum 1368 - 1379 A.H.), vol. 6, pp. 256-257.

[49] Rahman, *Philosophy of Mullá Sadrá*, p. 77.

[50] Mullá Sadrá, *Asfár*, vol. 2, pp. 56-57.

[51] Ibid., vol. 6, p. 234.

conceptual in relation to God, they are real in relation to things. Sadrá followed the Sufis, and Plato in the *Timaeus*, in saying that what we call a stable material form is really a constantly recurring and moving image of a fixed archetype from which we, in turn, abstract a stable concept, such as man, tree, dog, and the like.[52] Physical species and environments emerge (*takawwun*) in the world process, which is the systematic, unidirectional flow of existence, as soon as matter attains the capacity to receive them. This is progress, movement, and development, but not "evolution" in the Darwinian sense.

3.10 Shaykh Ahmad Ahsá'í

Shaykh Ahmad Ahsá'í (1753 - 1825 CE) is considered by Bahá'ís to be one of the forerunners of the Báb, whom Bahá'ís believe to be the forerunner of their own prophet, Bahá'u'lláh. Shaykh Ahmad wrote two voluminous commentaries on two important works of Mullá Sadrá called the *Sharh al-Mashá'ir* and the *Sharh al-Hikmat al-'Arshiyyah*. Due to these, and other works like the *al-Fawá'id al-Hikmiyyah*, he is a very important transitional thinker between the earlier "philosophers of the East" and 'Abdu'l-Bahá. For the purposes of this article a fully systematic study of Shaykh Ahmad's thought was not possible, and reference is only made to his commentary on the *Mashá'ir*.

Shaykh Ahmad's works contain many original philosophical ideas which distinguish him from his predecessors.[53] Among the most important is his development of a true process metaphysics whereby he makes process or action (*fi'l*), not substance, the ultimate foundation of contingent existence. He also rejects the emphasis of earlier philosophers on the primacy of either existence or essence, and asserts instead the unbreakable polarity of essence and existence.

God creates all things by His action, which is identical to His Will and other attributes connected to creation. He does not create by His Essence. In other words, the acting of God is a separate reality originated through itself but depending on God as its agent. As Shaykh Ahmad explains: "The actor (*fá'il*) originates the acting through itself, that is, through that very acting. As the Imám Ja'far al-Sádiq has said: *Allah created the Willing through itself. Then He created creation through the Willing*."[54] Shaykh Ahmad argues that an infinite regress of causes is avoided in this way because an act does not require another act by which to subsist, just as primary matter does not require another matter to act as its substratum.

The first expression of God's action is matter, or created existence, which necessarily gives rise to form, or essence. Essence and existence denote form and matter to Shaykh Ahmad, and these two together are the inseparable common ground of all creatures, whether they be eternal and intelligible or perishable and material. Matter (*máddah*), being coextensive with God's action, is itself active (*fá'il*), but it requires its complement, form (*súrah*), which is receptive (*infi'ál*), to be realized. (Note that Shaykh Ahmad is reversing traditional

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[52] Rahman, *Philosophy of Mullá Sadrá*, p. 97.

[53] The reader is referred to *The Metaphysics and Cosmology of Process According to Shaykh Ahmad al-Ahsá'í* by Idris Hamid (Dissertation, State University of New York, Buffalo, 1998) for an excellent and comprehensive treatment of Shaykh Ahmad's philosophy.

[54] Quoted in Idris Samawi Hamid, *The Metaphysics and Cosmology of Process According to Shaykh Ahmad al-Ahsá'í: Critical Edition, Translation, and Analysis of Observations in Wisdom*, (Dissertation: State University of New York at Buffalo, 1998), p. 166.

hylomorphism in which matter is receptive and form is active.) Matter has no actual existence apart from form, just as form has no realization apart from matter.[55] Idris Hamid terms this the "ontological polarity principle" by which "every created, contingent thing is a complex of acting (*fi'l*) and becoming-in-yielding-to-acting (*infi'ál*)."[56]

Shaykh Ahmad conceptually divides the actional Will, by which God creates, into two stages depending on the relation this single reality has to things. It is within the actional Will that we find the first hint of Platonic Forms or species essences of things:

> He created the Will from itself, not from another Will besides it, and this is...the domain of "tipping the scales" toward existence. By it He made possible the Possible (*al-imkán*), which is the substratum of all possible things and the Most Great Chasm. This is called the possible Will [or Will for the possible], which is connected to all possible things. It is the knowledge which nothing encompasses....When the Eternal Providence ordained that something be brought into being, He created it by His generative Will (*takwíníyah*), and it is connected to all generated things....These are one thing and only differ with respect to the difference of its relation....So the realities of possible things in the first stage are generated in the second stage. The fixed archetypes exist only in the first stage [that of the possible], not in the Essence of God....So when He desired to manifest something from what is in the treasuries of the first stage and cause it to descend to the treasuries of the second stage, He created matter and form for it by His generative Will. He created it in these two things.[57]

All things, in short, exist first in the possible Will as possible (not actual) realities, and this is why Shaykh Ahmad says the first stage of every creature is the Will (*al-mashíyah*). He says elsewhere that the durational mode of the Possible is eternal (*sarmad*), meaning it is timeless, having neither a beginning nor an end.[58]

As we saw earlier, Sadrá identified the archetypes or species essences of things with Plato's transcendent Forms, and Shaykh Ahmad does the same. He calls them the "first creation" because they are the foundation through which individual entities, termed the "second creation," are called into being. In one reference he says:

> Some have charged that Plato established the forms of things, which are their realities, in...the Essence of God [which is Mullá Sadrá's position]....But those who know the intent of Plato recognize that he means by that which contains the Platonic Forms (*al-muthul*) the original foundation from which all things were created, for he follows the

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[55] Shaykh Ahmad Ahsá'í, *Sharh al-Mashá'ir* (Tabriz 1278 A.H.), p. 25.

[56] Hamid, *Metaphysics and Cosmology of Process*, p. 136.

[57] Shaykh Ahmad, *Sharh al-Mashá'ir*, p. 204.

[58] Hamid, *Metaphysics and Cosmology of Process*, p. 253.

> meaning of his predecessors, who derived most of philosophy from the Prophets.[59] [translation revised since publication]

It is important to point out here that Shaykh Ahmad's conception of Platonic Forms differs from that of his predecessors in one critical way: Platonic Forms, to him, are not immutable or fixed in themselves, because they are (to use Hamid's translation of *infi'ál*) "becoming-in-yielding-to-acting." Although they are active and constant in relation to what is created through them, they are receptive of God's action, and hence their very essences are also acts of becoming. Whatever is created through the Platonic Forms can only become because they also change in themselves. It is not enough, as Sadrá proposed, just for the *being* of entities to be changeable; the *essence* also must be changeable in itself. Idris Hamid terms this Shaykh Ahmad's "causal principle" whereby "every impression (*athar*) resembles the actional quality of its proximate agent (*mu'aththar*)." The result of this is that, unlike for earlier philosophers who denied the external reality of action and passion, (1) motions or actions are recognized as real, and (2) "whatever characteristics…manifest in a given outcome-of-acting (*maf'úl*) are latent in the acting (*fi'l*) from which the outcome-of-acting originated."[60]

Without this even Mullá Sadrá's universe, which posited motion in substance, is doomed to a set of fixed, unchanging forms because Sadrá located the archetypes of things in God's changeless Essence. But static essences are incapable of capturing the constantly changing modes of delimited existence. Consequently, Shaykh Ahmad's causal principle allows for a real process of continuous evolution or becoming within individuals and species. All whole systems in the universe are subject to this kind of evolution. It does not, however, allow for one species or system to randomly cross over into another, as in Darwinian evolution.

Furthermore, the Platonic Forms, in Shaykh Ahmad's conception of them, are not sheer essences devoid of matter. Rather, they are composites of form and matter, or essence and existence, which he terms *al-dhawát* (pl. of *dhát*), which we can translate as "quintessence" or "real essence" to distinguish it from essence conceptually abstracted from matter (*máhíyah*). Using the customary symbolism of his religious milieu, Shaykh Ahmad says: "In short, what is meant by the foundation [containing the Platonic Forms] is the Inkwell, which is both the receiver [form] and what is received [matter]. The Pen, which more properly speaking is the [First] Intellect, draws from the Inkwell and produces the Tablet"[61] [translation revised since publication].

Shaykh Ahmad shares the doctrine of Suhrawardí that God knows things by His created knowledge when He creates them. Before He creates a thing He does not know it, because it does not yet exist and the created knowledge is also identical to His act of creating.

> We say that He knows Zayd in His Essence in the stage of Zayd, not Zayd in the stage of His Essence; otherwise Zayd would be eternally existent....You are hearing, although there may be no one speaking so that you can hear his words. So when an individual speaks, you hear him; and this occurrence is generated by the generation of what is heard. This is what they mean by "presential illumination knowledge."...So when He created

[59] Shaykh Ahmad, *Sharh al-Mashá'ir*, p. 16.

[60] Hamid, *Metaphysics and Cosmology of Process*, p. 134.

[61] Shaykh Ahmad, *Sharh al-Mashá'ir*, p. 17.

> things, then they became known....This knowledge which is connected to and corresponds to things is created with their creation.[62]

From this it should not be inferred that God does not know the Platonic models or universal forms of things (i.e. their species essences) before their particular manifestations in concrete individuals in time, since this atemporal foreknowledge is itself part of God's created knowledge. As stated above, God's "first creation" is the timeless creation of the Platonic Forms. In regard to God's knowledge in the stage of His Essence, Shaykh Ahmad affirms that we can know nothing about this state:

> As for Allah…His existentiation of a thing is not preceded by that thing's having a state in Himself as those ignorant ones, who make comparisons between Him and His creation, profess….From every consideration, drawing parallels with creation constitutes assimilation [of Allah with His creation]….We only ascribe knowledge to Him because He created knowledge within us; with life due to His creating life within us; with existence due to our existentiation; none of this is similar to the state wherein He is.[63]

Shaykh Ahmad describes the priority of the universal species form to the individual or particular form as follows: "For every possible particular there is a related unlimited universal, which is God's knowledge of things preceding His generative Will....Then He desired by His generative Will the creation of what He had first desired its possibility."[64] This act of creation through the generative Will takes place in four stages, all of which constitute God's existentiational motion (*harakat ijádiyyah*):

> The creative action that is connected to existence is the Will, and by the archetype (*al-'ayn*), i.e. the species form (*al-súrat al-naw'íyah*), it becomes Purpose (*irádah*), and by the [intelligible] limitation of the created, i.e. design, like length and breadth, stability and change, fixed time, and the like, it becomes Predestination (*qadar*), and by the realization of the act of creation and the thing itself, it becomes Fate (*qadá'*)....The fashioning of each existent is completed by these four actions [i.e. Will, Purpose, Predestination, and Fate]"[65]

However, in explaining the sustaining causes by which things subsist, Shaykh Ahmad relies upon the Aristotelian four causes. He says: "Each thing needs four causes to be brought into being: two causes by which it subsists foundationally, which are matter and form; a cause by which it subsists through emanation (*sudúr*), which is the active cause;...and a final cause, which

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[62] Ibid., pp. 182, 185.

[63] Quoted in Hamid, *Metaphysics and Cosmology of Process*, pp. 169, 345.

[64] Shaykh Ahmad, *Sharh al-Mashá'ir*, p. 53.

