

WHEN SCIENCE AND RELIGION MERGE: A MODERN CASE STUDY

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ABSTRACT OF THE THESIS

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Science and religion have for centuries had a tumultuous relationship. While many claim that the two are inseparable for a complete view of the world, it is undeniable that at times the implications of scientific inquiry have rocked the foundations of many faith-based beliefs. The resulting controversies from such instances have led philosophers to come up with a number of ways to harmonize their religious beliefs with the most recent and updated knowledge that science has to offer about the universe. In this work, I analyze and discuss a relatively recent manifestation of the above occurrence in the religion known as the Bahá'í faith with respect to the science of biological evolution. While any of a few general approaches to scripture may potentially remove all inconsistencies between contemporary science and particular religious beliefs, here we have a case that demands a different understanding from what a few scholars have already proposed using traditional hermeneutical methods. My case shall be made by first exploring the doctrinal side of this issue, then discussing and arguing against interpretations of it that have so far been proffered, then delving into as much of the science behind evolution as will be required to make my points, and finally drawing my own conclusions on the matter. I shall ultimately argue that the problem of disharmony between scripture and science is sometimes rooted in a misattribution of scriptural inerrancy where it was not warranted. This study and its conclusions about the reading of Bahá'í scripture may be relevant to other scripturally based religions, particularly those which embrace a harmony between scientific and religious beliefs.

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CHAPTER 1

INTRODUCTION

What I have chosen to do here is to study a religion (the Bahá'í faith) that specifically encourages the harmonization of scientific and religious beliefs (in this case, the harmonization of evolutionary theory and this religion's pronouncements about it). Interestingly, a few of its scholars seem to have recently stumbled upon an apparent conflict between modern evolutionary biology and what is written in their own religious texts. In spite of their attempts at various hermeneutical remedies to this problem, I shall argue that these have so far been unsuccessful in harmonizing this particular set of religious beliefs with the latest science on evolution. After examining the Bahá'í faith's stance concerning a scientific problem, I apply the method proposed here in general and end with an endorsement for a different approach to understanding certain problematic religious statements that leaves them less at odds with an informed scientific understanding of the world.

There are several basic ways of approaching science in terms of how it relates to truth, and several ways of approaching religion for the same purpose. A person may run the gamut from playing down science in order to leave room for priorly held beliefs to wholly embracing science (whether from a material or experiential perspective, e.g., phenomenology) as *the* groundwork for understanding the world. With regard to beliefs that may be considered religiously relevant, there exists a vast array of opinions that range from strong atheism to unyielding faith in the supernatural. For many of those who claim to be

among the religious, some sort of compromise is struck between what can be believed on a religious basis and what can be accepted on scientific grounds.

Our study will depend on a familiar method for attempting to strike that compromise: namely, textual hermeneutics as applied to scripture. For centuries, scholars like Averroes, Maimonides, and Aquinas have famously spent their lives trying to bring the meanings they have gleaned from their respective cultures' scriptures into coherence with secular reasoning. They have often done this with the help of allegorical interpretation of the relevant scripture where a literal understanding had previously been assumed. This and in some cases other interpretive devices have successfully been applied to the canonical works of several major religions. They were successful in that they have, for many a believer, bridged the gap between a scientific view of the world and a scriptural one.

Before continuing with a short description of the subject of my case study, I would like to mention the idea of “nonoverlapping magisteria.”¹ According to this concept, the fields of science and religion are to be seen as occupying separate domains such that their respective pronouncements on reality do not intersect. In the case when the scientific and religious views on reality do seem to intersect, this notion of nonoverlapping magisteria would then insist that the methods or types of questions each discipline uses to explore this overlap are entirely different. Thus, it would seem that there never can be a case where the concerns of science and religion “overlap.” Yet this simply cannot be true at the very least for the case we have here. The context of the statements we shall look at from the religious side of our case study will show that they unambiguously refer to the same issue, the same concern of the natural world in very much the same way.² Hence these religious statements

¹ Stephen Jay Gould, “Nonoverlapping Magisteria,” *Natural History* 106 (March 1997): 16-22.

² This will be apparent in the next chapter where Bahá'í scriptural verses concerning “man's existence on this earth” will be introduced.

are relevant to what science has to say about the same world. Thus there is overlap. More importantly, modern forms of religion often acknowledge the necessity for scientific and faith-based beliefs to be non-contradictory even though the methods and approaches used by science may differ from those used by religion. This reinforces the notion that where they overlap, they must cohere. In other words, knowledge from both domains must be consistent with each other.

Though the struggle between science and faith is not new, it has reappeared anew occasioned by the relatively recent development of the science of evolution. Apologists for many religions have had to go back to their scriptures and reinterpret whatever was pertinent to the creation of life in terms of the new evolutionary framework because of the ever-increasing evidence that supports the theory of biological evolution by natural selection. The subject for our case study, the Bahá'í faith, is no exception.

The reason I have chosen this particular faith and this specific issue is a combination of having had some initial background knowledge about both the religious and scientific aspects of this study and the fact that it is a case that can easily be compared to similar issues in other better-known religious traditions. The points I shall raise about the Bahá'í faith and the science of evolution are meant to address a philosophical point pertinent to the reading of Bahá'í scripture. The conclusions of this case study, however, will in the end be generalized to be germane to other similar cases.

The reader may still wonder, "Why this one case?" This study is significant in that it is immediately relevant to the philosophical and religious beliefs of some six million people today who claim the world view presented in the Bahá'í canon as their own. Moreover, this

same group is widely cited as comprising the second most geographically widespread faith population on Earth after Christianity.

Briefly, the Bahá'í faith is a religion that began in the 19th century and whose founder (recognized as a prophet akin to Jesus or Muhammad) is known by the name Bahá'u'lláh (1817-1892). The basic tenets of this faith state that there is one creator God who is identifiable with the God or highest god of other major religions including Christianity, Islam, and Hinduism. Bahá'u'lláh is therefore said to be the latest in a line of messengers that includes the founders of those religions, and his writings are considered sacred by followers of his faith who are known as Bahá'ís. Of equal authority are the writings of his son, Abdu'l-Bahá, whom he appointed as his successor to clarify and to add to his teachings. The latter, upon his death, appointed his grandson Shoghi Rabbani (better known as Shoghi Effendi) as the next head of the Bahá'í faith, also with interpretive authority. The religion is now headed by an elected body of Bahá'í members which is headquartered in the state of Israel.

Although we will be looking at the Bahá'í faith from the angles of science and philosophy, it is not a faith that dwells much upon issues related to scientific inquiry. Or at least this is true relative to what *does* hold prominence in Bahá'í literature. It instead places much emphasis on personal devotion, moral principles, and social organization within the administrative order of the community. Thus for many it is primarily a religion of praxis. The faith-based principles that inspire Bahá'ís include the recognition of all peoples as equal regardless of race or sex, the need for daily prayer and communion with God, as well as working toward increased societal harmony and world peace.

An important aspect of my analysis will be to work within the assumptions inherent to the Bahá'í canon, or the subject itself would be a moot point. One such assumption is that

religious belief must be “conformable with scientific proof and investigation.”³ The object will be to try to find a way to make that actually happen, in this case with respect to the evolution of human beings. As for the science I shall refer to, there is absolutely no doctrinally based reason in the Bahá’í faith for any information gathered from peer-reviewed scientific journals and books (such as were used for this study) to be undermined on the basis that the scientific methods involved were somehow inadequate in revealing the natural world. Hence I did not restrict my scientific inquiries for this study in any way but did my best to avoid referencing any dubious findings.

Shoghi Effendi wrote that it would be “unnecessary and confusing to state authoritatively and officially a dogmatic Bahá’í interpretation to be universally accepted” by Bahá’ís.⁴ The possibility of there being numerous interpretations that hold validity for certain topics was also alleged by the founder of the Bahá’í faith.⁵ Thus Bahá’ís (as in other religions, e.g., some forms of Judaism) are not expected collectively to restrict their opinions to a single view.

But though opinions as to the interpretation of texts might be diverse, it is only fair to those texts to take into account all that is in them which may be relevant to such opinions. This paper hopefully will demonstrate the most reasonable holistic interpretation of statements in the Bahá’í writings relating to evolution in general but especially the evolution of human beings. I shall aspire to do this by cross-referencing all available pertinent texts. In doing so, we shall see how various understandings of these texts have affected the literature so far covering this topic.

³ Abdu’l-Bahá, *Promulgation of Universal Peace* (Wilmette: Bahá’í Publishing Trust, 1982), 107. Hereafter cited as Abdu’l-Bahá, *Promulgation*.

⁴ Shoghi Rabbani, *Unfolding Destiny* (London: Bahá’í Publishing Trust, 1981), 423.

⁵ See Bahá’u’lláh, *The Kitáb-i-Íqán* (Wilmette: Bahá’í Publishing Trust, 1989), 255.

In order to get at what is authentic in any philosophical doctrine, one must look to its originative texts.⁶ Hence I conducted my research for the religious side of my subject by referring only to writings considered authoritative by Bahá'ís, namely, the works of Bahá'u'lláh, Abdu'l-Bahá, and Shoghi Effendi.

