

## **Book Review and Commentary: A Bahá'í View of Evolution by Eamonn Moane**

Brown, Keven and Eberhard von Kitizing (eds) *Evolution and Bahá'í Belief: 'Abdu'l-Bahá's Response to Nineteenth Century Darwinism* (Los Angeles: Kalimat Press, 2001), 278 pages.

### **Introduction**

One of the fundamental beliefs of the Bahá'í Faith is the harmony of religion and science, faith and reason, heart and mind. The past three to four centuries have been an age dominated by science and reason increasingly severed from their theological and philosophical underpinnings. In the conflicts that have arisen between science and religion, the latter has appeared to lose. This has been due mainly to religion's man-made dogmas and rituals based on a primarily literal interpretation of sacred Scripture. Science must also accept some of the blame because it can tend to make unjustified speculative claims about its findings, especially concerning the origin and meaning of existence. Yet as 'Abdu'l-Bahá states, there can be no disagreement between the conclusions of sound scientific thinking and a correct reading of Scripture, because the physical universe is a shadow or reflection of an eternal spiritual realm:

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.<sup>1</sup>

The whole issue of evolution is of truly world historic importance because, arguably, no single idea has been more responsible for the decline of religious belief in the West than Darwin's theory of evolution published in *The Origin of Species* in 1859. This is particularly so because of the sweeping claims that have been made about the theory since Darwin's time, and the fact that it has become one of the most influential doctrines of the modern age. Darwin's work appeared to strike at the foundation

of the religious view that God created all species separately, essentially in their present form, according to a divine plan, and linked them together in the great, continuous Chain of Being, with Man at the apex. Instead, the diversity of species was due to mechanical processes of random variations in organisms and natural selection by a changing environment of those variations best fitted to survive, with no goal or direction to the whole process and in which human purpose and destiny seemed to have no place.

This book is an impressive exposition of the Bahá'í view of a religious and scientific issue central to our understanding of our own nature and the meaning of our existence. The Bahá'í Faith affirms a harmonious belief in both divine creation and evolution. However, evolution is a process of development within a species, not of one species evolving by chance into another. The human species is a divinely created separate species that has always existed somewhere in the universe. Man has evolved on Earth as a separate species, with his physical, intellectual and spiritual evolution divinely guided for a divine purpose.

The book is also a powerful reminder of how modern science has become severed from its metaphysical (i.e. philosophical and theological) foundations. In this context, philosophy is concerned with true knowledge and understanding about the origin and purpose, and general causes and principles, of phenomena, while natural theology deals with the knowledge of God as gained from studying the workings of His creation.

### **Overview of Subject Matter of Book**

This is the first Bahá'í book to give such a rigorous treatment of the broad religious, philosophical and scientific aspects of one issue. It has over 500 endnotes and a very extensive bibliography of a wide range of sources, Bahá'í and non-Bahá'í, religious, philosophical and scientific. For the interested layperson without a background in philosophy or science, the book requires a concerted effort to be understood.

The book consists of two long essays by two Bahá'ís. The first essay by Keven Brown, a specialist in Near Eastern languages and cultures, focuses mainly on the philosophical issues relating to species and evolution. It starts with the philosophical response to

Darwin's theory in the West and in the Arab world. It then deals with the historical development of philosophical concepts of creation, species and evolution, from ancient Greece to the Nineteenth Century. It finally covers 'Abdu'l-Bahá's response to Darwinism.

The second essay by Eberhard von Kitzing, a specialist in theoretical physics and biochemical evolution, focuses on how 'Abdu'l-Bahá's views on evolution compare with the concepts of Nineteenth-Century biology and modern biology and cosmology. It covers the scientific challenge of Darwin to the then-prevailing scientific orthodoxy, looks at modern Western scientific concepts of species and evolution, considers the broader issues of the origin of complex order in the universe, and of cosmology, and discusses 'Abdu'l-Bahá's statements and their compatibility with modern science.

It was originally intended to have a third article, by a non-Bahá'í scientist and practising evolutionary biologist, Dr Ronald Somerby, but it was not ready in time. This is unfortunate, as it would have added a broader perspective to the book.