[65] Ibid., pp. 16, 38.

is its reason [for being].”[66] To show that the composite things created in the real world are not composed from (*minhu*) God’s action but rather by it (*bihi*), Shaykh Ahmad often repeats the analogy of a writer composing writing: “For the motion of the hand of the writer is not the source of the writing itself, but only the cause of its coming-into-being. But the writing is composed from the ink and the form of the ink....The recipient of the action (*al-maf‘úl*) is not composed from the action but existentiated by the action and composed from matter and form.”[67]

In agreement with earlier philosophers, Shaykh Ahmad has more simple and indeterminate realities act as the building blocks of more complex and determinate realities in the divine intelligible order, so that each is matter in one respect and form in another depending on its relation. For example, wood is the form of the elements of wood, but wood is the matter of chair, bed, and the like. At the highest level, the totality of universals in the possible Will comprise a hierarchy in which some are matter in relation to what is below them and form in relation to what is above them. For example, Shaykh Ahmad writes: “What belongs to Zayd of existence and essence is the same as what is in ‘Umar, because their matters are portions of ‘animal’ and their essences are portions of ‘rational’.”[68]

Shaykh Ahmad appears to be saying that the individual members of species, which correspond to the quintessences in the intelligible order, become realized by these quintessences. Shaykh Ahmad states:

> So the species essence (*al-máhíyat al-naw‘íyah*), which is the [active] matter of the real individual at the time of its actualization in the external world, is a general universal belonging to the category of quintessences (*al-dhawát*), as we stated before. A portion of this is “taken” for Zayd and for ‘Umar, from which each derives his quintessence....But the characteristics belonging to a particular individual in the external world are delimitations of that existential portion....[for] individuals differ with respect to their particular qualities by intensity and deficiency, paucity and abundance, and with respect to degree, aspect, place, time, and situation. For this reason the individuals of a species differ in most of their states, attributes, stations, and appointed times[69] despite their equality in respect to species.[70]

The quintessence (*dhát*), thus, has “manifestations (*mazáhir*) and effects in the domain of bodies,” which Shaykh Ahmad calls “its accidents.”[71] But the quintessence (*dhát*) is not absolute, inasmuch as it is itself an accident in relation to the agent from which it emanates. The quintessence, which is the first composite effect of God’s creative action, then becomes by further emanation the cause of another quintessence, which is accidental in relation to it. Shaykh

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[66] Ibid., pp. 200-201.

[67] Ibid., p. 153.

[68] Ibid., p. 128.

[69] By “appointed time” (*ajal*) is meant a creature’s lifespan.

[70] Shaykh Ahmad, *Sharh al-Mashá‘ir*, p. 57.

[71] Ibid., p. 67.

Ahmad explains: "The truth is that...all created things are quintessences in one respect and accidents in another. So the cause is a quintessence to its effect, and the effect in relation to it is an accident, but in relation to its own effect and attribute, it is a quintessence. This is the requisite of all things."[72] All things other than God are called, in this sense, correlational accidents (*a`rád idáfiyyah*) by Shaykh Ahmad.[73]

What Shaykh Ahmad delineates here is a typically Neoplatonic process of emanation, but it is combined with a simultaneous process of manifestation at each level of the entity being created. In other words, to Shaykh Ahmad, every created thing is a multi-dimensional being with its highest aspect in the possible Will and its lowest aspect in corporeal matter. But each level of the multi-dimensional creature is distinct and has no connection to other levels except through emanation, since each level is an active cause by which subsequent lower levels subsist through emanation. Only mutually necessary form and matter exist at every level of a creature's existence as that by which it subsists foundationally, but form and matter in each level stay within their own level.[74] Each level also shares the characteristics of the level below it, but "in a more sublime way" (*`alay nahw ashraf*). As Shaykh Ahmad puts it in several places:

> The lower was only created from the radiation of the more exalted....Every stage of a reality with respect to its substratum...is an effect of what is above it....In this way, until the earth, He created every lower from the attribute of a higher....Every individual in each of these stages [of its being] has a portion which is its configuration, or its form. Whatever of the two kinds of portions [form and matter] exists in each stage, it subsists by what is above it through emanation. Thus, each individual subsists foundationally by its matter and form but subsists through emanation with respect to the stage above it....Understand what I mean; subsistence by emanation is like the subsistence of speech by a speaker, notwithstanding that the foundational subsistence of the speech is in the air....The stages of every lower thing are the rays from higher things; it is not that the

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[72] Ibid. p. 124.

[73] Hamid, *Metaphysics and Cosmology of Process*, p. 258.

[74] This is the basis of Shaykh Ahmad's doctrine of the resurrection body, selected writings of which have been translated by Henry Corbin in *Spiritual Body and Celestial Earth* (Princeton 1977), pp. 180-221. So at death the elements of man's physical body are dispersed but the elements of the spiritual body at the next higher level still subsist. It is in this next dimension, sometimes called the autonomous world of forms and images (*'álam al-mithál*), that the events of the resurrection take place. According to Shaykh Ahmad, *'álam al-mithál* is one stage below the world of the Kingdom (*malakút)*. The same I-spirit speaks through the body at each level and is itself inseparable from the most essential body. Shaykh Ahmad says, for example: "Zayd is the one who speaks, but his spirit which speaks to you in this cage [of the body] is not at this moment in the domain of time; his spirit is only generated in time through its connection to the body which it administers....The sanctified intellects are free in themselves from the mixtures of the material substances, temporal duration, and geometrical shapes, but they are not free from matter, form, and extension absolutely as most recent thinkers have imagined. Nay, they have luminous matters, atemporal duration, and subtle forms" (*Sharh al-Mashá'ir* 228).

> higher things descend to its level...nor does anything belonging to the lower stage ascend to the higher stage.[75]

Idris Hamid calls the idea that each level shares characteristics that belong to the realm below it, but "in a more sublime way," Shaykh Ahmad's "topological principle." He notes that this eliminates the traditional dualism between intelligible and corporeal: "Whatever is corporeal has an intelligible aspect; whatever is intelligible has a corporeal aspect. As one climbs the ladder of existence qua conditioned-by-something, in ascent towards the Divine Will, the corporeal aspect becomes more and more subtle, while the intelligible aspect becomes more intense….Nothing is absolutely incorporeal except God."[76] Another principle coined by Hamid, which is evident in the passage above, is the "codependent origination principle" whereby "whatever is higher in the hierarchy of conditioned existence depends on that which is lower for manifestation (*zuhúr*)," while "that which is lower depends on that which is higher for realization (*tahaqquq*)….Neither can exist without the other."[77]

Lastly, Shaykh Ahmad's "creation principle," also coined by Hamid, should be explained. This means that God has created everything in the universe in the best possible way in accordance with the dictates of His eternal wisdom. Nothing can be better than it already is. As he so aptly expresses it in the Eighteenth Observation of *al-Fawá'id al-Hikmiyyah*: "Allah…created what He created in accordance with the most perfect of what ought to be, in the way of that which is necessitated by Wisdom deriving from Possiblity."[78] God stands outside of and separate from the world-process, and the beings He creates are not fixed substances but units of becoming or "actings."

Furthermore, Shaykh Ahmad holds that "the act of becoming generated constitutes an act of choice on the part of the created entity in the second creation," which implies that the individual essences of things are, in a certain sense, acts of self-creation.[79] Shaykh Ahmad derives this idea from a principle of Ibn Síná, overlooked by Mullá Sadrá, which recognizes that everything except God is a real composite of essence and existence. Existence, or active matter, is the part bestowed by God; essence, or receptive form, is the part chosen by the creature, according to its disposition, from the set of what is possible. The reason Shaykh Ahmad includes choice in receiving the act of creation and denies pure determinism is based on his causal principle, explained above, that "every impression [or effect] resembles the actional quality of its proximate agent." Therefore, he explains: "The choice of the Acting is an impression of the Choice of His Quintessence. In the entirety of existence, there is no sheer coercion and no pure compulsion. Rather, everything is a chooser. Every mote of existence is a chooser because the impression of a chooser is a chooser."[80]

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[75] Shaykh Ahmad, *Sharh al-Mashá'ir*, pp. 37, 53, 109.

[76] Hamid, *Metaphysics and Cosmology of Process*, p. 122.

[77] Ibid., p. 123.

[78] Quoted in Hamid, *Metaphysics and Cosmology of Process* (*Fá'idah* 18), p. 373.

[79] Hamid, p. 243.

3.11 Summary of the Views of the "Philosophers of the East"

Except for Averroes, who had very little influence on other Islamic philosophers, the philosophers of the East were united in the view that a divine intelligible order--either the contents of God's mind or will, or belonging to the subordinate Active Intellect--is the formative cause of the compositions of biological species when they first appear on earth. These compositions appear as soon as the physical environment is suitable to receive them, with simpler compositions, like minerals and plants, appearing first, and more complex structures, like animals and human beings, appearing last. The essential attributes of each of these beings is created in accordance with the predetermined intelligible order, not because of chance.

Although Avicenna mistakenly identified Plato's Idea-Forms with logical universals, he was still a Platonist in the sense that he had the material forms of things result from an incorporeal intellect and in making God's knowledge the cause of the existence of things. The main difference between a logical universal and a Platonic Form is that while the former is abstracted from individuals, the latter is causative of individuals.

Mullá Sadrá's novel move of incorporating motion and transformation into the category of substance, and Shaykh Ahmad's extension of this principle to the essences of things themselves, allowed for the real, continuous, and dynamic transformation and evolution of things in the temporal dimension. This was a dramatic departure from the eternal static cosmos of classical biology, a departure which was paralleled by the ideas of Leibniz among the European philosophers.

The views presented represent mainly a "vertical order of becoming" from God to physical things and from physical things back to God, not a "horizontal order of becoming" restricted to the material world, as is the concept of Darwinian evolution. Things "become" as a result of their realities, whether this be gradually or at once. According to Shaykh Ahmad, a thing's "coming-into-existence" is not completely up to God's will, but is also a voluntary act on the part of the created to receive existence. The important notion here is that everything that exists in the universe exists by design and has a purpose. Movement toward that goal implies the unfoldment of previously existing potentials, whereas "evolution," in the meaning of Darwin, implies the transmutation of species without any underlying goal.

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[80] Quoted in Hamid, *Metaphysics and Cosmology of Process* (*Fá'idah* 12), p. 346.

Section 4: ‘Abdu’l-Bahá’s Response to Darwinism

4.1 The Principle of Cause and Effect

The arguments of ‘Abdu'l-Bahá against a materialistic interpretation of the universe, which many thinkers believed to be implicit in Darwinism, depend in one way or another on the principle of cause and effect. ‘Abdu'l-Bahá states: “Every cause is followed by an effect and vice versa; there could be no effect without a cause preceding it.”[1] According to this statement even random processes, which ‘Abdu’l-Bahá refers to by the expression “conditional fate” (*qadá’yi mashrút*),[2] have a clear cause and effect relation. For example, throwing dice is a typical random process. When you throw a die (the cause), you know that at the end it will show a number between 1 and 6 (the effect). You only do not know which of the numbers will appear.

This principle of cause and effect is frequently applied by ‘Abdu'l-Bahá to prove the existence of a Creator transcending the material world, on the basis that it is inconceivable that this universe should exist without a First Cause.

> As we, however, reflect with broad minds upon this infinite universe, we observe that motion without a motive force, and an effect without a cause are both impossible; that every being has come to exist under numerous influences and continually undergoes reaction. These influences, too, are formed under the action of still other influences.... Such process of causation goes on, and to maintain that this process goes on indefinitely is manifestly absurd. Thus such a chain of causation must of necessity lead eventually to Him who is the Ever-Living, the All-Powerful, who is Self-Dependent and the Ultimate Cause.[3]

In place of a Creator, materialistic Darwinists, such as Shumayyil and Ludwig Büchner, posited matter and force at the beginning of the chain of causation and attributed matter’s orderly transformations to blind necessity (see Section 1.10).

‘Abdu'l-Bahá’s proof for the existence of God is based on Aristotle’s dictum that causes are finite both in series and kind, and that in a series there must be a first cause (*Metaphysics* ii.2). The impossibility of an infinite regress of causes has long been used by both philosophers and theologians as a proof for the existence of God, though not necessarily as a proof of God’s nature. Aristotle used this proof to show that there must be a first cause of motion for the universe, which he called the Unmoved Mover, but he did not also assert that this mover was the cause of the existence of the universe.[4]

Notes for Section 4: ‘Abdu'l-Bahá’s Response to Darwinism

[1] ‘Abdu'l-Bahá, *Promulgation of Universal Peace*, p. 307.

[2] ‘Abdu'l-Bahá, *Some Answered Questions* [hereafter *SAQ*], p. 244.

[3] ‘Abdu'l-Bahá, *Tablet to Forel* published in John Paul Vader, *For the Good of Mankind*, *August Forel and the Bahá'í Faith* (Oxford: George Ronald, 1984), pp. 75-76.

[4] For a full and excellent discussion of Aristotle’s proof and other proofs for the existence of God in medieval philosophy, see Herbert A. Davidson, *Proofs for Eternity, Creation and the Existence of God in Medieval Islamic and Jewish Philosophy* (Oxford University Press 1987).