Ours is a little known case of a religion trying to merge with science that has surfaced only very recently. Indeed both the science (Darwinism) and the religion involved came into being almost contemporaneously in the 19th century. From this case study, we will gain some insight into certain principles of hermeneutics that we may or may not wish to employ if we choose to maintain particular religious beliefs without belittling modern science.

⁶ Here we do not mix up facts about a *religious community* with facts about a *religion*, which has its basis in revelatory scripture and the lives of its prophetic figures.

CHAPTER 2

ON HUMANKIND AND ITS ORIGINS

The creation of the universe and its life has always been relevant to religion. In fact, one may say that wielding authority on such questions is what has given certain leaders and institutions their religious status. The advancement of science as a secular methodology is a very new phenomenon in human history. Many of its implications have challenged religious conceptions of the universe and no less of human beings, especially at those places where both science and religion seem to be addressing the same phenomenon.

The Bahá'í faith has many things to say about the emergence of human beings on Earth. It has managed to retain its stress on its belief in a spiritual origin for humankind while insisting that the most reasonable conclusions of scientific inquiry regarding its physical origins must also be accepted as part of the scheme of this creation. In this chapter, we will look at some of the statements from the religious side of our study that address the issue of the evolution of humans. Later we will discuss what they could possibly be understood to refer to in light of what other commentators have written. We will not, however, attempt to look for alternate interpretations beyond these since that would be extraneous to the point of this paper.

The authoritative statements on this particular issue come almost exclusively from Abdu'l-Bahá. His lifetime (1844-1921) coincided with the first seventy-seven years of the religion's history. During this same period, huge advances in the knowledge of the evolution of life on Earth burst onto the intellectual scene thanks in large part to the work of Charles

Darwin. As news of this spread quickly to all parts of the developed world, many scholars of Christianity and Islam and other major faiths began to gird themselves up for the inevitable theological implications that Darwinism was to impose. With a cosmology that was rooted in Judeo-Christian-Islamic theology, the Bahá'í faith was also faced with challenging ideas from Darwinian evolution at the same time its own unique doctrine was being formed.

While I have tried to take the historical context of these teachings into account in my commentaries, I feel that reporting on prior influences affecting the Bahá'í philosophy on evolution would be superfluous here. For this and the immediate backdrop of predominant beliefs that informed Abdu'l-Bahá's discourse on evolution, the reader is referred to the section authored by Keven Brown in the book *Evolution and Bahá'i Belief* which will be referred to throughout this work.⁷ Suffice it to say here that the Bahá'í discourse on evolution carries with it tokens of not only earlier religious theologies but also of older philosophical concepts such as Platonic forms.⁸

The Bahá'í stance on the creation of life is a top-down view between Creator and created as in the other religions it considers to be valid. An important distinction is that it is clearly stated in Bahá'í writings that the Genesis story of Adam and Eve is meant to be symbolically understood.⁹ But what about the details?

One allusion to a concept originating in Platonic realism appears in a description of why things in general, and specifically life, exist: “all the divine names and attributes demand

⁷ Keven Brown, “Abdu'l-Bahá's Response to Darwinism: Its Historical and Philosophical Context,” in *Evolution & Bahá'i Belief: 'Abdu'l-Bahá's Response to Nineteenth-Century Darwinism*, ed. Keven Brown (Los Angeles: Kalimat Press, 2001). Hereafter cited as Brown, *Response*.

⁸ For example, my discussion of the Bahá'í concept of “species essences” in Chapter 3 relates to Plato's contention that eternal unchanging Forms impose unique properties on different kinds of material things (e.g., humans and animals).

⁹ Cf. Abdu'l-Bahá, *Some Answered Questions* (Wilmette: Bahá'í Publishing Trust, 1990), 122-6. Hereafter cited as Abdu'l-Bahá, *Questions*.

the existence of beings.”¹⁰ In other words, the attributes of God are somewhat comparable to atemporal forms through which temporal particulars have their being. The above statement indicates that such attributes actually necessitate particular existents. For instance, one of the divine names is said to be “the Merciful.” In order for God to be truly merciful, there must exist subordinates to Him for whom He may dispense mercy. Therefore this attribute of God requires the existence of other beings in order for it to be a valid attribute. In God’s case, we are told that this requirement is causal and responsible for the existence of beings. This is analogous to Platonic realism in that some immaterial thing is responsible for the qualities of material beings.

The same passage continues, “absolute nonexistence cannot become existence... this world of existence, this endless universe, has neither beginning nor end.”¹¹ Already we can discern how this view could be seen to step into the boundaries of science. This and similar statements from the Bahá’í writings about the universe’s having no beginning stand in contrast to those versions of the Big Bang theory which hypothesize that all potential space-time sprang into existence in an instant, before which there was literally nothing. Abdu’l-Bahá’s assertion that “absolute nonexistence cannot become existence” implies that something must have existed before the Big Bang occurred. Currently, there are theories being debated in the scientific community involving other dimensions within our universe and even other universes. Among them are theories which leave room for any period of time predating the Big Bang (in order to take into account the law of conservation of energy), which in turn provides for the scientific compatibility of this particular Bahá’í belief.

¹⁰ Abdu’l-Bahá, *Questions*, 180.

¹¹ *Ibid.*

Describing the evolution of the universe into its present state, Abdu'l-Bahá stated that:

[I]t is evident that in the beginning matter was one, and that one matter appeared in different aspects in each element. ... Then these elements became composed, and organized and combined in infinite forms; or rather from the composition and combination of these elements innumerable beings appeared.¹²

Though a crude description, one can see how this explanation can also fit within the current scientific framework. The chemical elements are said to originate from the same unique substance, which may be likened to hydrogen in the early stages of the universe. And it is the combination and organization of these same elements that is said to be responsible for the existence of life. But Abdu'l-Bahá never goes into detail about how elements become organized into living beings. Instead, it is his comments on how the process looks when human beings enter the story that creates the task of finding a way to reconcile those same comments with modern science. He stated:

[M]an'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 is a distinct species.¹³

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 change of species.¹⁴

A good deal of this study will focus on the one point emphasized in these and related statements by Abdu'l-Bahá: that the ancestry of human beings has always been evolutionarily distinct from that of other animals. The name for this in scientific circles is 'parallel evolution,' so called because different species or kinds of species are said to evolve from

¹² Ibid., 181. Although the quote here uses the word "beginning" which seems to contradict aforementioned statements concerning the perpetuity of the universe, it is likely that the use of "beginning" in this passage is simply meant to refer to a particular state of the universe as it stands in relation to the present day.

¹³ Ibid., 184. The term "man" is frequently used in Bahá'í texts in its gender-neutral connotation.

¹⁴ Ibid., 193.

different origins alongside each other in similar ways but without ever interbreeding throughout the duration of their existences. Hence, any physical or genetic similarities between them are presumed not to be a result of common ancestry.

At one point in his musings on this topic, Abdu'l-Bahá appeals to the concept of the “missing link” specifically to emphasize the distinction between humans and other apes.¹⁵ The “missing link” generally refers to the mythical fossil or undiscovered species that was once expected to prove the existence of an intermediate species between humans and other apes. There are several ways that are open to us in interpreting Abdu'l-Bahá's assertion of there being a link missing between human beings and other primates.¹⁶ If one interprets Abdu'l-Bahá's usage of the “missing link” as a way to deny what some people of his time thought was an intermediate form between modern apes and modern humans, then science confirms that he was correct in doing so.¹⁷ If on the other hand, one interprets him more broadly as denying any type of connection between humans and other apes, including having common ancestors, then here we have another endorsement for the parallel evolution view.¹⁸ Yet another interpretation places the missing link on a metaphysical scale, which would mean to say that the rational thoughts and behaviors that distinguish humans from animals will never be discerned in other apes or primates.

For biologists, the process of evolution by natural selection is not goal-oriented but rather fueled by random changes in the gene pool that are then filtered by the environment.

¹⁵ Abdu'l-Bahá, *Promulgation*, 358-9.

¹⁶ See, for example, Courosh Mehanian and Stephen R. Friberg, “Religion and Evolution Reconciled: Abdu'l-Bahá's Comments on Evolution,” *The Journal of Bahá'í Studies* 13, no. 1-4 (March-December 2003): 81-2.

¹⁷ In the early twentieth century, many people held the misconception about evolution that human beings were once merely a community of gorillas or monkeys which happened to evolve into humans. Because of this, the same people challenged the theory of evolution by asking why modern gorillas do not evolve into humans. Biologists have never claimed that humans evolved from gorillas but rather that humans and other apes evolved from a common ancestor.

¹⁸ Parallel evolution could be said to have occurred whenever two or more species with highly similar adaptive traits evolved from different ancestral lineages. Thus the parallel evolution of humans and other primates means that humans have no blood relations with other primates.