The authors have different views on the extent to which 'Abdu'l-Bahá's statements on evolution are to be taken literally. Brown's approach 'is to assume that 'Abdu'l-Bahá intended his words on this subject to be taken at face value' (Preface xix). In contrast to Brown, von Kitzing assumes that 'the statements of 'Abdu'l-Bahá about evolution are not intended to be a detailed explanation of cosmogony and biological evolution. They are understood rather as seminal statements from which Bahá'í scholars may develop a relevant Bahá'í philosophy' (p. 141). Different interpretations of 'Abdu'l-Bahá's words are possible and depend crucially on what He meant by the term 'human species.' Von Kitzing emphasises that his essay 'does not address the question of the particular mechanisms of evolution as such' (p. 142). Both authors agree, however, that 'Abdu'l-Bahá's response to Darwinism was more philosophical than scientific in nature. Their articles aim to present interpretations of His statements on evolution that are in accordance with reason and scientific facts.

## Concepts of 'Species'

Central to both essays are two different ways of thinking about the meaning of 'species.' The classical approach up to the Nineteenth Century had thought of a species as a fixed, timeless entity or 'species essence', the law or blueprint or idea in the mind of God that determines the essential attributes of its biological counterpart. While variations in the biological form could occur over time, they could never stray from the limits set by the species essence. Natural selection merely eliminates accidental characteristics. This view that each species was created by design and for a purpose is known as 'teleological thinking.'

The central theme of Darwin's theory is that all biological species, including man, are not divinely created or fixed realities of nature, but have descended from common ancestors by a continuous process of branching. Accidental variations in a species, if beneficial for survival in the environment, would be selected by natural selection and hence be the basis of a new species. Only the individual members of a species are real, not the species itself, which is a mere mental classification or construct. A species is defined as a population of particular interbreeding organisms that can produce fertile offspring. This approach is known today as 'population thinking.'

Brown gives a comprehensive review of the development of philosophical ideas about the meaning of species, from ancient Greece to the Nineteenth Century. Plato taught that a species was determined by an immaterial archetypal Form or Idea beyond the grasp of the human mind and that these Ideas or Essences are the true timeless realities existing independently of the biological populations of particular members. This corresponds with fixed species and teleological thinking, and is closer to the Bahá'í view. However, Aristotle believed that a species was determined solely by its biological forms and assumed that the existence of particular members of a biological population is sufficient to maintain the species. Species was therefore a mental construct. This corresponds with today's population thinking.

Plato's Forms and Ideas came to be regarded by the early Christian Church Fathers as the Word of God, or Logos, by which God created the world. Augustine has God create seminal seeds that manifest themselves over time as environmental conditions

become suitable. Most later Muslim thinkers were in effect Neoplatonists. They believed that God's knowledge is the cause for the existence of all things, and that the Platonic forms are the immaterial roots of the biological members of species. The species appear when the physical environment is ready to receive them, and remain static over time.

Mullá Sadra (1571-1640) added the dimension of motion or 'becoming' to existence, and to the physical realisation over time of the fixed species essences that he regarded as part of God's changeless Essence. Shaykh Ahmad al-Ahsá'í (1753-1825), one of the two forerunners of the Báb, made a continuous process of action and becoming the very foundation of existence, allowing for a process of continuous evolution or becoming within individuals and species, and indeed within all systems in the universe. The species essences were created or activated by the Will of God, and were not part of His changeless Essence.

Von Kitzing explains how classical biology of the Eighteenth and early Nineteenth Century was essentialist, with the species essence being the unchanging idea in the mind of God of the ideal form of the members of a biological population. It was impossible that a species could change or evolve. The dominant concept was of a static unchanging world of short duration. Some scientists had a more mechanistic view of a universe created by God, Who then let it run on a few laws, while others believed in natural theology, which considered nature to be the result of the direct and detailed providence of God. The first challenge to this world view came from Lamarck (1744-1829), who was the first to propose a systematic theory of biological evolution, such that all species descended from earlier less complex forms. In addition, growing geological evidence began to imply that the world must be much older than the 6,000 years suggested by a literal reading of the Bible. Nevertheless, there was no essential contradiction between theology and biology until the mid-Nineteenth Century.

### **Evolution Thinking Since Darwin**

The above was the background and context in which Darwin's *Origin of Species* was published. Brown points out that Darwin never claimed to explain the origin of life. He proposed that God breathed life into a number of first primitive species, established

general but not detailed laws of nature, and then allowed the mechanisms of random variations and natural selection to gradually transform these common first forms into today's wide diversity of species. He did not claim that recent species derived from other recent species.