In another proof, based on the same principle of cause and effect, ‘Abdu'l-Bahá states that the very formation of things into orderly structures is proof of the existence of a Creator: “The change of the configuration of particular beings proves the existence of a Creator, for can this great universe, which is endless, be self-created and come into existence from the interaction of matter and the elements alone? How self-evidently wrong is such a supposition!”[5] It will be recalled that Jamál al-Dín al-Afghání (see Section 1.12) made the same argument against certain materialists who believed the simple elements combined themselves into complex and stable forms.

4.2 Formation by God’s Voluntary Will

‘Abdu’l-Bahá rejects both necessary and accidental causation as sufficient to explain the formation of beings:

> Now, formation is of three kinds and of three kinds only: accidental, necessary and voluntary.[6] The coming together of the various constituent elements of beings cannot be accidental, for unto every effect there must be a cause. It cannot be necessary, for then the formation must be an inherent property of the constituent parts and the inherent property of a thing can in no wise be dissociated from it....The third formation remains and that is the voluntary one, that is, an unseen force described as the Ancient Power, causes these elements to come together, every formation giving rise to a distinct being.[7]

In one of his talks in America, ‘Abdu’l-Bahá elaborates the same argument, concluding similarly that “composition is effected through a superior will.”[8] ‘Abdu'l-Bahá is saying that if a thing composed of parts has these parts combined as an inherent property, then there is no possibility of active composition or decomposition. Since the living and non-living objects we are talking about can be taken apart and put together, then our logical choices are now narrowed down to being composed either voluntarily (on purpose) or accidentally (not on purpose). ‘Abdu'l-Bahá dismisses the latter option by saying that every effect must have a cause, and, as ‘Abdu'l-Bahá argues above, the chain of natural causes must eventually end in God (see Section 4:1). This means that nothing in reality happens accidentally.

This does not imply a dismissal of random occurrences, which obey the cause and effect principle, and which contain a complex order that is hard to see. Also, his rejection of “necessary formation” does not imply a dismissal of natural causality, for ‘Abdu’l-Bahá often mentions the “nature” of things: “The nature of fire is to burn; it burns without will or intelligence. The nature of water is fluidity; it flows without will or intelligence.”[9] Elsewhere he refers to such necessary

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[5] ‘Abdu'l-Bahá, *Mufávadát*, pp. 4-5; *SAQ*, p. 6, revised translation.

[6] *Ilzámí*, as a philosophical term, is translated consistently here as "necessary" for the sake of clarity. In Shoghi Effendi’s translation above, he had translated the first appearance of *ilzámí* as "necessary" and the second as "compulsory."

[7] ‘Abdu'l-Bahá, *Tablet to Forel*, p. 75.

[8] ‘Abdu'l-Bahá, *Promulgation of Universal Peace*, p. 424.

cause and effect relationships between things as "decreed fate" (*qadá'yi mahtúm*).[10] The point is that what appears to be necessary causality (i.e., by the nature of something) is really *voluntary* causality, in the sense that God's eternal Will, through the species essences, guides different and contrary elements to form into structures that act and react in certain ways.

'Abdu'l-Bahá states that, in the Bahá'í view, "all of the realities and conditions which the philosophers attribute to nature are the same as have been attributed to the Primal Will in the Holy Scriptures."[11] God's Will, therefore, is recognized by 'Abdu'l-Bahá as the first cause of the formation of beings and the beginning of natural causation. 'Abdu'l-Bahá shares this doctrine with Shaykh Ahmad Ahsá'í, who also locates the beginning of natural causation in God's actional Will and not in His Essence (see section 3.10).

Like Shaykh Ahmad, 'Abdu'l-Bahá also affirms that the attribute of volition in God's act of creation extends to all created things, and that this is necessary to uphold the justice and mercy of God. He says: "Created things and the recipients of God's action have each accepted a degree of existence according to their own pleasure and desire."[12] Creation thus entails both a voluntary act on the part of the Creator and a voluntary act to receive existence on the part of the created, according to its own disposition.[13]

[In like manner, the philosopher Maimonides argued against the view of Alfarabi and Avicenna requiring the formation of the world to be through necessity, for then "all existence is thus made necessary—cause and effect alike. Nothing can fail to exist or be other than as it is. But this implies that…nothing can diverge in any way from the nature which it has."[14] Maimonides continues that only voluntarism allows for "change in the nature of things," that is, evolution, as a means of bringing creation to maturity.]

Two other important points about the Primal Will need mentioning: First, it is an atemporal, placeless reality which exists "with" God as His action but not as part of God's essence. Because it precedes time and space, time and space are its effects. 'Abdu'l-Bahá explains:

> The first thing to emanate from God is that universal reality which the philosophers of the past termed the First Intellect, and which the people of Bahá call the Primal Will. This emanation, with respect to its action in the world of God, is not limited by time or

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[9] 'Abdu'l-Bahá, *SAQ*, p. 3.

[10] Ibid., p. 244.

[11] 'Abdu'l-Bahá, *Má'idiy-i Ásmání*, vol. 2, p. 70.

[12] 'Abdu'l-Bahá, *Makátíb* (Collected Letters) (Cairo 1912), vol. 2, p. 38.

[13] A similar statement is found in the writings of the Báb: "He [God] knows the dispositions of all things, and through the dispositions of all, He creates all, giving each one a portion according to its disposition….Were He to create something other than in accord with the state of its own receptivity, this would be an injustice to it" (*Amr va Khalq*, vol. 1, p. 76).

[14] Qtd. in Lenn Goodman, *Jewish and Islamic Philosophy* (Rutgers University Press, 1999), p. 98.

> place; it is without beginning or end....His creation of the possible (*mumkin*) is an essential creation, and not a temporal creation.[15]

In other words, *God's creation of the realities of things takes place outside of time*. As will be recalled from Shaykh Ahmad, all possible things (*mumkinát*) exist potentially in God's actional Will as part of His "first creation." Second, the Primal Will is identical to the inner reality (*bátin*) of all created things. This is also clearly stated by ʻAbdu'l-Bahá: "The Primal Will, which is the world of Command, is the inner reality of all things, and all existing things are the manifestations of the Divine Will."[16] This Will, which corresponds to the possible, manifests the realities of things as a sea manifests itself in the forms of the waves. The actual creatures that have ever lived on earth represent only a fraction of those hidden realities that are potential or possible in God's Will.

ʻAbdu'l-Bahá explains that the composition, or formation, of things when they first appear on this planet is a result of their realities:

> Each time that the isolated elements become combined in accordance with the divine universal system,[17] one being among beings comes into the world. That is to say, that when certain elements are combined, a vegetable existence is produced; when others are combined, it is an animal; again others become combined, and different creatures attain existence. In each case, the existence of things is the consequence of their realities.[18]

Realities (*haqá'iq*), here, as will be recalled from Section 2, are a synonym for essences (*máhíyát*), which are equivalent to Platonic Forms and laws of nature. [Suhrawardí explains, in harmony with Shaykh Ahmad's codependent origination principle, that "being particularized by accidents is also a condition for the existence of the realities of species."[19]]

Another principle that ʻAbdu'l-Bahá holds to is that when things come into existence by formation, in the manner described above, they are "created perfect and complete from the first, but their perfections appear in them by degrees (*bitadríj*)."[20] He gives the example of a seed in which all of the vegetable perfections exist in a latent state; it is only later, after the seed is planted, that the vegetable perfections appear, little by little. Here we have the answer to the question which was unanswered by Alfarabi as to how "becoming" takes place in beings. ʻAbdu'l-Bahá says it takes place "by degrees" (*bitadríj*), which means "*by steps*." Sometimes the term *bitadríj* has been translated in the selected passages by the adverb "gradually," but this does

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[15] ʻAbdu'l-Bahá, *Mufávadát*, p. 144; *SAQ*, p. 203, revised translation.

[16] ʻAbdu'l-Bahá, *Min Makátíb*, vol. 1, p. 275.

[17] i.e., the divine intelligible order in God's mind or will.

[18] ʻAbdu'l-Bahá, *Mufávadát*, p. 204; *SAQ*, p. 292, revised translation.

[19] Suhrawardi, *The Philosophy of Illumination*, p. 60.

[20] ʻAbdu'l-Bahá, *Mufávadát*, p. 141; *SAQ*, p. 199, revised translation.

not necessarily imply a continuum of gradual change, but only a ladder of distinct manageable steps in the development of creatures.

4.3 The Question of Evolution

'Abdu'l-Bahá' does not deny the reality of evolution as a process by which the universe and its creatures change and develop over time, as some essentialists of classical biology did under the influence of typological thinking. He certainly does not believe in a static cosmos of fixed populations corresponding to fixed essences. He appears to confirm the process metaphysics of Shaykh Ahmad, which requires a real and continuous process of becoming in all created things, whether corporeal or intelligible. The only entity 'Abdu'l-Bahá excepts from change is God's existentiating Command by which all things are called into being. He states in a letter: "All things are subject to transformation and change, save only the existentiating Command (*al-amr al-wujúdí*), since it is constant and immutable, and upon it is founded the life of every species and kind, of every contingent reality throughout the whole of creation."[21] "Creation," he says in another place, "is the expression of motion, and motion is life….All created forms are progressive in their planes, or kingdoms of existence, under the stimulus of the power or spirit of life. The universal energy is dynamic. Nothing is stationary in the material world of outer phenomena or in the inner world of intellect and consciousness."[22] But this state of motion, which implies transformation, is not a purely random and chaotic motion. It does not imply the transmutation of one species into another or a purely arbitrary unfolding of events, as would be the case in a non-goal directed universe. 'Abdu'l-Bahá is adamant that physical species evolve purposively within the boundaries of their own essences. As he explains in a letter: "Some of the philosophers of Europe think that evolution takes place from the genus to the species. But the Prophets teach that this theory is in error, as we have explained already in the book *Some Answered Questions* (*Mufávaḍát*). Nay, rather progress and development take place within the species itself."[23]

'Abdu'l-Bahá supports the gradual change of biological species over time, but for him "evolution" means progress toward a preexisting goal, not the mere natural selection of favorable random variations. In commenting on the following words of Bahá'u'lláh in the *Lawh-i Hikmat*: "That which hath been in existence had existed before, but not in the form thou seest today," he says: "From this blessed verse it is clear and evident that the universe (*kawn*) is evolving (*tarraqí*). In the opinion of the philosophers and the wise this fact of the development and evolution of the world of existence is also established. That is to say, it is progressively transferred from one state to another."[24] He says the same thing about the planet earth, and explains that this law of gradual progress toward greater perfection applies equally to all creatures:

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[21] 'Abdu'l-Bahá, *Muntakhabát az Makátíb-i Hadrat-i `Abdu'l-Bahá* (Wilmette: Bahá'í Publishing Trust, 1979), p. 154; *Selections from the Writings of `Abdu'l-Bahá*, p. 157, revised translation.

[22] 'Abdu'l-Bahá, *Promulgation of Universal Peace*, p. 140.

[23] 'Abdu'l-Bahá, *Má'idiy-i Ásmání*, vol. 2, p. 69.

[24] Ibid., pp. 68-69.

> It is clear that this terrestrial globe in its present form did not come into existence all at once, but that this universal existent gradually[25] passed through different stages until it became adorned with its present perfection. Universal existents resemble and can be compared to particular existents, for both are subject to one natural system, one universal law, and one divine organization. So you will find that the smallest atoms in the universal system are similar to the greatest existents of the universe.[26]

"All beings, whether universal or particular," continues 'Abdu'l-Bahá, "were created perfect and complete from the first, but their perfections appear in them by degrees...So also the formation of man in the matrix of the world was in the beginning like the embryo;[27] then gradually he progressed through various stages, and grew and developed until he reached the stage of maturity, when the mind and spirit became manifest in the greatest power."[28] It will be recalled that "the movement of living bodies toward perfection," which 'Abdu'l-Bahá teaches here, was the only definition of evolution that Isfahání found acceptable (see Section 1.12).

From these passages we can see that 'Abdu'l-Bahá teaches that physical beings, whether the universe itself or the creatures within it, evolve step by step, from one distinct stage to another, toward greater perfection. The fact that creatures may also decline or retrogress is also recognized by 'Abdu'l-Bahá. But 'Abdu'l-Bahá's doctrine of the "originality of species" (see Section 2) implies that this whole process is goal-directed (i.e., guided by laws and arranged according to divine wisdom), not arbitrary or the result of blind environmental necessity. Should the transmutation of a population occur, so that it becomes classed as a new species, this is only possible because of God's prior creation of the possible. "Creation" and "evolution," to 'Abdu'l-Bahá, are not contrary, but complementary and mutually necessary processes. For God's timeless creation to become manifested, the evolution of the external universe is necessary; otherwise the potentialities of creation could not unfold as a temporal process. And for evolution to be realized, the creation of primordial laws is necessary; otherwise a harmonious cosmos could not arise out of chaos.