Yet (like many theistic views, all leading from intelligent design) one of the aspects of evolution that Abdu'l-Bahá stresses is the concept of teleology. The Bahá'í view is that evolution exists as a way for living things to actualize inherent, though latent, potentialities over the course of many generations. Abdu'l-Bahá stated 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.”¹⁹ This clearly assumes a guiding force that brings out the potentialities of living things over time in a purposeful way. It may also indicate (though he did not say so specifically) that there is a “degree of perfection” in the evolution of organisms beyond which they cannot further evolve. But to be consistent with science, this should not be the way to interpret the abovementioned phrase since there is always room for genetic change and the added refinement of the fitness of any given species. It could just as well be said that “perfection” may simply be referring to some minimal criteria that convey a given species' uniqueness (e.g., humanity's attainment of rational thought).

Dualism is also assumed in this doctrine. There is the material world which is the physical universe and the spiritual world which is the realm of “souls” (essentially comparable to Cartesian egos) and other spiritual realities. It is the interconnectedness of these two worlds that is said to bring about life: “this material world is the mirror of [the spiritual world], and each of these worlds is in complete correspondence with the other,” as a result of which “the archetypes and realities of beings attain realization.”²⁰

These archetypes, or “species essences” as described by Keven Brown, are similar to Platonic forms that correspond to their own respective species among flora and fauna. It is,

¹⁹ Abdu'l-Bahá, *Questions*, 199.

²⁰ Abdu'l-Bahá cited in Brown, *Response*, 88.

however, unknown whether it was meant that each biological species participates in various species essences or if a given species (or group thereof) is exclusively developed by its own unique archetype. What is clear is that as ideal forms, these archetypes are said to guide the evolution of their respective biological counterparts. Therefore, environment in this view is not the “guide” for evolutionary development in and of itself but rather the medium that determines the capacity for biological forms to progress towards their inherent potential.

The human soul, which is said to be responsible for human rationality, is a distinction that is peculiar to the human species essence.²¹ Hence a human being’s physical composition is believed to be invariably linked to his or her spiritual nature.²² As if to avoid the pitfalls of dualism, one author has interestingly hinted at the possibility of an overriding monism that encompasses the material and spiritual realms as described in Bahá’í doctrine. He has done this by suggesting that species essences may actually be written into the physical laws of the universe by way of an “abstract, timeless order.”²³

Shoghi Effendi related in his only commentary about Abdu’l-Bahá’s teachings on evolution that the idea that humankind has ever been distinct from other animals is “based on the assertion that nothing can exceed its own potentialities, that everything, a stone, a tree, an animal and a human being existed in plan, potentially, from the very ‘beginning’ of creation.”²⁴ This would seem to leave room for the possibility of human co-ancestry with

²¹ Cf. Abdu’l-Bahá, *Questions*, 208. Also refer to “The Difference Existing Between Man and Animal” in *ibid.*, 185-90, where man is referred to as “the possessor of spirit.”

²² Cf. *ibid.*, 201.

²³ Eberhard Von Kitzing, “The Origin of Complex Order in Biology: Abdu’l-Bahá’s Concept of the ‘Originality of Species’ Compared to Concepts in Modern Biology,” in *Evolution & Bahá’í Belief: ‘Abdu’l-Bahá’s Response to Nineteenth-Century Darwinism*, ed. Keven Brown (Los Angeles: Kalimat Press, 2001), 222. Hereafter cited as Von Kitzing, *Origin*. See also p. 183: “Just as embryonic development consists in the actualization of the information stored in its genome, evolution based on the existence of a potential order ‘reveals’ the implicit order encoded in fundamental laws of nature.”

²⁴ Shoghi Rabbani, *Arohanui: Letters from Shoghi Effendi to New Zealand* (Suva, Fiji Islands: Bahá’í Publishing Trust, 1982), 85. Hereafter cited as Shoghi Effendi, *Arohanui*.

other species provided that the averred uniqueness of humanity is rooted only in the ideal world of species essences. We shall explore this more in the next chapter.

CHAPTER 3

THE UNIQUENESS OF HUMANITY

So just why is humankind unique according to Bahá'í doctrine? Bahá'í texts clearly posit that “[humanity’s] species has existed from all eternity” and that it is a “necessary existence” since “the object of existence is the appearance of the perfections of God” which can only be fully reflected in the reality of human beings.²⁵ In addition, we are informed that “one of the things which has appeared in the world of existence, and which is one of the requirements of Nature, is human life.”²⁶ Humankind’s eternal and necessary existence is due to its species essence existing in an ideal realm. Although the human species essence may be an unembodied archetype for any amount of time, it still maintains the existence of ‘humanness’ according to this philosophy.

Abdu'l-Bahá's view on what separates humans from animals is not based on biological considerations but is rather based on the presence or absence of a capacity for spirituality and rational thought.²⁷ This capacity, in turn, is a direct result of being associated with the human species essence. Moreover, Shoghi Effendi's above-quoted commentary saying “nothing can exceed its own potentialities”²⁸ indicates that animals can never attain the capacity for rational thought through evolution since they are limited by their own species essences.

²⁵ See Abdu'l-Bahá, *Questions*, 195-7.

²⁶ *Ibid.*, 4.

²⁷ Cf. Abdu'l-Bahá, *Paris Talks* (London: Bahá'í Publishing Trust, 1972), 175. Hereafter cited as Abdu'l-Bahá, *Paris*.

²⁸ Shoghi Effendi, *Arohanui*, 85.

As to the late arrival of biological humans in the course of evolution, the following is related:

For while the individual appearance 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 the different trees do not arrive at maturity at one time; on the contrary, some come first and others afterward. This priority does not prove that the later fruit of one tree was produced from the earlier fruit of another tree.²⁹

He points out via analogy that all species of life had to pass through diverse forms before ending up in their present-day manifestations. But humanity still always existed in some form. Notice how he compares human existence (or, the human species) to “one tree” and animal existence to “another tree.” It further emphasizes the separate roots of animal and human existences in spite of his acknowledgments that human beings and certain animals in evolutionary history have had at least a remarkable superficial resemblance.³⁰

We have seen above how the notion that humankind existed as some spiritual something many millions of years ago might be considered independently of whatever physical form was partaking of the human species essence, if there even was one. Human existence is grounded in the existence of its species essence rather than in particular physical beings that partake of that essence. The Bahá’í teachings clearly do not operate under the assumption that only bipedal primates can rightly be called human. To the contrary, any distinct physical forms from earliest times that evolved into present-day humans under the influence of a shared archetypal reality (i.e., the same species essence) seem to fulfill the stipulations concerning what makes a human being “human” according to Abdu’l-Bahá.

Although the issue of “humans having always been human” seems to be completely solved by the explanation of the species essences, it proves itself stubborn in light of

²⁹ Abdu’l-Bahá, *Questions*, 192.

³⁰ Cf. *ibid.*, 193.

statements made with regard to “man’s existence on this earth” and his being a “distinct species” since “the beginning of [his] existence.”³¹ Thus the issue that remains to be settled is whether the idea of parallel evolution as described in the above-quoted texts is somehow compatible with the science of evolution that tells us that there is co-ancestry between humans and other animals. There are indeed multiple ways of understanding any one of the above selections; but, taking them together along with other considerations, we shall see that there are limits to their possible meanings.

Can a different understanding of what may legitimately be considered the earliest “beginning” of human life resolve the matter? Or perhaps a more refined comprehension of the concept of a “distinct species”? As we turn to what others have already written about this, I shall refer to points I have raised above as a basis for critique.

³¹ Ibid., 184.

CHAPTER 4

A LOOK AT VARIOUS INTERPRETATIONS

Judging from the published works of early 20th century Bahá'í commentators, the Bahá'í teachings on evolution can be said to have been understood by Abdu'l-Bahá's contemporaries as supporting a parallel evolution view. As early as in 1923, J. E. Esslemont advocated the parallel evolution theory in his widely circulated book about the Bahá'í religion.³² This could be expected at the time since human evolutionary divergence from animals was not as provable back then as it is now with DNA.

It took an article published in *The Journal of Bahá'í Studies* in 1990 by Craig Loehle to initiate a critical discussion of Bahá'í texts relevant to evolution. Loehle's tone in the article makes it apparent that he supports Abdu'l-Bahá's views on human origins but with a couple of his own renderings of scripture thrown in. His article stated that "humanity is simultaneously a special creation and a product of evolution, different from animals in kind through possession of a soul but linked to the animals by lineage and physical attributes."³³ The admission that humans and animals are linked via biological lineage was a marked departure from the common understanding of Abdu'l-Bahá's views. However, it was his opinion of the role of chance in evolution that provoked the initial criticism of his article.

³² See J.E. Esslemont, *Bahá'u'lláh and the New Era* (Wilmette: Bahá'í Publishing Trust, 1980), 206-7. Another prominent Bahá'í who was later excommunicated for his defection from mainstream Bahá'í beliefs published his views on Darwinism in 1900, but they were not based on Abdu'l-Bahá's thoughts on the subject (see Ibrahim Kheiralla, *Beha'u'lláh*, 143-156. <http://www.h-net.org/~bahai/diglib/books/K-O/K/kheiralla/Behaullah.htm> [August 15, 2008]).