Darwin appeared to replace divine creation and teleology with natural selection by the environment of random beneficial biological variations, and to replace a theological with a scientific explanation of species. Proofs advanced by Darwin and his followers to support evolution include: rudimentary trace organs in man from an earlier stage of evolution; the stages of human embryonic development (ontogeny) recapitulating the stages of human biological evolution (phylogeny); the similarity of geographically isolated species; morphological similarity between species; and the fossil record showing the oldest layers of rock containing fossils of the most primitive species. However, the fossil record does not show transitional forms of species, but species appearing suddenly, remaining for a long time and then suddenly disappearing. The punctuated equilibrium theory of Gould and Eldredge, suggesting sudden leaps forward in evolution followed by long periods of stasis, tries to explain this.

Von Kitzing surveys the development of modern thought on evolution since Darwin. Life on Earth evolved from a pre-biotic soup over billions of years, with random mutations and recombinations in the genetic material of organisms being selected by the environment based on fitness for survival. The concept of species is based on individuals, not the fixed type, and is defined as reproductively isolated populations occupying an ecological niche. This removed purpose and direction from evolution and transformed the whole philosophy of biology.

Monod, the French Nobel Prize winner, regarded evolution as the emergence of new biological characteristics, based on chance. Dawkins, today's best-known exponent of reductionist Darwinian thinking, maintains that cumulative natural selection, by many small and gradual steps, is the only explanation for life's complexity and is the driving force of evolution. Evolution is the opposite of chance because, while mutations are random, natural selection is not: evolution is not teleological. However, as Ward points out, the gradual appearance of order requires the same level

of explanation as its sudden emergence. The Bahá'í writer, William Hatcher, argues that the development of life from more probable simple forms to less probable complex forms, despite the universal second law of thermodynamics, which states that all systems tend towards increasing disorder (entropy), is non-random, and requires a purposeful evolutionary force, which he calls God.

Von Kitzing contrasts 'top down' with 'bottom up' concepts of the origin of order and complexity. Classical concepts are top down, explaining complexity on intelligent design, and assuming that complex order and purpose existed from the start. Later Nineteenth-Century cosmology considered the universe to be infinite in space and time, hence avoiding the problem of Ultimate Cause. However, modern science seeks to explain complexity based on cumulative random trivial causes, a bottom up concept.

Today the universe is considered to be finite in space and time, with temporal causation starting with the Big Bang. Dennett proposes a kind of 'Darwinian cosmology' by cosmological selection, with perhaps 'a timeless Platonic possibility of order' (p. 178), but with no explanation for initiation or origin. Hence modern science merely assumes the *a priori* existence of complexity, and the non-existence of a scientific explanation for evolution. It ignores the fact that natural laws must be more complex than the particular structures they produce, and require explanation.

Interestingly, von Kitzing notes that while biology has rejected species essences, physics and chemistry remain essentialistic, with their general laws considered invariant in place and time throughout the universe.

Brown surveys how most Nineteenth-Century Arab thinkers (in particular al-Isfáhání), in their reaction to Darwinism, focused on its philosophical and social implications. They criticised Darwin's postulate that all species now existing were generated from a single germ over millions of years of natural action as being against sound intelligence. They maintained that the religious Scriptures are clear on the independent creation of species, but not on whether they were created all at once or independently, and they accepted progress towards perfection within independently created species. They also rejected the materialistic idea that the actions and powers of the soul are no more than the effects of

matter, and that human feelings and intelligence are merely the actions of the brain. Rather, the mind is independent of the brain, which is merely the instrument of the mind.

### **'Abdu'l-Bahá's Response to Darwinism**

The final sections of both essays focus on 'Abdu'l-Bahá's response to Darwinism. Brown puts more emphasis on the philosophical aspects of 'Abdu'l-Bahá's response and he helpfully provides new or improved translations of His statements on evolution (mainly in *Some Answered Questions*). Von Kitzing covers 'Abdu'l-Bahá's statements from a broader scientific and cosmological perspective.