4.4 Some Non-References to Evolution

There are some passages in 'Abdu'l-Bahá's writings and talks that might be construed as a reference to biological evolution, but which most likely refer only to the descent and ascent of the soul of man within human individuals. These passages are those in which 'Abdu'l-Bahá mentions the passage of man through the lower kingdoms of nature. For example, in one of his talks in the United States, 'Abdu'l-Bahá says:

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[25] The Arabic word translated here as "gradually" (*bitadríj*) literally means "step by step" or "by degrees."

[26] 'Abdu'l-Bahá, *Mufávadát*, p. 129; *SAQ*, p. 182, revised translation.

[27] This statement: "the formation of man in the matrix of the world was in the beginning like [the development of] the embryo" should not necessarily be interpreted to mean the two processes are equivalent. Rather, they have an analogical resemblance.

[28] 'Abdu'l-Bahá, *Mufávadát*, p. 141; *SAQ*, pp. 198-199, revised translation.

> In the world of existence man has passed through various stages until he has attained the human kingdom. In each stage the capacity for ascent to the next stage has appeared. While in the kingdom of the mineral the capacity to progress to the stage of the plant appeared, and, therefore, he came into the vegetable kingdom. In the vegetable kingdom the capacity to progress into the world of the animal was obtained, and thus he came into the animal kingdom. Similarly, from the world of the animal he came into the world of man....In this world, also, it is necessary to prepare and make ready for the world to come. Whatever is needed in the world of the Kingdom of God, man must prepare and make ready for it here.[29]

This idea of the gradual ascent of the soul of man through the three kingdoms of nature has its origin in the Islamic concept of arcs of descent and ascent. According to the Qur'án, as God created things, in a similar manner they will return to Him: "As He created you, so you will return" (7:29). The Sufis and Hikmat philosophers of Islam[30] have elaborated this theory and explained it as follows: Individuals commence their lives at conception as an emanation from their Creator, descend through degrees in the incorporeal dimension (the arc of descent) until they reach the level of the corporeal elements, traditionally earth, air, fire, and water, from which are produced the three kingdoms of the material world: mineral, vegetable, and animal. The I-spirit of the individual does not really "descend" but remains in its exalted state. It has, though, successive manifestations which, in Neoplatonic cosmology, are like increasingly darker shadows until the stage of the body composed of the physical elements is reached. This is the lowest point of descent.

The arc of ascent commences with the manifestation of the human spirit in the kingdom of the mineral, from whence it progresses to the plant kingdom, to the animal kingdom, and finally to the human kingdom. In the human kingdom the soul is ready at last to disengage itself from its attachment to the material world and return toward its point of origin in the world of spirit. To do this it must also traverse many degrees in the spiritual world. The spiritual teachings of religion are directed toward releasing the soul from its bondage to the attributes of the world of nature so that it can attain to the knowledge of its Creator and the perfection of its own reality.

William Chittick explains that in Islam this theory is about the origin and return of individual souls to God and does not prefigure biological evolution. It concerns individuals, not the origin of species.[31] Man only analogously ascends through the kingdoms of nature, not literally. The human body was believed to recapitulate the levels of complexity of the lower kingdoms of nature in its own development. So the human embryo first possesses the faculty of cohesion of the mineral kingdom, then the faculties of growth and metabolism of the plant kingdom, and then in the stage of the infant it possesses the animal faculties of desire, volitional movement, anger, and sense perception. As the child grows, it learns to use these faculties properly, and gradually it acquires and develops the faculties of intellect and the spiritual virtues

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[29] 'Abdu'l-Bahá, *Khitabát*, vol. 2, pp. 170-171; *Promulgation of Universal Peace*, pp. 225-226, revised translation.

[30] See, for example, William Chittick's explanation of the arcs of ascent and descent in the poetry of Rúmí in *The Sufi Path of Love* (Albany: SUNY, 1983), pp. 72-82.

[31] Chittick, *Sufi Path of Love*, p. 72.

that belong to the human kingdom. The intellectual faculties and spiritual virtues, in turn, open the door to higher levels of spiritual perfection.

4.5 'Abdu'l-Bahá's Arguments Against Darwinian Transmutation

'Abdu'l-Bahá's arguments against the transmutation of species (*taghyír-i naw'*) from a Darwinian perspective, which occur in *Some Answered Questions*, chapters 46 to 51, and elsewhere, should be understood in the context of his doctrine of the originality of species. In other words, he is not opposed to the modification and change of biological forms but to their haphazard transformation without any underlying goal. According to 'Abdu'l-Bahá, each biological form depends upon a corresponding species essence in the inner world of spirit. This is due to the "perfect harmony and correspondence" of the worlds of God, whereby whatever exists in the material world is the outer expression of the realities of the inner intelligible realm.[32] 'Abdu'l-Bahá states:

> Know that this material world is the mirror of the Kingdom, and each of these worlds is in complete correspondence with the other…for the truth of all things is laid away in the treasuries of the Kingdom. When that truth is manifested in the material world, the archetypes (*a'yán*) and realities (*haqá'iq*) of beings attain realization.[33]

The essential attributes of a biological organism cannot become modified or changed in time into the attributes of an entirely different species, unless the essence itself is replaced. Species, in other words, are original, not derivative, while the material form (the clay of creation) is dependent upon and derived from what precedes it. What is material is only so much clay that can be molded into any form as dictated by the complex system of forces or causes originating in the world of spirit. DNA and genes, from this perspective, are simply tools created in the clay to accomplish purposes on a higher level.

[To return to philosophical terminology, accidents are necessary to particularize realities, and they can be associated with more than one reality at the same time. Suhrawardí gives this example: "Accidents can change the answer to the question 'what is it'?" For example, "if a chair is made from a piece of wood, nothing changes in the wood except states and accidents; yet if you were asked what it was, you would say that it is a chair, not that it is wood."[34]]

The first argument of 'Abdu'l-Bahá against the transmutation of species (*taghyír-i naw'*), which sees the "clay" itself as fundamental to speciation, is based on the idea of a predetermined harmonious cosmos and the eternal perfection of the creation brought into being by an all-wise Creator. For example, if the human species at one time did not exist, then this chief member of the body of the universe would have been missing, and the creation consequently would have been imperfect. 'Abdu'l-Bahá states:

> We have now come to the question of the transmutation of species and the evolution (*taraqqí*) of organs--that is to say, to the point of inquiring whether human beings have

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[32] 'Abdu'l-Bahá, *SAQ*, p. 283; *Promulgation of Universal Peace*, p. 270.

[33] 'Abdu'l-Bahá, *Makátíb*, vol. 3, p. 172.

[34] Suhrawardí, *The Philosophy of Illumination*, p. 61.

> descended from the animal or not. This theory has found credence in the minds of some European philosophers, and it is now very difficult to make its falseness understood, but in the future it will become evident and clear, and the European philosophers will themselves realize its untruth. For, verily, it is an evident error. When man looks at the beings with a penetrating regard, and attentively examines the condition of existents, and when he sees the state, organization, and perfection of the world, he will be convinced that in the contingent world there is nothing more wonderful than what already exists. For all existing beings, terrestrial and celestial, as well as this limitless space and all that is in it, have been created and organized, composed, arranged, and perfected as they ought to be. The universe has no imperfection, so that if all beings became pure intelligence and reflected for ever and ever, it is impossible that they could imagine anything better than that which already exists.
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> If, however, the creation in the past had not been adorned with the utmost perfection, then existence would have been imperfect and meaningless, and in this case creation would have been incomplete....Now, if we imagine a time when man belonged to the animal world, or when he was merely an animal, we shall find that existence would have been imperfect--that is to say, there would have been no man, and this chief member, which in the body of the world is like the brain and mind in man, would have been missing. The world would then have been quite imperfect. This is a categorical proof, because if there had been a time when man was in the animal kingdom, the perfection of existence would have been destroyed.[35]

By "man" here, 'Abdu'l-Bahá does not mean the body of man but the reality or essence of man within the divine intelligible order, because biological man had a temporal origin on the planet earth. 'Abdu'l-Bahá, speaking with the theologians, says: "the human species on this planet had a beginning and is not eternal. And inasmuch as the existence of the human species [on this planet] had a beginning, surely the first man [Adam] had neither father nor mother."[36] The import of 'Abdu'l-Bahá's argument is that "man" has always been part of God's timeless intelligible creation, which manifests in space and time whenever the material conditions are suitable. Since the perfection of the universe requires a being like man, according to 'Abdu'l-Bahá, and since we cannot ascribe imperfection to God's creation, man, therefore, has always existed. Man is not a haphazard descendant of an animal species, even though his body is physically and genetically related to the animal and "grows develops through the animal spirit."[37]

In a variant of this same argument, 'Abdu'l-Bahá focuses on the necessity of the eternal existence of the human reality to act as a comprehensive mirror of God's created names and attributes.

> The proofs which we have adduced relative to the originality of the human species are rational proofs. Now we will give theological proofs....We have many times

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[35] 'Abdu'l-Bahá, *Mufávadát*, pp. 124-125; *SAQ*, pp. 177-178, revised translation.

[36] 'Abdu'l-Bahá, *Mufávaḍát*, p. 64; *SAQ*, p. 88, revised translation.

[37] 'Abdu'l-Bahá, *SAQ*, pp. 143-144.

> demonstrated and established that man is the noblest of contingent beings, the sum of all perfections, and that all beings and all existents are centers for the appearance of the divine effulgence--that is to say, the signs of the divinity of God are manifest in the realities of all created things. Just as the terrestrial globe is the place where the rays of the sun are reflected--where its light, heat, and influence are apparent and visible in all the atoms of the earth--so, in the same way, the atoms of every universal existent in this infinite space proclaim and prove one of the divine perfections. Nothing is deprived of this benefit: either it is a sign of the mercy of God, or it is a sign of His power, His greatness, His justice, His nurturing providence; or it is a sign of the generosity of God, His vision, His hearing, His knowledge, His grace, and so on....
>
> The world, indeed each existing thing, proclaims to us one of the names of God, but the reality of man is the collective reality, the general reality, and the center for the appearance of the effulgence of all the divine perfections. That is to say, for each name, each attribute, each perfection which we affirm of God there exists a sign in man. If it were otherwise, man could not conceive these perfections and could not understand them....Consequently, the divinity of God, which is the sum of all perfections, appears resplendent in the reality of man....If man did not exist, the universe would be without result, for the object of existence is the appearance of the perfections of God. Therefore, it cannot be said there was a time when man was not. All that we can say is that this terrestrial globe at one time did not exist, and at its beginning man did not appear on it. But from the beginning which has no beginning, to the end which has no end, this perfect manifestation always exists. This man of whom we speak in not every man; we mean the perfect man (*insán kámil*).[38] For the noblest part of the tree is the fruit, which is the reason of its existence. If the tree had no fruit, it would have no meaning. Therefore, it is inconceivable that the worlds of existence, whether the stars or this earth, were once inhabited by the donkey, cow, mouse and cat, and that they were without man. This supposition is false and meaningless.[39]

‘Abdu’l-Bahá is saying that the universe is designed by God to produce perfect human beings who will reflect His attributes (such as love, mercy, justice, wisdom, beneficence, etc.), and who can therefore know His Essence befittingly, which was the reason why He, as the Hidden Treasure, created the creation. All other things in existence ultimately serve this purpose. “This world,” states ‘Abdu’l-Bahá, “is in the condition of a fruit tree, and man is like the fruit;

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[38] “Perfect man” is a technical term used by Ibn ‘Arabí and his followers to refer to human individuals who reflect in perfect equilibrium all the names and attributes of God, though in their specific functions (as determined by time and place) they may display only certain names. All of the prophets and saints are “perfect men,” and as such they are exemplars to the rest of humanity and reveal the fullness of what other men possess only potentially. Ibn ‘Arabí says: “The highest cosmic level is...‘poverty toward all things.’ This is the level of perfect man, for everything was created for him and for his sake and subjected to him” (qtd. in Chittick, *Sufi Path of Knowledge* 46).