³³ Craig Loehle, "On Human Origins: A Bahá'í Perspective," *The Journal of Bahá'í Studies* 2, no. 4 (1990). <http://www.bahai-studies.ca/archives/jbs/2.4%20Loehle.pdf> (August 13, 2008).

What followed then was a chain reaction where succeeding issues of the same journal printed commentaries and responses to those commentaries debating various interpretations of Bahá'í teachings that indirectly bear on the subject of evolution. Loehle's critics were, for some reason, primarily concerned about Bahá'í textual semantics rather than the scientific issues involved; but, one commentator by the name of Keven Brown would go on to deal with the issue in a more exhaustive treatise.

THE VIEWS OF BROWN

In 2001, historian of philosophy Keven Brown co-authored and edited a book entitled *Evolution & Bahá'í Belief: Abdu'l-Bahá's Response to Nineteenth-Century Darwinism*. This followed preliminary articles by himself and his co-author published a few years earlier in the journal *Bahá'í Studies Review*.³⁴ The book, described on the back cover as “the first and only serious, scholarly study of the subject of evolution in the teachings of the Bahá'í Faith,” comprises two sections: the first by Keven Brown and the second by Eberhard von Kitzing whose views will be discussed in the next section of this work. The two parts of the book represent independent viewpoints on the subject from Brown and Von Kitzing respectively. The present study finds that Brown's presentation and interpretation of the topic is the most helpful and accurate of any that have been published to date.

The bulk of Brown's portion of the book is devoted to elucidating the context of the discussions and debates surrounding evolution among representatives of different philosophical views. His research is focused on the 19th and early 20th centuries, when Abdu'l-Bahá spoke on the topic. Throughout his work, he relies on primary texts in their original languages (Persian and Arabic). He also provides his own translations of passages

³⁴ See Keven Brown, “Are ‘Abdu'l-Bahá's Views on Evolution Original?” and Eberhard von Kitzing, “Is the Bahá'í View of Evolution Compatible with Modern Science?” *Bahá'í Studies Review* 7 (1997). <http://bahai-library.com/articles/evolution.html> (August 13, 2008).

from Bahá'í writings, which he feels have been inadequately translated as they are currently in print.

Brown points out that Abdu'l-Bahá associated his own views with those of the “philosophers of the East,” who rejected the then revolutionary idea of the transmutation of species and argued for an understanding of evolution in terms of anatomical progression *within* a species.³⁵ Thus Brown writes that “Abdu'l-Bahá intended his words on this subject to be taken at face value... [using] unambiguous and non-symbolic language.”³⁶

One of the prominent eastern philosophers Brown discusses named Isfahani gave the following response to Darwinism: “mere resemblance between two things [such as apes and humans] does not require their transmutation from a third thing, or the change of one into another.”³⁷ The argument against the common ancestry of human beings and animals seems explicit. Interestingly, Brown specifically compares Abdu'l-Bahá's views with Isfahani's in several instances.³⁸

Brown relies on a troublesome interpretive strategy in trying to reconcile Abdu'l-Bahá's parallel evolution model with the current scientific understanding of evolution. He writes, “Abdu'l-Bahá seeks to establish that the precedence [in time] of the animal kingdom to the human kingdom does not in itself prove that man has evolved from an animal species.”³⁹ Then in a strange turn, he qualifies this understanding in a few places implying that Abdu'l-Bahá did not intend to deny humanity's evolution from an animal species unless it was thought of to occur by chance alone:

³⁵ Brown, *Response*, 5.

³⁶ *Ibid.*, xix.

³⁷ Cited in *ibid.*, 36.

³⁸ See *ibid.*, 85, 97-8, 117.

³⁹ *Ibid.*, 97.

Hence, the human species could not have evolved *by chance* from another species, since each is a unique creation in the divine intelligible order.⁴⁰

Although Abdu'l-Bahá does accept evolution and modification within a species, he consistently does not assent to the idea of interspecies 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.⁴¹

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.⁴²

These build up to his ultimate attempt at merging Abdu'l-Bahá's views with today's transmutation theories. One may notice that the qualifications that Brown tacks on to Abdu'l-Bahá's objections to Darwinian evolution (highlighted in italics) are unsubstantiated by any of the scriptural sources we have considered so far. Nonetheless Brown presents a theory of "saltation" where drastic turns in evolution are the result of a jump from one species essence's association with a particular biological population to that of another species essence.

He writes that the "seed" of every biological population does not have to be understood as a miniscule pre-evolved form. For some species, their earliest actualization in the contingent world might be realized through transmutation from a separately developed species. In practical terms, this would mean that humans spontaneously came into existence when we diverged from our closest animal relative: the chimpanzee. Any physical ancestors we share with chimps or other animals beforehand would therefore not have been human.

⁴⁰ Ibid., 93. Emphasis added.

⁴¹ Ibid., 99. Emphasis added.

⁴² Ibid., 107. Emphasis added.

Brown shows a hesitancy about his theory: “Despite these speculations there is no definite support for saltation in Abdu’l-Bahá’s statements, whereas a parallel evolution model is more clearly supported.”⁴³ The saltation argument would work if it were not for the fact that Abdu’l-Bahá considered the earliest of humankind’s ancestors that were “swimming in the sea” to be every bit as human as modern man:

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 Darwinists say], then we would postulate that although at one time it was a swimmer and later a crawler, still it was a 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 creature...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.⁴⁴

Thus Abdu’l-Bahá was willing to concede that there existed ancestors to modern humans that were primitive in form. But he would not agree that those primitive ancestors were non-human. Other passages further emphasize this point, such as when he refers to humanity’s earliest phylogenic form as the “embryo of a man and not of an animal” meaning no animal species could have descended from human lineage.⁴⁵

The comparison Abdu’l-Bahá consistently makes of human phylogeny (growth as a species) with embryonic ontogeny (growth as an individual) seems to make Brown’s suggestion of saltation between species an even less plausible resolution to the former’s words and modern science. If humankind’s earliest biological representative was born to our

⁴³ Ibid., 110.

⁴⁴ Brown’s translation cited in *Response*, 98. Cf. Abdu’l-Bahá, *Promulgation*, 358-9.

⁴⁵ Abdu’l-Bahá, *Questions*, 193. On pages 103-4 of *Evolution & Bahá’í Belief*, Brown draws a very apt distinction between a specific kind of evolutionary potentiality and a general kind. An example of something with specific potentiality is an apple seed that can only grow in time to become an apple tree and not an orange tree or anything else. Something with general potentiality can become one of several things, such as a child who can grow up to be a doctor, a chemist, a teacher, etc. Biological species, guided by different species essences, have only specific potentiality in this philosophy.

last common ancestor with chimpanzees (as is assumed in Brown's theory), then the evolution of humans since then would hardly lend itself to comparison with the development of an individual human embryo.⁴⁶

In spite of these holes I attribute to Brown's arguments, his above-referenced work is admittedly indispensable to gaining a complete understanding of this topic. He affirms in the concluding section of his treatise that "other writers trained in other disciplines may draw different conclusions" and that his own are "tentative and subject to being either strengthened or weakened as additional research is undertaken on this subject."⁴⁷

THE VIEWS OF VON KITZING

As mentioned above, the second part of *Evolution & Bahá'í Belief* was authored by Eberhard von Kitzing. The foreword of the book states that his portion "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."⁴⁸ To him, Abdu'l-Bahá addressed evolution simply to argue against commonly associated cosmological and social views that were atheistic and lacking a spiritual dimension. In coming upon this sentiment, the reader who is familiar with the topic wonders what his explanation will be for the nature of Abdu'l-Bahá's words and the fact that they were phrased in response to inquiries that were not concerned with spirituality.⁴⁹

Von Kitzing delivers a good deal of philosophical and scientific background to the general topic of evolution. He goes on to present the Bahá'í model of a "voluntary origin" for complex order in biology by trying to indicate drawbacks in evolutionary models that only

⁴⁶ Another obstacle for the saltation theory can be seen when trying to make sense of a statement that appears as a block quote on page 16 above. If we substitute practical terms for the metaphorical terms in the last line of the quote, we would read: "This priority does not prove that the later [mature form] of [the human species/species essence] was produced from the earlier [mature form] of another [species/species essence]."

⁴⁷ Brown, *Response*, 115.

⁴⁸ *Ibid.*, xviii.

⁴⁹ E.g., Abdu'l-Bahá, *Questions*, 191: "Question.—What do you say with regard to the theories held by some European philosophers on the growth and development of beings?"

incorporate the elements of chance and necessity.⁵⁰ In trying to fit a voluntary origin for complex order into the known science of evolution, he appeals to Gödel's incompleteness theorem to say that the *appearance* of randomness in evolution does not mean that genetic mutations (or at least the favorable ones) are indeed random.⁵¹

Von Kitzing finally offers his own understanding of Abdu'l-Bahá's words, saying they must have only been intended to bolster a teleological view of evolution. But dismayingly, he gives no explanation of certain statements from Abdu'l-Bahá (a few of which he actually cites) that appear uninterpretable in any sense but their apparent meanings.⁵² He instead plainly states that "[v]ery few of [Abdu'l-Bahá's] statements can be reasonably interpreted as addressing biological issues."⁵³

An obvious point of disagreement between Von Kitzing and Brown is in their understanding of the nature of species essences. For example, Von Kitzing writes (and quotes Abdu'l-Bahá):

⁵⁰ Complex order arising from chance alone would mean that the order in the universe and in biology is purely fortuitous. The explanation by reason of necessity states that the evolution of the universe and of biological life could not have occurred any other way given natural laws. Evolutionary science currently views complex order as arising from a combination of chance and necessity. Chance variations in material configurations (such as genetic mutations) lead to new life forms of unpredictable complexity, while natural laws that translate to natural selection favor the better survivors among those life forms.