In summary, 'Abdu'l-Bahá understood species in its Platonic archetype sense as referring to a divine reality outside of time and space. The species is primarily that immaterial essence by which its biological form exists. Evolution (progress and development) takes place within the species itself and is the movement of the living species towards its own perfection. Species are not derived gradually and haphazardly from each other.

'Abdu'l-Bahá states that creation or formation can be of three kinds only: accidental, necessary, or voluntary. He rules out formation occurring by accident or chance (i.e. self-creation), because every effect must have a cause preceding it. It cannot be necessary because then the formation would be an inherent property of the constituent parts, and change and decomposition would be impossible. Voluntary creation by God for a purpose is the only feasible explanation. However, creation is not directly by God. The first emanation from God, outside of time and place, is the First Intellect or Primal Will, located in the Will of God, not in His Essence. This First Cause creates the species essences or realities of things, which in turn leads to the physical existence of things when environmental conditions are correct.

Bahá'u'lláh states that the very existence of a transcendent, infinite and eternal God requires a creation which is 'infinite in its range and deathless in its duration.'<sup>2</sup> 'Abdu'l-Bahá says that to imagine a time when no creation existed would be a denial of the divinity of God, because the eternal attributes of God would not then be manifest. However, the evolution of the universe is necessary for God's timeless creation to emerge in place and time



and to manifest His signs. Hence creation and evolution are complementary and mutually necessary processes. Motion and change are essential aspects of creation:

Creation 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.<sup>3</sup>

'Abdu'l-Bahá' gives two main arguments against the modification and derivation of the human species from a lower species by chance. The first argument is that the eternal existence of the human species is necessary to act as a mirror of God's created names and attributes. If the human species (the reality or species essence of man) ever did not exist, the chief member of God's creation would be missing, and the creation would be imperfect:

The reflection of the divine perfections appears in the reality of man, so he is the representative of God, the messenger of God. 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 that 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 upon it. But from the beginning which has no beginning, to the end which has no end, a Perfect Manifestation always exists.<sup>4</sup>

The same argument applies to man's existence on this planet:

Now, if we imagine a time when man belonged to the animal world ... 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.<sup>5</sup>

If there was no man, the perfections of the spirit would not appear, and the light of the mind would not be resplendent in the world. This world would be like a body without a soul.<sup>6</sup>

The second argument is that each being or species, including man, requires a particular prescribed composition of elements, and the right environmental conditions, to appear and exist:

... the perfection of each individual being ... 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.<sup>7</sup>

'Abdu'l-Bahá states that nothing comes into being immediately in its perfect form, but everything grows and develops with its perfections appearing by degree. Like a seed or human embryo, all created things, large or small, are perfect and complete from the start, but progress and development take place by degrees within the species themselves:

All beings, whether universal or particular, were created perfect and complete from the first, but their perfections appear in them by degrees ...

Similarly the terrestrial globe from the beginning was created with all its elements, substances, minerals, atoms 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 kinds and species existed ...

When you consider this universal system, you see that there is not one of the beings which at its coming into being has reached the limit of perfection. No, they gradually grow and develop and then attain the degree of perfection.<sup>8</sup>

Hence the Earth, of which man is the fruit or chief member, also evolved, with the more simple forms of existence appearing before the more complex forms:

But it is clear that this terrestrial globe in its present form did not come into existence all at once, but that this universal existence gradually passed through different phases until it became adorned with its present perfection ... it is evident that this terrestrial globe, having once found existence, grew and developed in the matrix of the universe, and came forth in different forms and conditions, until gradually it attained this present perfection ...<sup>9</sup>

'Abdu'l-Bahá is emphatic that the human species has been established from its origin as a separate species and has evolved as such. The fact that it appeared after the animals is not proof that it was derived from them:

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.<sup>10</sup> It may be that in the beginning he was in the stage of a seed ... but that seed which evolved belonged to the human species, not an animal species.<sup>11</sup>

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 ... a man, not an animal.<sup>12</sup>

... the animal having preceded man is not a proof of the evolution, change and alteration of the species, nor that man was raised from the animal world to the human world ... For man, from the beginning of the embryonic period until he reaches the degree of maturity, goes through different forms and appearances ... 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 an animal ... As man in the womb of the mother passes from form to form, 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 existence in the matrix of

the world, is also a distinct species – that is, man – and has gradually evolved from one form to another ... Man from the beginning was in this perfect form and composition, and possessed capacity and aptitudes for acquiring material and spiritual perfections, and was the manifestation of the words ‘We will make man in Our image and likeness.’<sup>13</sup>

Brown emphasises that ‘Abdu’l-Bahá’s response to Darwinism was not a technical scientific refutation as such. Rather, he focused on its philosophical and religious implications for human society. In particular, He condemned the application of the principle of the ‘struggle for survival’ to human affairs as a grievous error.