[39] ‘Abdu'l-Bahá, *Mufávadát*, pp. 139-140; *SAQ*, pp. 195-197, revised translation.

without the fruit the tree would be useless."[40] The implication may be that biological manifestations of the species essences of all things always exist in some part of the universe, wherever the conditions are suitable. Or, the perpetual existence of species may indicate only the species essences, because there was a long period in the early phases of the formation of our universe when biological species could not exist. Of course, it is not known whether or not the temporal creation is limited to what arose from the singularity of the Big Bang.

The above arguments regarding the necessity of perfect man apply in a similar sense to all species because each has a necessary purpose in the eternal plan of God: "The difference of degrees and distinction of forms, and the variety of genera and species, are necessary--that is to say, the degrees of mineral, vegetable, animal, and man are inevitable; for the world cannot be arranged, organized, and perfected with man alone."[41] The plan of God for a harmonious cosmos requires the simultaneous presence of many species, so it is inconceivable in this context that any species should exist merely by mechanical causes and be the product of arbitrary evolution.

A second argument of 'Abdu'l-Bahá against the transmutation of species is based on the proposition that each biological organism represents a prescribed composition.[42] In other words, for each species to realize the purpose or function intended for it by its Creator, a certain type of structure or pattern of constituent elements must be present in its make-up. Because of this, as long as man has existed on the earth, even though he has evolved (*taraqqí*) toward greater perfection, he has always had the same type of composition and structural organization, or at least the specific potential for them in the way that an acorn has the specific potential to become an oak.

> There is another more subtle proof: all these endless beings which inhabit the world, whether man, animal, vegetable, or mineral--whatever they may be--are surely, each one

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[40] 'Abdu'l-Bahá, *SAQ*, p. 201.

[41] `Abdu'l-Bahá, *Mufávaḍát*, p. 94; *SAQ*, p. 129, revised translation.

[42] In a paper by Aly-khan Kassam called "Matter, Spirit, and Complexity," posted on the newsgroup Talisman on December 18, 1996, he explains cogently 'Abdu'l-Bahá's understanding of the relation of spirit to matter. By "spirit" here is meant an emergent property of matter that is dependent on particular kinds of compositions of constituent elements. In other words, spirit, in this case, is not the same as a species essence, which guides the composition; rather, it is a manifestation of a species essence realized through a particular arrangement of constituent elements. The whole of a composition, being more than just the sum of its parts, "attracts" a spirit to itself. "It adds," Kassam explains, "another dimension which cannot be inferred by simply examining the constituent parts." So "a collection of elements when arranged according to a specific pattern will attract an ordained level of spirit to the group, which is then manifested in the group by certain properties or behavior in the physical world. The spirit thus attracted will not be attributable to any part of the group, and if the group is broken up the spirit vanishes." All spirits realized in this manner are perishable, except for the human spirit. According to 'Abdu'l-Bahá, once the human spirit, i.e. the rational soul, comes into existence, it continues forever (*SAQ* 151). But the other spirits, such as the plant and animal spirits, are perishable (*SAQ* 143). The point of Kassam's paper is that all complex systems, which can be anything from a group of cells in the body to a rain forest or a galaxy, exhibit just such emergent properties, which are "associated with the system as a whole and not any part of it."

> of them, composed of elements. There is no doubt that this perfection which is in all beings was realized by the creation of God from the composition of the elements, by their appropriate mingling and proportionate quantities, by the manner of their composition, and the influence of other beings. For all beings are connected together like a chain; and reciprocal help, assistance, and interaction belonging to the properties of things are the causes of the existence, development, and growth of created beings. It is confirmed through evidences and proofs that every being in the universe influences other beings, either independently or through a series of other beings. In brief, the perfection of each individual being--that is to say, the perfection you now see in man and apart from him with regard to parts, organs, or faculties--is due to the composition of the elements, to their measure, to their balance, to the manner of their combination, and to the interaction and influence of other beings. In the case of man, when all these factors are gathered together, then man exists. As the perfection of man is entirely due to the composition of the elements, to their measure, to the manner of their combination, and to the interaction and influence of different beings--then, since man was produced ten or a hundred thousand years ago from these earthly elements with the same measure and balance, the same manner of combination and mixture, and the same influence of other beings, exactly the same man existed then as now. This is evident and not worth debating. A thousand million years hence, if these elements of man are gathered together and arranged in this special proportion, and if the elements are combined according to the same method, and if they are affected by the same influence of other beings, exactly the same man will exist.[43]

The point of ‘Abdu’l-Bahá’s argument in this passage seems to be that once the appropriate composition needed for a species to manifest itself in the world is realized and the right environmental conditions, it does not evolve into another species because its essential perfection, as determined by its essence, is already present. A species essence will not allow its biological counterpart to exceed its own potentialities. In this case, as ‘Abdu’l-Bahá explains, if the same elements are combined again a thousand million years from now in the same manner and under the same influence of other beings (i.e., under the same environmental conditions), exactly the same kind of biological being will be realized. This is because the species essence which allows the composition to exist is time invariant. It is a natural law, universally valid for all times and all places. Hence, the human species could not have evolved by chance from another species, since each is a unique creation in the divine intelligible order.

In one of his letters, ‘Abdu'l-Bahá gives an argument which was also given by Cuvier (see Section 1.3) as evidence for the generally long-term invariability of biological species:

> The species and essences of all things are permanent and established. Only within the limits of each species do progress and decline occur. For example, the human species and essence has always been and will remain preserved and inviolable. As can be seen from the ancient, dried, and embalmed bodies which have been exhumed from the pyramids of Egypt 5,000 years after their death, there is not the slightest change or variation, to the extent of a hair, from the human beings of today. Similarly, the [ancient] pictures of

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[43] ‘Abdu'l-Bahá, *Mufávadát*, p. 126; *SAQ*, pp. 178-179, revised translation.

> animals on the frescoes of Egypt are identical to present-day animals....Man is man with his beautiful, radiant countenance. "There is no change in the creation of God (Qur'án 30:30)."[44]

'Abdu'l-Bahá is not implying that the form of a biological species at its first appearance on earth is created suddenly and then undergoes no substantial change, as the strict special creationists hold. The passage merely means that man in his present form hasn't changed for thousands, even tens of thousands of years. But there was a time when the material reflection of the human essence, due to the undeveloped nature of the planet, took on more primitive forms. When a new biological species appears for the first time in the matrix of the planet, it is complete but develops further perfections in a step-by-step fashion.

'Abdu'l-Bahá emphasizes in several places that nothing attains its full perfection at once: "When you consider this universal system, you see that there is not one of the beings which at its coming into existence has reached the limit of perfection. No, they gradually grow and develop, and then attain the degree of perfection."[45] In regard to the initial appearance of the human species, he clarifies:

> It is evident and confirmed that the development and growth of man on this planet, until he reached his present perfection, resembles the growth and development of the embryo in the womb of the mother: by degrees it passed from condition to condition, from form to form, from one shape to another, for this is according to the requirement of the universal system and divine law....Man's existence on this earth, from the beginning until it reaches this state, form, and condition, necessarily lasts a long time, and goes through many stages until it reaches this condition. But from the beginning of man's existence he has been a distinct species....Now assuming that the traces of organs which have disappeared actually existed, this is not a proof of the lack of independence and nonoriginality of the species. At most it proves that the form, appearance, and organs of man have evolved.[46]

This passage clearly differentiates 'Abdu'l-Bahá from those classical essentialists who did not allow for any kind of evolution, and shows that his conception of a "species essence" contains more than just the ideal form of a species. It also must contain all of its possible evolutionary pathways from the most primitive to the most advanced. Such an essence, though permanent, cannot be regarded as fixed.

In addition to the above arguments against the transmutation of species, in Chapter 49 of *Some Answered Questions* 'Abdu'l-Bahá also presents the Darwinian argument for transmutation based on the presence of vestiges or rudimentary organs. He rebuts the Darwinian argument using the same types of essentialist arguments found in Section 1.

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[44] 'Abdu'l-Bahá, *Má'idiy-i Ásmání*, vol. 9, pp. 27-28.

[45] 'Abdu'l-Bahá, *SAQ*, p. 199.

[46] 'Abdu'l-Bahá, *Mufávaḍát*, p. 130; *SAQ*, pp. 183-184, revised translation.

Certain European philosophers think that the species (*naw'*) develops and evolves, and that even change and transformation are possible. One of the proofs that they give for this theory is that through the attentive study and verification of the science of geology it has become clear that the existence of the vegetable preceded that of the animal, and that of the animal preceded that of man. They believe that both the vegetable and the animal genera (*jins*) have changed, for in some of the strata of the earth they have discovered plants which existed in the past and are now extinct; in other words, they think these plants progressed and grew in strength, and that their form and appearance changed; and, therefore, the species has altered. In the same way, in the strata of the earth there are some species of animals which have changed and become modified. One of these animals is the serpent. There are indications that the serpent once had feet, but through the lapse of time those members have disappeared. In the same way, in the vertebral column of man there is a vestige which proves that man, like other animals, once had a tail. They believe that at one time that member was useful, but when man evolved, it was no longer of use; and, therefore, it gradually disappeared. As the serpent took refuge under the ground and became a creeping animal, it was no longer in need of feet, so they disappeared; but their traces survive. Their principal argument is this: the existence of traces of members proves that they once existed, and as now they are no longer of service, they have gradually disappeared, and there is no longer any benefit in or reason for these vestiges. Therefore, while the perfect and necessary members have remained, those which are unnecessary have gradually disappeared by the modification of the species, but the traces of them continue.

The first answer to this argument is the fact that the animal having preceded man is not a proof of the evolution, change, and transmutation of the species, nor that man was raised from the animal world to the human world. For while the creation of these different beings is certain, it is possible that man came into existence after the animal. So when we examine the vegetable kingdom, we see that the fruits of different trees do not all come into existence at the same time; on the contrary, some come first and others afterward. This priority does not prove that the latter fruit of one tree was produced from the earlier fruit of another tree.

Second, these slight signs and traces of members may have a great wisdom of which minds are not yet cognizant. How many things exist of which we do not yet know the reason! So the science of physiology--that is to say, the knowledge of the composition of the members--records that the reason and cause of the difference in the colors of animals, and of the hair of men, of the redness of the lips, and of the variety of the colors of birds, is still unknown; it is secret and hidden. But it is known that the pupil of the eye is black so as to attract the rays of the sun, for if it were another color--that is, uniformly white--it would not attract the rays of the sun. Therefore, as the reason of the things we have mentioned is unknown, it is possible that the reason and the wisdom for these traces of members, whether they be in an animal or in man, are equally unknown. Certainly, there is a reason, even though it is not known.

Third, let us suppose [for the sake of argument] that there was a time when some animals, or even man, possessed some members which have now disappeared; this is not a sufficient proof of the transmutation and evolution of the species. For man, from the beginning of the embryonic period till he reaches the degree of maturity, goes through different forms and appearances. His aspect, his form, his appearance and color change; he passes from one form to another, and from one appearance to another. Nevertheless,

> from the beginning of the embryonic period he is of the species of man--that is to say, an embryo of a man and not of an animal; but this is not at first apparent, only later does it become clear and evident. For example, let us suppose that man once resembled the animal, and that now he has progressed and changed. Supposing this to be true, it is still not a proof of the transmutation of the species. No, as mentioned before, it is merely like the change and modification of the embryo of man until it reaches the degree of reason and perfection. We will state it more clearly. Let us suppose that there was a time when man walked on his hands and feet, or had a tail; this change and alteration is like that of the fetus in the womb of the mother. Although it changes in all respects, and grows and develops until it reaches this perfect form, from the beginning it is a particular species. We also see in the vegetable kingdom that the original, separate species do not change and alter, but the form, color, and bulk may change and alter, and they may even evolve within themselves.
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> To recapitulate: just as man in the womb of the mother passes from form to form, from shape to shape, changes and develops, and is still the human species from the beginning of the embryonic period--in the same way man, from the beginning of his formation in the matrix of the world, is also a distinct species--that is, man--and he has gradually passed from one form to another. Therefore, this change of appearance, this evolution of organs, this development and growth, does not prevent the originality of the species. This explanation is assuming assent to the evolution of species (pl. *anwá'*). But the fact is that man, from the beginning, had this perfect form and composition, and possessed the potentiality and capacity for acquiring inner and outer perfections, and was the manifestation of these words, "We will make man in Our image and likeness." He has only become more pleasing, more beautiful, and more graceful. Civilization has brought him out of his wild state, just as the wild fruits which are cultivated by a gardener become finer, sweeter and acquire more freshness and delicacy. The gardeners of the world of humanity are the Prophets of God.[47]

In his first rebuttal to the arguments of the Darwinists, 'Abdu'l-Bahá seeks to establish that the precedence of the animal kingdom to the human kingdom does not in itself prove that man has evolved from an animal species. All it proves is that the formation of man on this earth was completed after the formation of the animal. In the second rebuttal, 'Abdu'l-Bahá states that the existence of vestiges of organs that now apparently have no function is also not a proof of the transmutation of the species, since these vestiges may have a reason we do not yet understand. Abu al-Majd al-Isfahání and Hussein al-Jisr also made this argument (see Section 1.12).