⁵¹ 'Random' in the context of Darwinian evolution has a very specific meaning that is not in fact wholly random (here we do not refer to voluntary origin, unlike Von Kitzing). Mutations are 'random' in that they are not biased towards improved adaptation. Nevertheless, they are non-random in that they are caused by external stimuli, they occur in different genes at unequal rates, and they can be more likely to occur "in certain directions" than "mutations in the reverse direction" for any given gene [see Richard Dawkins, *The Blind Watchmaker* (New York: W.W. Norton & Company, 1996), 306-7.] Strangely enough, the nature of the stimuli that engender genetic mutations would seem to be skewed towards producing harmful change. Such stimuli include radiation and chemical exposure, which are better known for causing cancer than for advantageously affecting DNA. Although recombinations of existing DNA could be said to furnish most of the evolutionary change in sexually reproducing species, mutations must yet account for a great deal of complexity as demonstrated by asexually reproducing species such as dandelions.

⁵² E.g., Von Kitzing, *Origin*, 232 & 236.

⁵³ *Ibid.*, 213.

Continuous change and transformation apply to all things save the realm of time-invariant essences:

‘Physical bodies are transferred past one barrier after another, from one life to another, and all things are subject to transformation and change, save only the essence of existence itself—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.’⁵⁴

He believes that “the essence of existence” in the passage he quotes is identifiable with “the realm of time-invariant essences” and adds that “the human ‘species and essence’ is a time-invariant law of nature.”⁵⁵ Brown, on the other hand, does not agree with this. He writes that Abdu’l-Bahá “certainly does not believe in a static cosmos of fixed populations corresponding to fixed essences. He appears to confirm the process metaphysics... which requires a real and continuous process of becoming in all created things, whether corporeal or intelligible.”⁵⁶

In order that we may properly assess Von Kitzing’s interpretation of Abdu’l-Bahá’s words on evolution, an important point should be stressed here. Abdu’l-Bahá does not dismiss speciation⁵⁷ but does claim that ‘humans’ are not descended from anything that can be called ‘non-human.’ Likewise, he implies that no species from the latter category ever descended from ancestors in the human lineage. Abdu’l-Bahá maintains that “throughout [man’s] progression there has been a transference of type, a conservation of species or kind... In each one of these stages are signs and evidences of his human existence and destination.”⁵⁸

The Bahá’í view regards species (at least that of humans) as time-variable and not static.⁵⁹ Organisms connected by ancestral lineages are stated to retain a common facet of

⁵⁴ Ibid., 223.

⁵⁵ Ibid., 231.

⁵⁶ Brown, *Response*, 84.

⁵⁷ I.e., the genetic departure of one or more species from a preexisting species.

⁵⁸ Abdu’l-Bahá, *Promulgation*, 359.

⁵⁹ By ‘time-variable’ I mean that all stages of humanity’s evolution are reconcilable under the appellation “man” as used by Abdu’l-Bahá. ‘Static’ thus refers to a relatively fixed state, a stage of evolution, which determines an organism’s classification. The latter methodology describes how scientists label species.

identity through “transference of type” and “conservation of species or kind.” Moreover Abdu’l-Bahá could be said to have included various species under the semantic umbrella of a single species due to this sameness of kind.⁶⁰ In this scenario each *group* of species would have had its own unique origin and evolutionary path apart from other biological groups, while diversification of specific varieties through speciation could still occur within the boundaries of each species’ kind. Nevertheless Von Kitzing expatiates upon a stricter understanding:

Because the originality of species is a general principle, distinct lines of parallel evolution would have to be assumed for each individual biological species. The following statement of Abdu’l-Bahá, if understood in a biological sense, would support this: ‘All beings, whether universal or particular, were created perfect and complete from the first, but their perfections appear in them by degrees.’⁶¹

As a result of his understanding of the statement he quotes, he formulates five questions, which he feels need to be answered before anyone can agree to the tenability of parallel evolution. Some of the points he brings up in his questions become irrelevant if the interpretation that parallel evolution occurs relative to groups of species is accepted.

In the first issue he raises, Von Kitzing points out that if “all [biological] kingdoms have the same root, a model of parallel evolution requires points to be defined where the vegetable, animal, and human species branched from their common roots.”⁶² Since Abdu’l-Bahá often compares human phylogeny to human ontogeny, and the earliest ontogenic form is that of a zygote, we might guess that the earliest phylogenetic form or “seed” of humanity was something like a cell or a rudimentary formation of cells in his estimation. To say that any of humanity’s more recent ancestral forms mark the beginning of its distinction from

⁶⁰ In most instances, Abdu’l-Bahá uses the word *noh* or its variations in Persian to refer to “species.” This term can also be translated as “kind” or “type.”

⁶¹ Von Kitzing, *Origin*, 232. Cf. Abdu’l-Bahá, *Questions*, 199.

⁶² Von Kitzing, *Origin*, 233.

animal life would be difficult to reconcile with specific passages from Abdu'l-Bahá, as we saw in relation to the views of Brown.⁶³

The second question is a request for a biological definition of the term “species” which agrees both with Abdu'l-Bahá's statements and with known facts of biology regarding speciation. I find this request to be unreasonable. On one hand, it is impractical because Abdu'l-Bahá's use of the term in question is irrespective of the kinds of properties that scientists pay attention to.⁶⁴ On the other hand, there is no need for a universal definition so long as specific usage of the word is clarified by its context. The terminology employed in the Bahá'í philosophy of evolution need not be utilized in the same sense by practising biologists for science to continue its work.

The third question is as follows: “Because all the species existed from the beginning in the primordial soup, the maximal number of species must have lived at that time and became constantly reduced due to extinctions. What was the distinction between all these species?”⁶⁵ If we can maintain the interpretation given earlier that assumes a representative for each *type* of species existed from the beginning of life on Earth, and not a separate ancestor to represent “each individual biological species,” then the idea that “the maximal number of species must have lived at that time” becomes less of a problem. As long as there was one representative for the human kind, then the number of other species simultaneously existing representing their kinds would depend on how particular each biological *kind* was. But as for the possibility of there having been variety among the earliest forms of cellular life, there is no conflict with science in saying that primitive cells were diverse and quite different from each other.⁶⁶

⁶³ See, for example, the block quote on page 22.

⁶⁴ See Chapter 3, ‘The Uniqueness of Humanity.’

⁶⁵ Von Kitzing, *Origin*, 234.

⁶⁶ We shall see why in Chapter 5, ‘On DNA and Relevant Scientific Factors.’

The fourth question is the most salient. Von Kitzing indicates that a “theory of parallel evolution would have to explain why DNA sequence similarities among human beings... reflect biological relationships, whereas DNA sequence similarities between various species [such as humans and chimpanzees] would not account for such relationships.”⁶⁷ In the next chapter we will direct our attention to the science that is relevant here.

Finally, Von Kitzing’s fifth objection to parallel evolution is that apparently only a few eukaryotic cells (cells that possess a nucleus and other membrane-bound vesicles) are responsible for spawning “all multicellular higher taxa.”⁶⁸ How could so many species have evolved separately from just a few cells? The comments addressing his third question are pertinent here as well.

Von Kitzing’s analysis of this topic leads him to urge against interpreting Abdu’l-Bahá as supporting parallel evolution. But he fails to follow Brown’s example of offering a specific interpretation that attempts to bridge the gap in understanding between biology and Bahá’í philosophy.

THE VIEWS OF FRIBERG & MEHANIAN

After Brown and Von Kitzing first made their views known in *Bahá’í Studies Review*, another scholar interested in the topic named Stephen Friberg wrote a follow-up article in the same journal with his own thoughts. His later collaboration with Courosh Mehanian led to yet another published article, which further developed his earlier views. Their work, entitled “Religion and Evolution Reconciled: Abdu’l-Bahá’s Comments on Evolution,” was printed in *The Journal of Bahá’í Studies* in 2003. As the title presumes, it was essentially a fresh attempt at reconciling Abdu’l-Bahá’s comments on evolution with science.

⁶⁷ Von Kitzing, *Origin*, 234.