Von Kitzing, in dealing with ‘Abdu’l-Bahá’s statements on evolution, emphasises that the origin of the universe was complex from the beginning, and included the potential for man’s intelligence to emerge. Evolution is the unfolding in time and place of this pre-existing order, not continual random self-creation of new characteristics. The world is a hierarchy of increasing complexity – mineral, vegetable, animal, human – with each level including all lower but no higher levels.

Evolution applies to all levels of organisation, from the atom up. A particular composition of elements, together with suitable environmental conditions, always leads to the emergence of man in the universe due to time-invariant laws.

Von Kitzing, and indeed the existing translation of ‘Abdu’l-Bahá’s statements, could be clearer that the human spirit is not so much the by-product or consequence of a particular composition of atoms, but is associated with it in the physical world. It comes from a pre-existent spiritual realm and appears on earth and is individualised when a particular complexity in atomic composition is obtained. He quotes from Bahá’u’lláh, Who affirms an ever-changing existence sustained by the Word of God, with physical nature an expression of God’s Will:

That which hath been in existence had existed before, but not in the form thou seest today ... Verily, the Word of God is the Cause which hath preceded the contingent world – a world which is adorned with the splendours of the Ancient of

Days, yet is being renewed and regenerated at all times ... Say: Nature in its essence is the embodiment of My Name, the Maker, the Creator. Its manifestations are diversified by varying causes, and in this diversity there are signs for men of discernment. Nature is God's Will and is its expression in and through the contingent world. It is a dispensation of Providence ordained by the Ordainer, the All-Wise.<sup>14</sup>

### **Parallel Evolution?**

Von Kitzing poses the question as to how literally we should understand 'Abdu'l-Bahá's analogy between evolutionary phylogeny (the human biological form) and embryonic ontogeny in the human species. Is it a philosophical statement about the nature of the universe, or does it mean that the evolving human form was biologically human all the way down? 'Abdu'l-Bahá has stated that even if the human biological body was different in the past, it was still the unchanged human species. But what does He mean by 'human species'? Is it the Platonic species essence or a physical form? Could the human species essence contain not only the ideal picture of the species, but different possible evolutionary pathways towards perfection?

A literal interpretation of 'Abdu'l-Bahá's statements results in a model of parallel evolution where a biologically distinct line of each species has existed from the beginning of the earth and each species develops in parallel or independently from each other. But 'the assumption of parallel evolution produces more problems than it solves' (p. 234) and is not accepted by scientists as a serious theory. Von Kitzing accepts that other Bahá'í writers understand 'Abdu'l-Bahá to propose a biologically distinct evolution of the human species parallel to the animal kingdom. However, he suggests that His teachings on the subject have been widely misunderstood because of misinterpretations of His meaning of the term 'human species.'

For parallel evolution to be regarded as credible by today's science, a number of issues would have to be resolved. When did the vegetable, animal and human species branch from their common roots? A biological definition of species compatible with current scientific knowledge must be developed. If genetic DNA similarities among humans reflect biological relationships, why do

similar DNA sequences in different species, especially in the higher primates and humans, not imply biological relationships between them?

Von Kitzing argues that by the term 'human species', 'Abdu'l-Bahá means the eternal species essence of man as a perfect mirror reflecting all of the attributes of God, as a universal law pre-defining humanity, not a particular biological species. 'Abdu'l-Bahá's statement above that 'a Perfect Manifestation always exists'<sup>15</sup> seems to support this. Hence the evolution of the biological form of the human species on this earth is secondary. He accepts the conventional view that *Homo sapiens* and the modern higher primates have a common ancestor but that they branched off at least ten million years ago. But this view seems to contradict 'Abdu'l-Bahá's statements that man existed from the beginning of the Earth and that a particular, perfect composition of elements is required for the human spirit and intelligence to be made manifest in the physical world. It seems to this reviewer that Von Kitzing does not resolve this issue. To be fair, he is clear that his article does not aim to do this. At the start of the Twenty-first Century, it may simply be too soon to achieve a detailed technical synthesis between the Bahá'í view and modern science. Perhaps, as Friberg wrote,