'Abdu'l-Bahá's third rebuttal takes the track of assuming for the sake of argument that the species form has changed dramatically, such that man once walked on four legs and had a tail. He then says that if this were so, it does not prove the non-originality of the species, because although the form has changed it could still be the same species (i.e., under the influence of the same essence). He gives the example of how the human embryo does not at all resemble the state of a fully-developed human being, yet it still belongs to the human species and has not traversed from one species to another. 'Abdu'l-Bahá explains that this analogy is given for the sake of those who assent to the theory of the transmutation and evolution of species, meaning those who believe man descended from the animal.

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[47] 'Abdu'l-Bahá, *Mufávadát*, pp. 136-138; *SAQ*, pp. 191-194, revised translation.

In his talk on this subject at the Open Forum in San Francisco in 1912, ‘Abdu’l-Bahá uses the same qualifying language while presenting the same argument, showing that he considers the idea that man’s biological form descended from more primitive animal forms belonging to other species to be improbable. He says:

> The philosophers of the East say: If the human body was originally not in its present composition, but was gradually transferred from one stage to another until it appeared in its present form [as the philosophers of the West say], then we would postulate that although at one time it was a swimmer and later a crawler, still it was human, and its species has remained unchanged….Provided that we assent [to this theory] that man was at one time a creature swimming in the sea and later became a four-legged, assuming this to be true, we still cannot say that man was an animal. Proof of this lies in the fact that in the stage of the embryo man resembles a worm. The embryo progresses from one form to another, until the human form appears. But even in the stage of the embryo he is still man and his species has remained unchanged.[48]

‘Abdu’l-Bahá is so certain of this position that he asserts in this talk that the link assumed to be missing between man and the animal will never be found: “The link which they say is lost is itself a proof that man was never an animal. How is it possible to have all the links present and that important link absent? Though one spend this precious life searching for this link, it is certain that it will never be found.”[49]

Although ‘Abdu'l-Bahá does accept evolution and modification within a species, he consistently does not assent to the idea of inter-species evolution (i.e., the theory that one species can evolve into another solely through environmental forces), which was how the Darwinists understood the implications of modification.

‘Abdu’l-Bahá concludes his argument above by saying that man has, in fact (*va hál ánki*), always had “this perfect form and composition,” which belongs to the human species, and that he “has only become more pleasing, more beautiful, and more graceful.” By extension, the same would apply to all species.

Now a seeming dilemma arises here. How is this conclusion of ‘Abdu’l-Bahá, that the human species has “from the beginning” had “this perfect form and composition” and “only become more pleasing, more beautiful, and more graceful,” to be reconciled with this equally clear statement of his:

> Man in the beginning of his existence in the matrix of this terrestrial globe, like the embryo in the womb of the mother, gradually grew and developed, and passed from one form to another, from one shape to another, until he appeared with this beauty and perfection, this force and this power. It is certain that in the beginning he had not this loveliness and grace and elegance, and that he only by degrees attained this shape, this form, this beauty, and this grace. There is no doubt that the human embryo did not at once appear in this form; neither did it suddenly become the manifestation of the words “Blessed be God, the best of creators.”…Thus it is evident and confirmed that the

[48] ‘Abdu’l-Bahá, *Khitábát*, vol. 2, p. 303; *Promulgation of Universal Peace*, pp. 358-359, revised translation.

[49] Ibid., pp. 303-304; *Promulgation of Universal Peace*, pp. 359, revised translation.

> development and growth of man on this planet, until he reached his present perfection, corresponds to the growth and development of the embryo in the womb of the mother: by degrees it passed from condition to condition, from form to form, from one shape to another, for this is according to the requirement of the universal system and the Divine Law….And in the same way, man's existence on this earth, from the beginning until it reaches this state, form, and condition, necessarily lasts a long time, and goes through many degrees until it reaches this condition. But from the beginning of man's existence he has been a distinct species.[50]

The solution to this seeming contradiction lies in the realization that 'Abdu'l-Bahá's conception of evolution is very different from that of Darwin. To 'Abdu'l-Bahá "evolution" (*taraqqí*) means the "progress" of something from a primitive though perfect and complete seed state toward the state of fulfilling its innate potential or reason for being. For example, an acorn is perfect and complete in itself, but it has not yet realized its potential to become an oak tree. To become an oak tree, which will have the capacity to feed and shelter other creatures, it must pass through many stages of development over a long period of time. But from the beginning the acorn has the specific potential in its composition and configuration of elements to become an oak tree. It cannot become anything else; it stays within its species. In the same way, when 'Abdu'l-Bahá states that "man, from the beginning, had this perfect form and composition," he means this in the sense that a seed already has the perfect composition and configuration to become a tree, even though it will still change in outward form and pass through many stages of development.

This view has been designated by some Bahá'ís as "parallel evolution," and it appears to correspond roughly to the views of such thinkers as Augustine, Isfahání, and Leibniz (see sections 1.4, 1.12, and 3.3). According to this idea, a parallel but distinct path of evolution is maintained for each biological population from the time of its original formation on this planet. In the beginning stages, such as the single-celled stage and in other early stages, various species may have looked alike and even been nearly identical genetically, but they later gradually differentiated in appearance and continued to evolve new characteristics separately from each other. This is analogous to the way the nearly identical, undifferentiated cells of the blastula begin to specialize into particular types of cells, such as bone cells, blood cells, skin cells, and so forth.

Although this type of evolution is designated "parallel," the source of parallelism is not in the biological forms themselves but in their corresponding essences. For this reason, the evolutionary pathway of all of earth's life will physically take the form of a tree with certain biological species appearing (because of physical similarity) to derive from or branch out of others, while, in reality, their essences are distinct. Outwardly, then, as a physical process, parallel evolution appears no different than Darwinian evolution. The critical difference resides in the source of speciation. To Darwin speciation is arbitrary and comes from the natural selection of favorable random variations; to 'Abdu'l-Bahá speciation is already determined and comes from timeless nonspatial essences.

4.6 A Model for Temporal Creation

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[50] 'Abdu'l-Bahá, *Mufávadát*, pp. 129-130; *SAQ*, p. 183-184, revised translation.

If, as ‘Abdu’l-Bahá proposes, “all beings, whether universal or particular, were created perfect and complete from the first, but their perfections appear in them by degrees,”[51] then how does the physical and temporal realization of this creation occur? In other words, how do you get the *first* human being on earth, the seed of the species, without reverting to literal biblical special creation? ‘Abdu’l-Bahá’s answer retains the idea of creation, but incorporates the role of evolution in realizing a species’ potential. And of course what is formed at first is not the finished product of the species but only its most primitive form.

As explained in Section 4.2, ‘Abdu’l-Bahá teaches that “the coming together of the various constituent elements of beings cannot be accidental” and “cannot be necessary,” but arises from the Will of a supreme Being.[52] This Primal Will contains the species essences (i.e., the realities, the possibilities, the natural laws) of all things, which define the space of possible formations that can take place in the universe in accordance with God’s perfect wisdom. As ‘Abdu’l-Bahá explains:

> Each time that the isolated elements become combined in accordance with the divine universal system, one being among the beings comes into the world. That is to say, that when certain elements are combined, a vegetable existence is produced; when others are combined, it is an animal; again others become combined, and different creatures attain existence. In each case, the existence of things is the consequence of their realities.[53]

Before the elements became composed by God’s Will into the first primitive forms of creatures, these elements themselves underwent a period of evolution in their formation. ‘Abdu’l-Bahá says:

> Therefore, it is evident that in the beginning there was a single matter, and that one matter appeared in a particular form in each element. Thus various forms were produced, and these various forms as they were produced became independent, and each element was specialized. But this independence was not definite, and did not attain realization and perfect existence until after a very long time. Then these elements became composed, organized, and combined in infinite forms; in other words, from the composition and combination of these elements a limitless number of beings appeared.
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> This composition and arrangement, through the wisdom of God and his preexistent might, were produced from one natural organization. As the world was composed and combined with the utmost perfection, conformable to wisdom, and according to a universal law, it is evident that it is the creation of God, and is not a fortuitous composition and arrangement.[54]

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[51] ‘Abdu’l-Bahá, *Mufávadát*, p. 141; *SAQ*, p. 199, revised translation.

[52] ‘Abdu’l-Bahá, *Tablet to Forel*, p. 75.

[53] ‘Abdu’l-Bahá, *Mufávadát*, p. 204; *SAQ*, p. 292, revised translation.

[54] ‘Abdu’l-Bahá, *Mufávadát*, p. 128; *SAQ*, p. 181, revised translation. Shaykh Ahmad proposes in his *Sharh al-Mashá‘ir* that the concept of “unity of existence,” if we are not referring to the special meaning of this expression used by the leaders of the Sufis, can only refer to the unity

Given that all things at their first appearance in the temporal domain are formed as ‘Abdu’l-Bahá has described, how might this look in practice? Before answering this with a tentative model, two general principles of ‘Abdu'l-Bahá first need closer examination.

The first principle is that the biological manifestations of species are latent or potential (*kumún* or *bi’l-quwah*) on this earth and become manifested in stages: first inorganic structures of atomic and molecular organization appeared and then gradually more complex biological structures appeared, finally cumulating in the appearance of the animal and human kingdoms. ‘Abdu’l-Bahá explains:

> For example, in this seed all the vegetable perfections exist, but not visibly; afterward, little by little, they will appear. So it is first the shoot which appears from the seed, then the branches, leaves, blossoms, and fruits; but from the beginning of its formation all these things exist in the seed potentially (*bi’l-quwah*), though not outwardly....In the same way, the planet earth from the beginning was created with all its elements, substances, minerals, parts, and organisms; but these only appeared by degrees: first the mineral, then the plant, afterward the animal, and finally man. But from the first these genera and species existed, although they were latent (*kumún*) in the terrestrial globe. Later they gradually appeared.[55]

What is significant in this passage is ‘Abdu’l-Bahá’s use of the words *kumún* and *bi’l-quwah*, latency and potentiality. Something can be latent or potential in two senses: either it can be potential in a general sense, or it can be potential in a specific sense. If something is potential in a general sense, such as the potentiality of a pile of bricks to become a house, or a group of atoms to become a horse, not even a trace of the actual existence of the thing is present in the bricks or the atoms. In other words, this pile of bricks or these atoms at some future time might become configured as such, but they could just as well become configured as something else. ‘Abdu’l-Bahá says every atom has the potentiality to be part of the composition of God’s creatures in each of the kingdoms of nature;[56] this is a general potentiality. The house is not in the bricks in any form, nor is the horse in the atoms. The form of the house only preexists in the mind of the architect or builder; and the ideal form of the horse, as a species essence, only preexists in God’s created knowledge. Therefore, when ‘Abdu'l-Bahá says “from the first these genera and species existed, although they were latent in the terrestrial globe,” he really means they were latent in what *causes* the forms in matter. The potential is not in the clay; it is in the unseen essence. It is not in the image, but in the object casting the image.

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between a whole and its parts. He says: “Unity of existence is inconceivable except between a whole and its parts. For example, man is a single existent by the existence of his parts” (228). In the same manner, ‘Abdu’l-Bahá says that the true meaning of “unity of existence,” at the level of physical things, is to be found in the elements or atoms from which all things are composed, because every atom is capable of becoming part of the constitution of any being in the universe and consequently expressing the properties of that level of organization (*Promulgation* 286).

[55] ‘Abdu'l-Bahá, *Mufávadát*, pp. 141-142; *SAQ*, p. 199, revised translation.

[56] ‘Abdu'l-Bahá, *Promulgation of Universal Peace*, pp. 284-286.