⁶⁸ *Ibid.*

In both of the aforementioned articles, “complexity theory” is suggested to be the likely answer to the apparent discontinuities between Abdu’l-Bahá’s words and modern science:

Modern complexity theory describes how complex systems, though composed of elementary components obeying the simplest of laws, exhibit ‘emergent’ properties that depend on – but that transcend – the properties of the elementary components alone. Because of examples like these, modern scientists tend to think that ‘higher-order’ phenomena are built into the laws of nature. That is to say, intelligence, language, and creativity are as much a component of natural law as collisions between billiard balls. This is not a byproduct or an accident of ‘lower-order’ effects, but an inescapable property of the laws of nature. So, while animal attributes may have necessarily preceded the emergence of human attributes – language, mind, rationality, and the like – such human attributes are not the properties of animals. Applied to the issue of evolution, this type of thinking suggests, in accord with Abdu’l-Bahá’s emphasis on material composition, that human intelligence is an ‘emergent’ phenomenon.⁶⁹

What this ostensibly means is that the human species began on Earth when human-specific properties evolved. Due to the importance of the principle of the harmony of science and religion in the Bahá’í faith, Friberg states that Abdu’l-Bahá’s intent “is better understood by correlating his rational arguments with modern scientific understandings.”⁷⁰ Thus Friberg does not see Abdu’l-Bahá’s words on evolution as intentionally broad or allegorical but rather sees them as scientifically relevant.

Friberg and Mehanian take an approach of interpreting Abdu’l-Bahá to conform to the overall scheme of Darwinian evolution. In attributing to the latter the belief that humans do share common ancestors with other creatures, they cite the following phrases from him to support their claim: “the origin of all material life is one”⁷¹ and “[c]onsider the world of created beings, how varied and diverse they are in species, yet with one sole origin.”⁷² In the

⁶⁹ Stephen Friberg, “Commentary on Keven Brown’s ‘Are Abdu’l-Bahá’s Views on Evolution Original?’ and Eberhard von Kitzing’s ‘Is the Bahá’í View of Evolution Compatible with Modern Science?’” *Bahá’í Studies Review* 8 (1998). <http://bahai-library.com/articles/evolution.html#a3> (August 14, 2008).

⁷⁰ Ibid.

⁷¹ Abdu’l-Bahá, *Promulgation*, 350.

⁷² Abdu’l-Bahá, *Paris*, 51-2.

first reference, the context of the entire passage shows that Abdu'l-Bahá was in fact referring to the common elements from which all life on Earth have their origin. Thus he was not referring to 'origins' in the ancestral sense. The statement from which it comes in fact says: "the origin of all material life is one *and its termination likewise one.*"⁷³ It would be ludicrous (as well as contrary to other Bahá'í teachings) to interpret this sentence to mean that not only was there one common ancestor for all living beings, but that they will be reduced to a single descendant whose termination will signal the end of all life.

The second reference is also taken out of context. Just a few lines before, it is made clear that Abdu'l-Bahá is speaking with regard to God as the common source or "one sole origin" of *all things*: "The Creator of all is One God. From this same God all creation sprang into existence, and He is the one Goal, towards which everything in nature yearns."⁷⁴ Since the Bahá'í view of God portrays everything but God as God's creation, the Divinity is understood to be the singular shared origin of all things living and nonliving. Again, the ancestral connotation seems to have been smuggled in.

As has been shown, the Bahá'í view with respect to the physical origins of human beings indicates that humans have been distinct from other beings since the time of some primitive stage of our evolution. While there is still room in this understanding for a shared ancestor with other species before that ambiguous stage of evolution, the above-cited quotes do not indicate this themselves.

Though assuming both modern speciation theories and Abdu'l-Bahá's words to be true and compatible, Friberg and Mehanian never go so far as to address how human potentiality (which is explicitly stated by Abdu'l-Bahá to have been latent in humankind

⁷³ Abdu'l-Bahá, *Promulgation*, 350. Emphasis added.

⁷⁴ Abdu'l-Bahá, *Paris*, 51.

from the earliest stages of its evolution) could have been distinguished from the potentiality of any other species that evolved from common ancestors. That is, the authors do not bring up the question of why certain species (e.g., chimps) branch off the human line without retaining the heritage bequeathed by the human species essence.

This is because of another facet of their understanding of the statements at issue. To them, Abdu'l-Bahá is in agreement with science in assuming the oldest human (or member of the genus *Homo*) emerged only “five to ten million years ago.”⁷⁵ Thus their explanation from the standpoint of complexity theory does not account for all that Abdu'l-Bahá says about the history of the human species (e.g., “we may acknowledge the fact that at one time man was an inmate of the sea, at another period an invertebrate, then a vertebrate and finally a human being standing erect”), and its perennial exclusivity from non-human species: “[i]n each one of these stages are signs and evidences of his human existence and destination.”⁷⁶ This is the same problem faced by Brown’s saltation theory.⁷⁷

Friberg and Mehanian portray the Bahá’í philosophy of evolution as one in which “humans are anatomically connected with the animals” but are distinguished by their “true reality, which is intellectual and spiritual.”⁷⁸ Abdu'l-Bahá does indeed make the latter assertion when he says, “The reality of man is his thought, not his material body. ... Although man is part of the animal creation, he possesses a power of thought superior to all other created beings.”⁷⁹ But a point of disagreement between myself and these authors arises from interpreting the phrase, “man is part of the animal creation.” This is also quoted by Friberg

⁷⁵ Courosh Mehanian and Stephen R. Friberg, “Religion and Evolution Reconciled: Abdu'l-Bahá’s Comments on Evolution,” *The Journal of Bahá’í Studies* 13, no. 1-4 (March-December 2003): 66.

⁷⁶ Abdu'l-Bahá, *Promulgation*, 359.

⁷⁷ See ‘The Views of Brown’ above.

⁷⁸ Courosh Mehanian and Stephen R. Friberg, “Religion and Evolution Reconciled: Abdu'l-Bahá’s Comments on Evolution,” *The Journal of Bahá’í Studies* 13, no. 1-4 (March-December 2003): 82.

⁷⁹ Abdu'l-Bahá, *Paris*, 17.

and Mehanian to imply that the Bahá'í view acknowledges common physical ancestry with animals.⁸⁰ Yet once again neither the words themselves nor their context necessarily indicate common evolutionary origins with animals. The following seems to clarify what was actually meant by that phrase: “Man is endowed with an outer or physical reality. It belongs to the material realm, *the animal kingdom, because it has sprung from the material world.*”⁸¹ In other words, humanity’s association with the “animal creation” is purported by Abdu’l-Bahá to be due only to our occupation of the same realm of existence as other physical creatures. In the final analysis, a reading of Abdu’l-Bahá’s words that tries to downplay what he says about humanity’s unique evolutionary origins turns out to be inconsistent.

To recapitulate this chapter, we looked at several interpretations of what the Bahá'í writings have to say about the evolution of humankind. We saw that Brown’s attempt to reconcile the Bahá'í doctrine of parallel evolution with the conclusions of science via his saltation theory ultimately appears to contradict explicit statements by Abdu’l-Bahá. Von Kitzing’s attempt to reconcile faith and science did not even yield a unique interpretation for us to test; but his considerations concerning the meaning of what it is to be a unique “species” helped us to clarify some important points. Finally I showed that the work of Friberg and Mehanian supported unsuitable interpretations of Abdu’l-Bahá’s words in several instances, thus rendering their reconciliation attempt invalid.

⁸⁰ One telltale sign of common physical ancestry between humans and other animals is the structure of our hands which is homologous with aquatic fins and the wings of bats. We will discuss homologous forms more in the next chapter.

⁸¹ Abdu’l-Bahá, *Foundations of World Unity* (Wilmette: Bahá'í Publishing Trust, 1979), 51. Emphasis added.

CHAPTER 5

ON DNA AND RELEVANT SCIENTIFIC FACTORS

In this chapter, we will look at the more outstanding reasons for why the parallel evolution model is problematic in light of relatively recent scientific evidence. So far, we have compared differing interpretations of the same set of statements to get at their most likely meaning. We saw that their reference to an evolutionary process that has always kept a separate special lineage of life that includes modern humans is unmistakable. Now we turn to the scientific side of the issue as we draw near a novel way to resolve this increasingly apparent conflict between religion and science.

Research once indicated that the “last universal ancestor” for all branches of life existed as a primordial cellular organism. But due to a process known as Horizontal Gene Transfer (HGT), it is becoming more common to hear scientists speak and write in terms of an ancestral “conglomeration of primitive cells” instead of a single organism.⁸² Biologist Peter Gogarten explains that “the original metaphor of a tree no longer fits the data from recent genome research” and that “biologists [should] use the metaphor of a mosaic to describe the different histories combined in individual genomes and use [the] metaphor of a net to visualize the rich exchange and cooperative effects of HGT among microbes.”⁸³ The implications this has on the understanding of the ultimate genetic ancestry of all species is revolutionary.

⁸² HGT occurs when an organism passes genetic information directly to another organism that is not its offspring.

⁸³ Peter Gogarten, “Horizontal Gene Transfer - A New Paradigm for Biology,” Esalen Center for Theory & Research. <http://www.esalenctr.org/display/confpage.cfm?confid=10&pageid=105&pgtype=1> (August 14, 2008).