It is wrong, therefore, to view man as *originating* from the animals. However, it would not be wrong to say that man *appeared* from the animals, as long as the place of appearance is not confused with the reality of that which has appeared.<sup>16</sup>

Von Kitzing quotes Shoghi Effendi, who affirmed that man, irrespective of his physical form, was always man, on the basis that no form or species can exceed its own potentialities and evolve into something else. These statements seem to leave open the exact biological mechanisms of man's evolution:

The Bahá'í faith teaches man was always potentially man, even when passing through the lower stages of evolution.<sup>17</sup> We cannot prove that man was always man for this is a fundamental doctrine, but it 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. We don't believe man has always had the form of a man, but rather that from the outset he was going to evolve into the human form and species and not be a haphazard branch of the ape family.<sup>18</sup>

### **Some Criticisms of Book**

Notwithstanding its subtitle, the book focuses perhaps too narrowly in relating the topic of evolution to philosophical thought from the ancient Greeks to the Nineteenth-Century Arabs and to 'Abdu'l-Bahá. It does not cover what the *Old Testament* (particularly Genesis, chapter 1), the *Qur'án*, and other Scriptures and philosophies say about creation and evolution. It would benefit from expounding on what today's mainstream Christian churches, and the 'scientific creationism' of American fundamentalist Christians, have to say on these issues. The inclusion of the originally intended third article would enhance the book by providing a broader perspective and treatment of the topic.

The book does not resolve how the Bahá'í view of evolution is compatible with the current scientific view of the biological technicalities of the evolution of the human species. There is a sense of an unsatisfactory incompleteness in this area, specifically whether or not the Bahá'í view implies the parallel evolution of all species and a separate biological form for man from his beginning on Earth, a concept rejected by modern science. Differing possible views of the meaning of the term 'human species' as used by 'Abdu'l-Bahá are not resolved.

The ordering of the book's contents could be better, perhaps covering the scientific aspects before the philosophical aspects. Brown's essay could have started with the philosophical and historical background to creation and evolution, rather than with the response of Nineteenth-Century Muslims and 'Abdu'l-Bahá to Darwinism. Parts of his essay can be hard to grasp for the layperson, especially some of the philosophical concepts in the third section (pp. 51-76) about substance, form, accident and becoming. The fact that the book consists of two separate essays leads to some duplication, although the subtleties and difficulties

of the ideas and concepts may justify this. An overall conclusion and synthesis would be beneficial.

One visible shortcoming is that there is no index, despite comprehensive endnotes and a bibliography, although the detailed contents section at the start compensates partly for this. Nor is there any biographical information about the authors.

### **Other Possible Applications of Book's Approach**

The approach used in the book could be applied equally to writing a Bahá'í response to the Big Bang theory of the origin and development of the universe that has, since the 1960s, become the dominant theory of cosmology. From observing today's expanding universe, it projects backwards to its origin some 15,000,000,000 years ago when all the matter and energy of the universe was compressed in an extremely small space of infinite density, a 'singularity.' This exploded and began to expand, leading by a long process, and through the power of gravity, to the formation of stars and galaxies and planets; and then through random mutations and natural selection, to the evolution of life and human beings, where conditions are suitable. The current prevailing view is that the universe will continue to expand until it reaches a final 'heat death' and grinds to a halt. This appears to conflict with the very emphatic Bahá'í view that the universe is eternal and infinite.

A philosophical approach would reject such sweeping speculative claims. It might maintain that the Big Bang was not 'the beginning', but merely the earliest time for which scientific evidence is available. Perhaps, as some scientists have suggested, the Big Bang was just a local phenomenon, or the exiting matter-energy from the black hole or contraction of a previous universe or of another part of the universe. Our universe may be just one small part of a much greater one, or one of many universes. It may be the beginning of just another cycle of expansion in an eternal cyclically oscillating universe. This would appear to agree with the fundamental principle of the cyclical nature of existence and life as explained by 'Abdu'l-Bahá: ' ... in the whole universe, whether for the heavens or for men, there are cycles of great events, of important facts and occurrences. When a cycle is ended, a new cycle begins.'<sup>19</sup>