Unlike something that has a general potentiality, something that has a specific potentiality can only become one thing. The seed of a tree or the embryo of a human being, for example, can only become one thing. The animal species that have appeared on this planet since its inception could only have had a general potentiality in the terrestrial globe in the early stages of its formation when the chemical and biological constituents from which all organic life is composed were developing. During this period, not even a trace of the actual existence of plant and animal species was present. In this respect, ‘Abdu’l-Bahá’s analogy of the seed above should not be taken literally, since, in a sense, branches, blossoms, and fruit actually exist in the seed in its genetic code. The acorn can only become an oak tree, but we could not say that certain atoms or molecules can only become a horse.

The species essence can be compared with the intention to build a house. First there is nothing visible, only the intention and perhaps a preliminary design of it. Then it becomes a file of papers containing the drawings of the architect and the legal papers you need to construct a house. Then it becomes a pile of bricks or lumber. Gradually, you see the frame being raised, although the roof is still missing and the finishing touches remain to be done. Finally, everything is ready and you move in with your family. Only now is the house ready to serve its original purpose; only now can it really be called a house. But from the beginning it was planned to be a house for living.[57]

The steps for building other types of structures, such as libraries or factories, would not be very different. The same kind of preliminary planning would be necessary, the same kind of materials, the same workers. Only when a structure is finished does its original purpose, or essence, become fully realized. Prior to that it is only a potentiality. In the same way, the laws of formation, the biological materials, and the mutual influence of different beings must be in common for all biological species. Only when their biological structures become completed are their species essences (or plans) fully realized. But God’s way of building living beings is more complex than this analogy can show, since He has built the tools by which He builds biological structures, such as DNA and genes, into the biological structures themselves.

The second relevant principle given by ‘Abdu’l-Bahá is that the timeless divine emanations, which include the species essences of things, become manifested in the temporal domain whenever capacity has developed to receive them. In a talk to the Theosophical Society in New York ‘Abdu’l-Bahá states: “The divine emanations (*fayúdát-i illáhíyah*) pervading all created beings have had no beginning and will have no end. That illimitable bounty becomes effective in every station whenever the capacity appears to receive it.”[58] If this principle is applied to the idea of biological evolution, then each timeless species essence should begin manifesting its influence as soon as the environmental conditions are prepared to receive it.

With these two principles, and assuming a species essence for each unitary being, it is possible to give a tentative model for how temporal creation by formation and evolution occurs according to ‘Abdu’l-Bahá. By a unitary being is meant any of God’s creatures, each of which is a unity-multiplicity or self-contained system consisting of harmoniously interacting parts. Each atom, as a unitary being, has appeared, according to this view, under the influence of its own

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[57] I owe this analogy to Eberhard von Kitzing, who shared it with me in one of our many e-mail correspondences.

[58] ‘Abdu'l-Bahá, *Khitabát*, vol. 2, p. 106; *Promulgation of Universal Peace*, p. 160, revised translation.

unique species essence and always remains under the influence of that species essence in its individual being. Once the kinds of atoms required for the composition of beings have appeared in their predetermined states, in which they are able to fulfill the functions for which they have been created, then another species essence, say the essence for water, allows two atoms of hydrogen and one of oxygen to combine together to form the molecule of water, provided the conditions are right for this transformation. The other molecules are also formed when their constituent elements are present and conditions are appropriate. The atoms have not changed in essence and evolved into molecules; they have simply been combined into a more complex structure under the influence of a different species essence, so that collectively they manifest entirely different properties.

Molecules, such as amino acids, are combined by the influence of new essences and the preparation of the environment into more complex substances, such as proteins. The amino acids themselves have not evolved into proteins, but in their new configurations they manifest properties different from their individual properties.

In the philosophical terminology of the *Hikmat* philosophers, each new structure is *form* in relation to the less complex structure preceding it, and *matter* in relation to the more complex structure that follows (see Section 3.9-10). So molecules are form in relation to atoms, because they are configurations of atoms, but they are matter in relation to proteins, because the proteins configure them. According to the logic of this pattern, the components of living things do not evolve arbitrarily into each other, but some can act as building blocks for others. Each is the completed organization of less complex components and appears as soon as those components have attained their own perfection and environmental conditions (i.e., the influence of other beings) are right.

It is important to remember that, according to ‘Abdu’l-Bahá’s philosophy, the potential for all these things is not in the material forms themselves but in their species essences. All material things are composed (hence equivalent to matter) but what composes (i.e., gives form) is an immaterial power emanating from a higher realm. There is no dualism of spirit and matter in this view, only one reality (God’s actional Will), which through successive vertical emanations and corresponding horizontal manifestations expresses itself in infinite forms (cf. Section 3.10).

In general terms, plants began to appear as soon as atmospheric and geological conditions became appropriate and all the inorganic compounds necessary for their existence were present. Which species essences became manifested depended on the preparation of the environment. The latent potential of the plant species essences could now begin to be realized. These plants, in turn, were necessary to prepare the environment for the appearance of more complex organisms. The same can be said for the microscopic one-celled organisms. The one-celled organisms, in this view, did not evolve from plants or from any other individual entities, but were composed from less complex components under the influence of new species essences. In the same way, these one-celled organisms may have become combined in accordance with new essences into more complex biological structures, as soon as conditions were suitable.

This process of the combination of already existing materials in accordance with possible essences would then continue until the primitive “seeds” of all the species existing on earth today were formed. The seeds may not have been formed at the same time but at different times in accordance with the preparedness of the environment for certain essences. Once the seeds appeared, they would evolve independently according to their specific essences but harmoniously with each other (and perhaps indistinguishably from each other for a long time) according to their physical circumstances.

Not only must the required components for new, more complex structures be present, but the environment must possess the means for each newly manifested species to survive and hopefully flourish. This necessarily involves the appearance of many organisms simultaneously which mutually influence and assist each other. The environmental system as a whole is therefore more essential to the continuance of life than any of its individual members. As ‘Abdu’l-Bahá describes it, “all beings are connected together like a chain; and reciprocal help, assistance and interaction belonging to the properties of things are the causes of the existence, development, and growth of created beings.”[59] Thus, the environmental system of all life, like a single being, has grown and evolved, each part developing in relation to other parts, just as the diverse members of the human body all develop in coordinated harmony.

As the plant kingdom, in general, was necessary for the appearance of the animal kingdom, so was the animal kingdom, according to ‘Abdu’l-Bahá, necessary for the appearance of the human kingdom. The human body itself “grows and develops through the animal spirit.”[60] As soon as conditions became right for the appearance of man, man appeared, but he did not evolve by chance from another species because his particular species essence has always existed. Only his biological form was molded from the biological materials already present and then continued to progress toward greater perfection.

4.7 Saltation

The following letter of ‘Abdu’l-Bahá on the possibility of man having evolved from the animal summarizes his view well:

> O seeker of the truth! Man is the greatest member of the world of existence and the fruit of the tree of this visible universe. His species is eternal, and this eternal reality has no beginning and no end. That which the philosophers of Europe have stated in regard to human evolution—that man came from the kingdom of the mineral, the vegetable, and then the animal, and by means of evolution reached this station—is pure supposition, for his species has always existed. It may be that on this globe of earth in the beginning he was in the stage of a seed, and afterwards he evolved and attained the station of manifesting the words “Blessed be God, the best of creators!” But that seed which evolved by degrees belonged to the human species, not an animal species. Therefore, this species is beyond time (*qadím*) and from the outset was the noblest of creatures upon the earth. “This is the truth, and naught lies beyond the truth but evident error.” God has ever existed while His creation renews itself continuously. Take for example the sun and its rays. Without light it would be opaque darkness, and an extinguished lamp is fit for the abode of the blind. The glory of glories rest upon thee.[61]

‘Abdu’l-Bahá is saying that the potentiality or reality of man (and implicitly all other species) is eternal. No species is the arbitrary product of another by the process of evolution, since each possible kind exists timelessly in the divine intelligible order and is necessary for the

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[59] ‘Abdu'l-Bahá, *Mufávadát*, p. 126; *SAQ*, pp. 178-179, revised translation.

[60] ‘Abdu'l-Bahá, *SAQ*, p. 144.

[61] ‘Abdu’l-Bahá, *Makátíb*, vol. 3, p. 257.

unfoldment of a harmonious cosmos of which man is the fruit. Once a species essence, by reason of the preparedness of the environment, connects to a biological "seed," that seed evolves or progresses in parallel to other biological seeds under different essences until it reaches its full potential perfection.

Now some questions arise: What is the nature of this seed? How did the "seed" get there? Are we limited to the explanation given in Section 4.6, that the seed came about through the *combination* of the materials already present? Could the seed also have appeared through *transmutation*?

If this seed came about through transmutation rather than by a combination of elements, it would be easier to explain it in terms of the presently accepted scientific theory of evolution. In this case the seed would derive from a previously existing biological population which jumped or "saltated" to a new essence. As long as that seed develops under the human essence, it would develop in parallel to other biological forms, because it belongs to the human species, not an animal species. This view, called *saltation*, incorporates a component of parallel evolution as well (see Section 1.4).

Saltation is an alternative to maintaining 'Abdu'l-Bahá's essentialism without relying wholly upon parallel evolution or upon biblical special creation. Saltation allows temporal creation to occur via essences by using radical mutations that occur within the biological populations already existing. If the species space is very dense then each population would have a large number of closely related species to which it could jump. In practice, this would be hard to distinguish from the idea of slow gradual evolution proposed by Darwin. If, on the other hand, the species space is more sparce, a population would have a smaller chance of jumping over to another species.

Although 'Abdu'l-Bahá does not refer to the saltation theory, which was proposed by certain essentialists of his time, one of his letters on the subject of the transmutation of elements clearly allows for its possibility. In that letter, he says:

> As for the question of the transmutation of copper into gold, this is possible and certain; that is to say, by means of the hidden science, which in this cycle is one of the special bounties of the Blessed Beauty. The materialistic philosophers of modern science believe that the metals are isolated elements incapable of transmutation into one another; in other words, they think that the essential qualities (*máhíyat*) of things cannot become transformed. But in the future, it will become manifest and clear that this is possible.[62]

Despite the fact that things have different essences, 'Abdu'l-Bahá is here saying that their transmutation is possible by external intervention. In the case of the metals mentioned above, he says they may be transmuted by means of the hidden science (i.e., alchemy), which itself contains an element of divine permission. It is impossible for copper to suddenly transmute into gold unless it saltates or jumps to the gold essence. By extending this principle to other species, it means that new biological populations could be produced by the transmutation (or mutation) of older ones if they jump to a new essence. This is what saltation means. (Of course, it may be that

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[62] 'Abdu'l-Bahá, Letter 440 of collection sent to author from the Bahá'í World Centre, 12 July 1998.

‘Abdu'l-Bahá does not intend to extend this principle of transmutation in alchemy to living forms.)

Despite these speculations there is no definite support for saltation in ‘Abdu’l-Bahá’s statements, whereas the parallel evolution model is more clearly supported.

4.8 The Question of Uniqueness

Is evolution as the temporal unfoldment of timeless essences bound to ever repeat the same physical forms? Does the concept of essences somehow limit the free and creative ability of life to express itself in endless original forms that delight our senses with their variety? One of the criticisms of classical biology was that a static cosmos of unchanging species created perfect from the beginning is incompatible not only with the appearance and extinction of countless unknown species in the fossil record, but also with the incredible variation of life and the continuous adaptation of organisms to their environment. Darwin praised his theory of evolution because it allowed for the continuous expression of uniqueness in nature. He said: “There is a grandeur in this view of life [wherein]…from so simple a beginning endless forms most beautiful and wonderful have been, and are being, evolved.”[63]

Since timeless essences correspond to whatever is possible, they are in no sense a limitation to the possible expressions of evolution. They only define what can and cannot exist and under what conditions, and what can exist is probably beyond the ability of our intelligence to grasp. [In two places at least, the Báb, the Prophet-Forerunner of the Bahá’í Faith, indicates that the contingent states of being made possible by the domain of archetypes are absolutely limitless.[64]] Furthermore, the continuous need and ability of organisms to adapt to random environmental changes (what some call “chance”) ensures that the varieties of the expressions of life are absolutely infinite.

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[63] Darwin, *Origin of Species*, p. 463.