An article by W. Ford Doolittle that was published in the journal *Scientific American* discusses the last universal common ancestor and the recent revisions made with respect to that concept owing to horizontal gene transfer:

If there had never been any lateral [i.e., horizontal] gene transfer, all these individual gene trees would have the same topology (the same branching order), and the ancestral genes at the root of each tree would have all been present in the last universal common ancestor, a single ancient cell. But extensive transfer means that neither is the case: gene trees will differ (although many will have regions of similar topology) *and* there would never have been a single cell that could be called the last universal common ancestor.

As [leading American microbiologist Carl Woese] has written, ‘the ancestor cannot have been a particular organism, a single organismal lineage. It was communal, a loosely knit, diverse conglomeration of primitive cells that evolved as a unit, and it eventually developed to a stage where it broke into several distinct communities, which in their turn became the three primary lines of descent (bacteria, archaea and eukaryotes).’ In other words, early cells, each having relatively few genes, differed in many ways. By swapping genes freely, they shared various of their talents with their contemporaries. Eventually this collection of eclectic and changeable cells coalesced into the three basic domains known today. These domains become recognisable because much (though by no means all) of the gene transfer that occurs these days goes on within domains.⁸⁴

Science has given us good reason to believe that there were *numerous* primeval microbes which eventually evolved into the diverse species of the world that we now know. At first glance this might appear to bolster the ideology of parallel evolution, except that with this picture comes an understanding of even more interspecies genetic mixing than previously thought.

In particular, the discovery of the uncanny resemblance between the DNA of humans and that of other primates has solidified the Darwinian understanding of speciation. Advances in molecular biology have led geneticists and evolutionary biologists to become more certain than ever that human beings have descended from ancestors common to not just other primates, but indeed from ancestors of many other species prior.

⁸⁴ W. Ford Doolittle, “Uprooting the Tree of Life,” *Scientific American* 282, no. 2 (February 2000): 95. http://shiva.msu.montana.edu/courses/mb437_537_2004_fall/docs/uprooting.pdf (August 14, 2008).

Few, if any, scientific arguments can be made to support the implications of Abdu'l-Bahá's statements on humankind's unique material origins and intraspecies evolution. A proponent of this view may be tempted to give the argument that the striking resemblance in the present outcome of the physical evolution of two or more originally separate species is a result of a similarity of environments. That is to say that wherever environments were very much alike or the same, so could have been the evolutionary paths upon which the creatures inhabiting them have traveled. Indeed, this is known to have occurred with species derived from disconnected geological periods ('evolutionary relay')⁸⁵ and habitats ('convergent evolution').⁸⁶ But such cases have mainly occurred to a very limited extent and almost exclusively with regard to phenotypes (bodies) as opposed to genotypes (genetic makeup). Because humans are not merely similar physiologically, but incredibly similar *genetically* to animals that are said to be evolutionarily distinct and separate from them, parallel evolution is not a favored theory.

The obvious differences between the collective lifestyle of human beings and that of, say, chimpanzees, despite their very similar genotypes, are often cited to reinforce the idea that what separates human from animal is something unrelated to physical composition.⁸⁷ A

⁸⁵ One example is the similarity of wings and fur between ancient reptilian pterosaurs and modern mammalian bats.

⁸⁶ An example is the similarity between the recently extinct Great Auk in the northern hemisphere and penguins in the southern hemisphere. Convergent evolution can also occur at the level of the most basic building blocks of life. Referring to separate experiments in which the same molecule of RNA was produced from different 'origins,' Richard Dawkins writes: "a particular large RNA molecule evolved spontaneously in the test-tube, and the same molecule re-evolved itself again and again in subsequent independent experiments! Careful checking showed that there was no possibility of chance infection by RNA molecules. This is a remarkable result when you consider the statistical improbability of the same large molecule spontaneously arising twice. ... But whereas [one scientist's molecules] had evolved by 'degeneration' from naturally occurring, larger, Q-beta viral RNA, those of the Eigen group had built themselves up from almost nothing. This particular formula [of RNA] is well adapted to an environment consisting of test-tubes provided with ready-made replicase. It therefore is converged upon by cumulative selection from two very different starting points." (Dawkins, 133). However, it is extremely more improbable for the DNA of complex organisms to converge in the same way; especially when it is considered that many different combinations of DNA can give rise to equivalent (though not necessarily the same) biological advantages in nature.

⁸⁷ Cf. Abdu'l-Bahá, *Promulgation*, 70.

purely biological point of view, however, allows for the possibility of animals to develop cognitive abilities to a degree as refined as that found in humans. Of course, something like that would require the right genetic mutations and favorable natural selection over time.

Some interesting research has recently surfaced that is leading some scientists to believe that *Homo sapiens* and Neanderthals interbred.⁸⁸ This may change the way some hominids are viewed with respect to *Homo sapiens*, since the primary scientific factor used to determine which organisms belong to the same species is their ability to mate and to produce fertile offspring.⁸⁹ Other research has scientists now believing that proto-humans interbred with members of their sister genus *Pan* (chimpanzees) over the course of a gradual evolutionary split from each other that lasted up to 4 million years.⁹⁰ The actual evidence for the idea is that some of the currently differing gene sequences between the two species' versions of the same genes were found to be younger than others.⁹¹ Assuming they were all once identical, this would mean that genes diverged at different times after initial human-chimp speciation. Moreover, after the time that genetic traits *specific to either species* began to appear, other *common* traits between the two (most especially the X chromosome)

⁸⁸ Andrei Soficaru, Adrian Dobos, and Erik Trinkaus, "Early Modern Humans from the Peștera [sic] Muierii, Baia de Fier, Romania," *Proceedings of the National Academy of Sciences* 103, no. 46 (November 2006): 17196-17201. <http://www.pnas.org/content/103/46/17196.full.pdf+html?sid=69d6abc2-e928-4d9c-9f15-5564fff22b31> (August 14, 2008).

⁸⁹ Specifically among organisms that reproduce sexually rather than asexually, and especially for mating that occurs under natural conditions.

⁹⁰ David Reich, Eric S. Lander, *et al.*, "Genetic Evidence for Complex Speciation of Humans and Chimpanzees," *Nature* 441 (June 29, 2006): 1103-1108.

⁹¹ This has been determined via a "molecular clock" method that is used to measure the age of specific genetic characteristics based on estimated rates of mutation. It goes with the assumption that there was a single species whose genes furcated into those of the human and chimp species of today, plus any intermediate species now extinct. The method involves analyzing the differences between the gene sequences of the two species based on individual DNA samples, dividing the differences in half, and then plugging in mutation rates. The age of the 'oldest' (i.e., most different) human/chimp gene sequences was used to determine the approximate date of Homo-Pan speciation. Interestingly, a skull fossil discovered in 2001 known as "Toumai" (aka *Sahelanthropus tchadensis*) shows human-like features and is dated to before the genetically estimated time of human-chimp speciation.

emerged. This was supposedly due to a lengthy period of gene-swapping during which genetic divergence and interbreeding were simultaneously taking place.

One problem with parallel evolution is that it does not explain ‘neutral’ evolutionary changes at the molecular level. These do not affect anatomical features but are still shared across species as a result of common genetic ancestry. Because they do not manifest themselves outwardly, they are not subject to natural selection (unless they somehow affect the internal health of the organisms in which they occur). Looking at this from a perspective of parallel evolution, we are left with two possible explanations that are both unsavory. One way unrelated species could have the same neutral genetic codes is by sheer chance alone: an occurrence that would be incalculably improbable. The other way is if God intentionally made it seem that unrelated species were in fact related (for no apparent rational end).

Another problem facing parallel evolution is the evidence for the fusion of two ancestral ape chromosomes into human chromosome number 2.⁹² Since humans have one less pair of chromosomes than other great apes, scientists predicted that there should be signs in the genetic code that explain how this difference occurred after speciation. And sure enough, they found the same two chromosomes that remain separate in other ape species fused within our genome. Based on very telling indicators that can actually be seen in photos of human and other primate chromosomes, there is no room to doubt that humans share common ancestors with other primate species.

This goes back to the important fact that Von Kitzing pointed out about biological relationships being evident in DNA similarity both within as well as across species. In order for parallel evolution to be scientifically acceptable, a complete reformulation of assumptions

⁹² J.W. Ijdo, A. Baldini, *et al.*, “Origin of Human Chromosome 2: An Ancestral Telomere-Telomere Fusion,” *Proceedings of the National Academy of Sciences* 88, no. 20 (October 1991): 9051-9055. <http://www.pnas.org/content/88/20/9051.full.pdf+html?sid=c733075a-784c-4123-bf8c-6f4f19e3df50> (August 14, 2008).

that provide scientists with the simplest of all possible explanations for available evidence would be called for. Or to use the terminology of Thomas Kuhn, it would take no less than a “paradigm shift” in the biological sciences.

The scientific evidence we have reviewed in this chapter has shown us some of the main reasons for belief in human co-ancestry with other forms of life. The Bahá’í doctrine of the need for an epistemological harmony to exist between scientific and faith-inspired beliefs made these considerations necessary in order that we may come up with an accurate understanding of the evolution of human beings from a Bahá’í perspective. Taking into account all that we have discussed up to now, I shall proceed to give my own suggestions on how a religious believer might best cope with inconsistencies between doctrines of faith and scientific enquiry when they are as seemingly irreconcilable as they are in the case study presented here.