On more specific issues, what are we to make of Bahá'u'lláh's statement that 'every fixed star hath its own planets and every planet its own creatures whose number no man can compute',<sup>20</sup> in light of the current scientific view that life, as on Earth, does not exist in the rest of our solar system? How do we interpret the references in His Writings, confirmed by 'Abdu'l-Bahá, to a future transmutation of elements by way of a hidden science or knowledge, which to modern science might appear to refer to alchemy, now regarded as a discredited occult subject? What about the paradigm of medicine and healing in the Bahá'í Writings, which appears much closer to traditional or 'alternative' medicine than to today's orthodox 'scientific' medicine?

### **Conclusion**

The development of biology since Darwin has undermined religious values by denying divine creation and a goal or purpose for evolution and life, and insisting that random genetic variations in species, selected by the environment according to survival criteria, can alone explain the evolution and diversity of life, including man. It regards the mechanisms of evolution – random mutations and natural selection – as sufficient to explain the cause and origin of life itself. It cannot explain the origin of complex order and so merely assumes it. Yet random mutations and selection by an ever-changing environment do not preclude the movement of evolution towards a goal, under the guiding force of divinely created species essences working through genetic information as a means to regulate the development of organisms.

Evolution, based on chance and without purpose, has become an all-embracing doctrine in the dominant Western civilization of today, imprisoning its culture in an apparently irreconcilable conflict between religion and science. Its philosophical implications taken to an extreme, especially the 'struggle for survival', have had disastrous consequences in ideologies like Nazism and Communism, and in extreme variants of nationalism and free-market competitive capitalism. The mainstream Christian churches, including the Roman Catholic Church, have accommodated themselves to the current prevailing scientific orthodoxy, while insisting on God as the Ultimate Cause of creation and on man's spiritual nature and destiny. However, in

the United States in particular, many Christian Churches have stuck to the literal biblical account of creation, and the creation versus evolution debate has become a major cultural and political issue. The construction of a new paradigm of evolution, with a true reconciliation of its scientific and religious dimensions, has still to be achieved.

The Bahá'í Faith does not merely believe in evolution as one among many beliefs. Rather, its fundamental outlook is inherently evolutionary. It regards motion and evolution as the essence of creation and life. It affirms that evolution has a divine purpose, and is the unfolding in time and place of that purpose and of the eternal signs and attributes of God, not continual random self-creation. Its central theological belief is that Divine Revelation is a continuous and progressive process, and Bahá'u'lláh states that 'All men have been created to carry forward an ever-advancing civilization.'<sup>21</sup> Von Kitzing is surely correct when he states that 'the complexity of the final goal of evolution may simply surpass the imagination of all evolving civilizations' (p. 210).

This book is an impressive and weighty contribution to the evolution debate, although it does not set out a detailed technical solution to the issues raised. It provides a framework for relating the teachings of religion and theology to the deepest scientific and philosophical issues facing today's world. It succeeds in its claim that 'it offers an ambitious model for the application of the principle of the unity of science and religion' (back cover). The book highlights the importance of a metaphysical and philosophical underpinning to science. Hence it should hold its own among any books, academic or otherwise, published in the area of the relationship between religion and science.

## References

1. *Makatib* vol. 1 p. 172.
2. *Gleanings* p. 61.
3. *Promulgation* p. 140.
4. *Some Answered Questions* p. 196.
5. *Ibid.* p. 178.
6. *Ibid.* p. 201.
7. *Ibid.* p. 179.
8. *Ibid.* p. 199.

9. *Ibid.* p. 182-83.
10. *Promulgation* p. 225-26.
11. *Makatib* vol. 3 p. 257.
12. *Some Answered Questions* p. 184.
13. *Ibid.* p. 192-94.
14. *Tablets* p. 140-44.
15. *Some Answered Questions* p. 196.
16. Stephen Friberg 'Commentary on Brown and von Kitzing on Evolution', *The Baha'i Studies Review* 8, 1998, p. 61.
17. *Unfolding Destiny* p. 458.
18. *Letters to New Zealand* p. 85.
19. *Some Answered Questions* p. 160.
20. *Gleanings* p. 163.
21. *Ibid.* p. 215.

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