[64] In one Tablet the Báb states: “With the exception of God, nothing can subsist through itself. All things are composite. Once the decree of duality is established, the decree of connection (*rabt*) is also established, for a thing cannot be a thing except through its existence, which is the aspect of manifestation (*tajallí*) in it, through its essence, which is the aspect of receiving (*qubúl*), and through connection, which is realized after the union [of the first two].…The names of these three at the beginning of the creative act are Will, Purpose, and predestination (*qadar*)…. It is not possible for anything to exist without the elements described, even were God’s command offered to a willing soul, for the contingent world cannot come into existence save through two complementary principles [i.e., Will and Purpose, existence and essence, or matter and form]. Once the remembrance of duality [i.e., the essential duality of the archetypes of things] is established, the remembrance of states (*shu’ún*) continueth without end, for these states have no end” (Iranian National Bahá’í Archives, vol. 14, p. 268 ff.). In another Tablet, the Báb states: “Through this station [Purpose, which is the station of form preceded by its mutually necessary complement: undifferentiated active matter] the mode of relationships known as predestination [which is the level of the atemporal archetypes] appeareth, which is the beginning of multiplicity and infinitude. Whatever is going to exist in the contingent world cometh into existence through the existence of Purpose….Once the remembrance of Purpose is established, the remembrance of the contingency of all existents can be realized” (Iranian National Bahá’í Archives, vol. 14, p. 417 ff.)

‘Abdu'l-Bahá affirms that uniqueness is a rule that applies to all things in the universe, whether individuals or populations, as a consequence of the uniqueness of the Creator. The possible individual, temporal expressions of species essences are endless. The factors of constantly changing environmental influences and the inheritance of genes from two different parents ensure that appearances are never exactly repeated and that endless diversity within the same species is possible. Even if an organism is cloned from another, they will never be exactly alike due to differences of individual nurture and experience. On the other hand, similar environmental pressures, such as the need to move in water, can create very similar forms among populations with distinct essences.

On this subject, ‘Abdu'l-Bahá says:

> Now observe that in the sensible world appearances are not repeated, for no being in any respect is identical with, nor the same as, another being. The sign of singleness is visible and apparent in all things. If all the granaries of the world were full of grain, you would not find two grains absolutely alike, the same and identical without distinction….As the proof of uniqueness exists in all things, and the oneness and unity of God is apparent in the realities of all things, the repetition of the same appearance is absolutely impossible.[65]

A similar sentiment is beautifully expressed in a prayer revealed by Bahá'u'lláh in support of the uniqueness and exquisiteness of every created thing:

> Blind is the eye that faileth to behold Thee seated upon the throne of Thy sovereignty, and that seeth Thee not exercising undisputed authority over all Thou hast created of the manifestations of Thy names and attributes….Just as Thou hast assigned no partner to Thyself, in the same way, whatever Thou hast called into being hath no peer or equal, since Thou hast revealed Thyself in each thing through the effulgent light of Thy divine unity….In truth, every thing that proceedeth from Thyself is the most excellent and most exquisite of all things that exist betwixt Thy heaven and Thy earth, and by it the tokens of Thy glorious sovereignty are revealed to Thy creatures, and Thy proof is perfected to all mankind.[66]

4.9 ‘Abdu’l-Bahá’s Criticism of the “Struggle for Survival”

One of the things apparent in ‘Abdu’l-Bahá’s writings and talks on the subject of Darwinian evolution is that his criticisms, rather than attempting to judge its validity as a scientific theory, focus instead on the implications Darwin’s theory will have in all the spheres of human thought and civilization. ‘Abdu’l-Bahá was looking at the broad scheme of things and seeing how these ideas affected our ideas of God, purpose, and human progress in the future. He knew that they represent only part of the picture as seen from a limited materialistic perspective, which recognizes no reality beyond what the senses can perceive and no authority outside of science.

One of the ideas spawned from Darwinism by late nineteenth-century Victorian philosophers was that Darwin’s principle of the “struggle for survival” should also be applied to

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[65] ‘Abdu'l-Bahá, *Mufávadát*, p. 197; *SAQ*, p. 283.

[66] Bahá'u'lláh, *Tasbíh va Tahlíl*, pp. 88-89.

the realm of human society. According to this idea, it is natural and desirable for one nation to behave aggressively toward another and to dominate it for its own benefit. As mentioned in Section 1, this materialistic philosophy was used as a justification for the horrors of World War I. ‘Abdu’l-Bahá was fiercely opposed to this idea, and called it the greatest of all errors and the cause of utter ruin to humanity. The tragic events of the twentieth century justify his position. In a letter written to the executive committee of the Congress for Universal Peace, he wrote:

> Observe that the primary principle adhered to by every individual of the human species is to attract benefit to himself and to avoid injury. His aim is to secure his own tranquility and happiness. This is his sole desire in life, and he strives to distinguish himself from all others through the ease, wealth, and fame he has obtained. This is the goal of every individual of the human species. But, in truth, this is a base, dangerous, and inferior notion. If man advances a little in his thinking and his aspirations become nobler, he will realize that he should strive to benefit his whole family and to protect it from harm, for he perceives that by bringing comfort and affluence to the whole family, his own felicity and prosperity will increase. Should his thinking expand even more and his aspirations grow in depth, he will realize that he should endeavor to bring blessings to the children of his country and nation and to guard them from injury. Although this aspiration and thought are for his own sake and that of his family, all the children of the nation will benefit therefrom. But this aspiration will become the cause of injury to other nations, for he then exerts the utmost effort to bring all the advantages of the human world to his own nation and the blessings of the earth to his own family, singling them out for the universal felicity of humankind. He imagines that the more other nations and neighboring countries decline, the more his own country and nation will advance, until by this means it surpasses and dominates the other nations in power, wealth, and influence.
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> However, a divine human being and a heavenly individual is sanctified from these limitations, and the expansion of his mind and the loftiness of his aspirations are in the utmost degree of perfection. The compass of his thinking is so vast that he recognizes in the gain of all mankind the basis of the prosperity of every individual member of his species. He considers the injury of any nation or state to be the same as injury to his own nation and state, indeed, the same as injury to his own family and to his own self. Therefore, he strives with heart and soul as much as possible to bring prosperity and blessings to the entire human race and to protect all nations from harm. He endeavors to promote the exaltation, illumination, and felicity of all peoples, and makes no distinctions among them, for he regards humanity as a single family and considers all nations to be the members of that family. Indeed, he sees the entire human social body as one individual and
> perceives each one of the nations to be one of the organs of that body. Man must raise his aspiration to this degree so that he may serve the cause of establishing universal virtues and become the cause of the glory of humankind.
>
> At present the state of the world is the opposite of this. All the nations are thinking of how to advance their own interests while working against the best interests of other nations. They desire their own personal advantage while seeking to undermine affairs in other countries. They call this the “struggle for survival” (*tanazu‘-i baqa*), and assert that it is innate to human nature. But this is a grievous error; nay, there is no error greater than this. Gracious God! Even in the animal kingdom cooperation and mutual assistance for survival are observed among some species, especially in the case of danger

to the whole group. One day I was beside a small stream and noticed some young grasshoppers which had not yet developed wings seeking to cross to the other side in order to obtain food. To accomplish their goal, these wingless grasshoppers rushed forward into the water and vied with each other to form a bridge across the stream while the remaining grasshoppers crossed over on top of them. The grasshoppers were able to pass from one side of the stream to the other, but those insects which had formed the bridge in the water perished. Reflect how this incident illustrates cooperation for survival, not struggle for survival. Insofar as animals display such noble sentiments, how much more should man, who is the noblest of creatures; and how much more fitting it is in particular that, in view of the divine teachings and heavenly ordinances, man should be obliged to attain this excellence….

All the divine teachings can be summarized as this: that these thoughts singling out advantages to one group may be banished from our midst, that human character may be improved, that equality and fellowship may be established amongst all mankind, until every individual is ready to sacrifice himself for the sake of his fellowman. This is the divine foundation. This is the law come down from heaven.[67]

[67] ‘Abdu’l-Bahá, *Khitábát*, vol. 3, pp. 35-37.

Conclusion

Though I have tried to be thorough and objective in this study of ‘Abdu'l-Bahá’s response to nineteenth century Darwinism, my analysis is necessarily influenced by the narrow compass of my specialized training in classical Greek and Islamic philosophy. Other writers trained in other disciplines may draw different conclusions. Let me therefore state plainly that although I deem the following conclusions sound and reasonable, they are nevertheless tentative and subject to being either strengthened or weakened as additional research is undertaken on this subject.

In my paper I hold that ‘Abdu'l-Bahá teaches a form of evolution that is congruent with a teleological worldview and which corresponds generally with certain philosophical concepts put forward by the Greek and Islamic philosophers whom he calls the “philosophers of the East.” His ideas, however, should not be confused with the essentialism of classical Western biology, which promoted a static harmonious cosmos without evolution. As we saw in Section 1, many of ‘Abdu'l-Bahá’s Muslim contemporaries responded to Darwinism from a similar point of view.

The debate between ‘Abdu’l-Bahá and “certain European philosophers” is not so much scientific, but philosophical. One of the main points of controversy is the question of whether the term “species” refers to merely the nominal classification of a biological population of mutually interbreeding individuals (the modern scientific definition), or to a reality transcending space and time by which a thing is what it is (the Platonic definition). In this essay such a reality is referred to as a “species essence” in order to distinguish the Platonic definition from the modern scientific definition.

The word “species,” to ‘Abdu'l-Bahá, refers primarily to such timeless realities, or laws, which are part of God’s eternal creation. By “laws” here are meant “natural laws” by which God causes the universe to operate. In other words, a “species” is not just the biological form with which we are all familiar; rather it is also that by which such a biological form exists. A biological population is consequently both a changing reflection of the influences of its environment and a unique temporal manifestation of a timeless natural law. As ‘Abdu'l-Bahá stated, “this question [of evolution] will be decided by determining whether species are original or not—that is to say, has the species of man been established from the beginning or was it afterward derived from the animal?”[68]

Another important point of controversy is the question of whether or not mechanical causes (random variation and natural selection) are sufficient to account for the evolution of complex order in the universe. ‘Abdu'l-Bahá infers that mechanical causes are not sufficient to explain the origin of complex order, because these causes, too, require an explanation. Since the regress of causes and effects cannot be infinite, it must end in a self-sufficient First Cause at least as sophisticated as the order it creates and possessing the power and wisdom to call creation into being. The difference between these two views, if each is carried to its logical end, is the difference between biological populations that are purely self-created by blind environmental selection and evolve arbitrarily into new species, and biological populations that evolve according to designed laws created by a transcendent Creator.

‘Abdu'l-Bahá supported the doctrine of creation and the independence of species, which was held in one way or another by all the essentialists studied in sections 1 and 3. But he certainly did not take the biblical story of genesis literally, requiring all living kinds to have been

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[68] ‘Abdu’l-Bahá, *Mufávadát*, p. 136; *SAQ*, p. 191, revised translation.

created fully formed in two day's time about 6,000 years ago. Like Abu al-Majd al-Isfahání, ‘Abdu'l-Bahá held that religion and science must ultimately agree, and in his teachings, he has retained essential components from each. From the Holy Scriptures, he affirmed the concept of God as the Creator of species by His voluntary will; from science he accepted what had been categorically established, such as the great age of the earth and the fact that numerous biological populations have appeared and disappeared during the vast expanse of geologic time. He supported the idea of evolution, but in his own special way as progress and development "within the species itself."

As this essay has explained, evolution to ‘Abdu'l-Bahá is goal-directed so that each temporal material reflection of a species essence progresses gradually towards its goal in a step-by-step fashion under (or "within") the boundaries set by its essence. The possibility of the retrogression and/or temporal extinction of a species is also accepted by ‘Abdu'l-Bahá. But Darwinian, or inter-species evolution, from this perspective, is considered to be an error.

‘Abdu'l-Bahá, like most of his Muslim and Christian contemporaries and his predecessors in medieval Islamic philosophy, viewed the universe and its possible species as preexisting, in plan and in a general way, in the mind of the Creator. This "plan" eternally unfolds itself in the unique and endlessly diverse expressions of life in the cosmos.

To say that God has a "plan" and a "mind," of course, does not mean that we can know them or that they resemble anything with which we are familiar. The use of such terms reflects the limitations of the human condition, not the reality of God. This understanding of the universe intends to preserve for it a predetermined, non-arbitrary meaning and purpose. From this perspective, biological species and the relationships between them are the unfolding of preexisting potentials inherent by design in the universe. When and where these potentials become manifested varies by the needs and preparedness of the environments in which they appear.