CHAPTER 6

CONCLUSION

At this point, allow me to review briefly what I first set out to do and have so far accomplished. I have chosen to look at a relatively unexplored case of science's coming into conflict with a set of actual religious beliefs. In doing so, as well as in trying to search out the best possible reconciliation of the two sides in question, I believe I have been able to extrapolate principles that may apply to similar conflicts in other religious faiths. One of these principles (to be discussed below) concerns the issue of why these conflicts take place, and two others concern how religionists who experience these epistemological conflicts may deal with them.

My method was first to approach the religious side of the topic of the biological emergence of humans. We saw that according to the Bahá'í faith (and perhaps some other theistic traditions) the definition of the species of "human" extends beyond biological considerations and that humankind is posited to be qualitatively different from other animal species. More importantly, we identified those statements within this philosophical system that have grabbed attention for their apparent discord with science. Following this, in order to be fair to a diverse range of viewpoints, we examined what others have so far published relevant to the same conflict. Having found them all deficient in some way or other (that is, where their intention was the reconciliation of scientific and religious beliefs), I then moved on to the scientific side of the issue. By looking at the scientific evidence that is relevant to

the case we are analyzing, I had hoped to clarify just why there was a perceived conflict in the first place.

This now brings us to my own recommendation for how to approach this and analogous conflicts between religion and science. I advocate a change in the understanding of scriptural texts that is akin to the movement that has taken place over time in mainstream Christianity from a belief in “Biblical inerrancy” to “Biblical infallibility.” Whereas the former assumes that the Bible is completely free from error in every respect, the latter assumes that it is only error-free in ways that are germane to personal salvation.⁹³ Since the doctrine of Biblical infallibility does not require those parts that focus on science or history to be accurate, exponents of this doctrine can avoid having to reconcile any apparent contradictions between problematic statements in their scripture and modern science. The issue then simply redounds to a matter of personal faith.

I realize that this approach to scripture may not be possible within some religions owing to the supreme importance that is often explicitly attributed to central texts. But in our case study, it happens to be a possibility that no one has yet openly suggested. As we have seen, reinterpretation of difficult statements has been unsuccessful in achieving the desired result of harmonizing them with the scientific account of evolution. Thus we are left to question whether or not (at least in this case) the religious statements examined were even intended to be unhesitatingly accepted as scientifically accurate.

It is true that for Bahá’ís, the writings of Abdu’l-Bahá hold binding authority. But what is often overlooked is that the sphere of infallibility that is attributed to him is also said not to extend to the fields of science. According to the Bahá’í canon, only those who speak in

⁹³ This line of thought in Christianity may be traced back all the way to St. Augustine.

God's behalf are said to possess complete infallibility.⁹⁴ Abdu'l-Bahá's level of infallibility as an interpreter of divine revelation is referred to as "conferred infallibility" and is shared by Shoghi Effendi. The following authoritative account therefore sheds light on the limitations of *both* figures in this latter capacity:

Shoghi Effendi was asked several times during his ministry to define the sphere of his operation and his infallibility. ... He explains that he is not an infallible authority on subjects such as economics and science... He further points out that 'he is not, like the Prophet, omniscient at will', that his 'infallibility covers interpretation of the Revealed Word and its application', and that he is also 'infallible in the protection of the Faith.'⁹⁵

Thus it would seem that Bahá'ís need not feel obliged to ascribe scientific accuracy to Abdu'l-Bahá's statements about the evolution of human beings. As has been the case in Christianity, it seems that Bahá'ís (and others whose religions face similar challenges owing to science) would benefit from making a move away from a strict adherence to the doctrine of textual inerrancy. More specifically, perplexing statements from either Abdu'l-Bahá or Shoghi Effendi that concern science or other non-faith related matters need not automatically be assumed by Bahá'í scholars to be accurate in some unknown metaphorical sense. If all seemingly reasonable interpretations should prove to be incoherent, as I have shown with the above case, then those statements may simply be accepted as scientifically inaccurate without having to contradict the fundamental premises of the faith itself. *The problem of disharmony between scripture and science is therefore proposed to be rooted sometimes in a misattribution of scriptural inerrancy where it was not warranted.*

To his credit, Abdu'l-Bahá did acknowledge that some form of evolution had taken place, and this was rare among religious leaders in the early twentieth century. Beyond the

⁹⁴ Cf. Abdu'l-Bahá, *Questions*, 171-4. This kind of infallibility is akin to "Biblical inerrancy" as described two paragraphs earlier.

⁹⁵ *Lights of Guidance: A Bahá'í Reference File*, compiled by Helen Hornby, third rev. (New Delhi: Bahá'í Publishing Trust, 1994), 311.

Bahá'í faith, many other denominations have had to adjust their respective stances towards the science of evolution. The Roman Catholic Church waited until 1950 to reveal an officially neutral position toward Darwin's theory of evolution, while its officially unambiguous acceptance of the theory did not occur until 1996. It seems that representatives from all religions who wish to keep their respective faiths ostensibly in harmony with science have recently adopted the principle of balancing science and faith by giving less weight to the literal meanings of their scriptures. But it is not enough to say that the scriptures are allegorical. As shown above, there is much work involved in interpreting scripture (and being consistent throughout). And when the work is done, some unforeseen contradictions are likely later to make themselves apparent.

Thus religionists would do well in their epistemologies to balance their faith in religious truth with the results of scientific inquiry by way of reassessing two important things. One thing to be reconsidered is their perception of the intent of their scripture. *It may be asked whether a given scripture or part thereof can reasonably be assumed to be scientifically edifying at all (in terms of the known material universe), be it in the form of a literal or metaphorical prose.* If the intent behind the scripture is understood and defended as purely concerned with moral behavior and free of any real claims to advanced knowledge about the natural world, then virtually any scriptural content that appears to be in conflict with scientific facts can be spared from scientific scrutiny. With respect to our Bahá'í case study, this re-evaluation of intent did not work for every related statement on human evolution. Some pronouncements on the topic simply were too specific to deny what they were apparently intended to address (i.e., biological evolution as opposed to, say, an allegorical spiritual evolution).

Just for the sake of illustration, let us consider a similar hypothetical scenario where a particular religious scripture happens to claim that the *physical* moon is made of holy dust that can heal *bodily* ailments. With the presumed emphasis on physicality, it is much more difficult to question what was meant by the words used. It may even be the case that the overall context of the passage in which this claim occurs does not clarify the intent of the claim and that no ostensive metaphorical interpretation of “holy dust” or healing powers in any way adds to the spiritual or rational dimension of the scripture itself. What are the believers in such a scripture to make of this claim? Well, if we assume that they too accept the methodology of science as a means to knowledge, then none of them could any longer entertain the idea that the moon’s substance has such restorative properties owing to all that we know from tests on lunar samples. I do not propose to offer a way for finding the meaning embedded in such a conundrum. I only insist that where the relevant scriptural passage ostensibly violates the dictates of science and reason, it must not be regarded as their replacement.

The other thing to be re-evaluated in pursuit of reconciling religious faith with science is the degree of scientific or historical accuracy which religionists attribute to their scriptures. A common scenario across different religions is that there occurs some kind of direct transmission or inspiration of knowledge from an arcane source through various mediums (physical or otherwise) until such time as this knowledge is recorded onto plain paper. This is what then becomes known as scripture. One might consequently hold reasonable doubts as to the perfect transference of knowledge throughout this process, or whether this transfer occurred uninterruptedly.

For our Bahá'í case, this is the more successful route to harmonizing religious and scientific beliefs on evolution. The last block quote above, which delineates the limitations of the infallibility of Abdu'l-Bahá and Shoghi Effendi, is in particular helpful for putting forward this suggestion without seeming to sidestep fundamental articles of faith. Moreover this suggestion to question the scientific and historical accuracy of problematic scriptural claims is more easily generalizable to other faiths with similar conflicts than our previous suggestion since one need not attempt to surmise the intent of the revealer of the scripture in question to be able to implement this strategy.

Of course it might not be acceptable within certain religious communities to suggest openly that a scripture may be inaccurate or irrelevant with respect to facts about the material world. Factors such as this make it necessary for adherents of various faiths to come up with their own specific resolutions to conflicts between their faith and science according to the circumstances. We have a useful model throughout much of Christianity where many, for example, have given up on ascribing truth to the story of the flood and Noah's Ark or to the remarkable ages of the Biblical patriarchs. This change in orthodoxy for so many Christians is undeniably linked to the advancement of science and technology that have provided us with the means for verifying an immense range of questions that concern events in the natural world. There is no doubt that a changing view of scriptural inerrancy will continue. In general, moving away from a belief in complete textual inerrancy within any faith may help to alleviate tensions with an increasingly expanding scientific world view. As I have argued in this paper, this is especially true for cases – such as the specific case study I have focused on in this thesis – where there appear to be no other hermeneutical options. In as much as this shift from textual inerrancy can be useful in the Bahá'í faith in light of scientific

development concerning the theory of evolution, this thesis ends with the suggestion that similar challenges may be resolved likewise for other religions.

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