

# BAHA'I WRITINGS ON THE HARMONY OF SCIENCE AND RELIGION

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## 1. Introduction

Science and religion, the two wings of the bird of civilization, are called in the Baha'i writings 'the two most potent forces in human life' (Shoghi Effendi 1938:204). From Baha'i scripture a remarkably unific view of the harmony of science and religion emerges.

The world has become terribly out of balance. Unprecedented advances in the physical and biological sciences, and the creation of powerful technologies based on those sciences, have far outpaced development in ethics, morals and religious values - what some might wish to call 'human values'. What is needed, Baha'is believe, is a revival of true religion; religion which reestablishes God upon the throne of the human heart, and which promotes the qualities and virtues necessary for the continued progression of science, technology and civilization.

The Baha'i writings are extensive both in volume and scope, with over 90 000 works from the three central figures of the Baha'i Faith (the Bab, 1819-1850; Baha'u'llah, 1817-1892; and 'Abdu'l-Baha, 1844-1921). These works, ranging in size from a few pages to books approximately the size of the Qur'an, cover a vast range of social, ethical and spiritual principles and laws. The harmony of science and religion is a central theme in the Baha'i writings, and consequently I will quote liberally from Baha'i scripture in this paper. The views expressed are, of course, based on my personal understanding, as influenced by my experience as a Baha'i and as a research physicist, and do not represent an official 'Baha'i view' of science and religion.

## 2. Revelation and religion

### 2.1 The nature of God

Baha'u'llah (Shoghi Effendi 1938:113) writes that there is one God, supreme above all things, 'unknowable in His essence'.

To every discerning and illumined heart it is evident that God, the unknowable Essence, the Divine Being, is immeasurably exalted beyond every human attribute ... He is, and hath ever been, veiled in the ancient eternity of His Essence, and will remain in His Reality everlastingly hidden from the sight of men.

Such an exalted being could not communicate directly with His human creation. God reveals Himself to man through His manifestations: divine figures such as Abraham, Krishna, Moses, Zoroaster, Buddha, Christ, Muhammad and, most recently, the Bab and Baha'u'llah. What they reveal to mankind is considered to be divine revelation.

The door of the knowledge of the Ancient of Days being thus closed in the face of all beings, He, the Source of infinite grace ... hath caused those luminous Gems of Holiness to appear out of the realm of the spirit, in the noble form of the human temple, and be made manifest unto all men, that they may impart unto the world the mysteries of the unchangeable Being ... All the Prophets of God, His well-favored, His holy and chosen

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Messengers are, without exception, the bearers of His names and the embodiments of His attributes ... These Tabernacles of Holiness, these primal Mirrors which reflect the Light of unfading glory, are but expressions of Him Who is the Invisible of the Invisibles.

(Baha'u'llah in Shoghi Effendi 1938:113-114)

Each manifestation makes a 'hidden call' to all mankind, and this is part of His revelation.

... no sooner had the First Word proceeded, through the potency of Thy Will and purpose, out of His mouth, and the First Call gone forth from His lips than the whole creation was revolutionized, and all that are in the heavens and all that are on earth were stirred to the depths. Through that Word the realities of all created things were shaken, were divided, separated, scattered, combined and reunited, disclosing, in both the contingent world and the heavenly kingdom, entities of a new creation, and revealing, in the unseen realms, the signs and tokens of Thy unity and oneness.

(Baha'u'llah 1943:93)

The purpose of these manifestations is to reflect the light of God to humanity. They are 'sent down from their invisible habitations of ancient glory' to 'educate the souls of men and endue with grace all created things ...' (Baha'u'llah in Shoghi Effendi 1938:114).

All the manifestations of God occupy the same exalted station, and the knowledge they possess is innate and infinite. Their revelation, however, is geared to the knowledge and receptivity of a humanity to which they appear, and hence the potency of the revelation of each will differ. Here, then, is the explanation given by Baha'u'llah for the magnificent historical pageant of the successive appearance of the divine manifestations and of their religions, each eminently suited to the time of its appearance; each carrying mankind to new heights of civilisation.

Know thou that they who are truly wise have likened the world unto the human temple. As the body of man needeth a garment to clothe it, so the body of mankind must needs be adorned with the mantle of justice and wisdom. Its robe is the Revelation vouchsafed unto it by God. Whenever this robe hath fulfilled its purpose, the Almighty will assuredly renew it. For every age requireth a fresh measure of the light of God. Every Divine Revelation hath been sent down in a manner that befitted the circumstances of the age in which it hath appeared.

(Baha'u'llah 1939:81)

The revelation of the divine manifestation is the prime cause for the advance of civilisation. Thus, to Baha'is, the impulse for science arises out of revelation. The reorientation of human thought and the consequent restructuring of society and civilisation, inspired directly or indirectly through the progressive unfoldment of spiritual reality by successive manifestations of God, bring about the episodic progression in the abstract conceptual constructs, the manner of investigation and the accumulated knowledge which we call science.

Know thou that when the Son of Man [Jesus] yielded up His breath to God, the whole creation wept with a great weeping. By sacrificing Himself, however, a fresh capacity was infused into all created things. Its evidences, as witnessed in all the peoples of the earth, are now manifest before thee. The deepest wisdom which the sages have uttered, the profoundest learning which any mind hath unfolded, the arts which the ablest hands

have produced, the influence exerted by the most potent of rulers, are but manifestations of the quickening power released by His transcendent, His all-pervasive, and resplendent Spirit.

(Baha'u'llah 1939:85-86)

Within the treasury of Our Wisdom there lies unrevealed a knowledge, one word of which, if We chose to divulge it to mankind ... would enable every one to discover the secrets of all the sciences, and to attain so high a station as to find himself wholly independent of all past and future learning. Other knowledges We do as well possess, not a single letter of which We can disclose, nor do We find humanity able to hear even the barest reference to their meaning. Thus have We informed you of the knowledge of God, the All-Knowing, the All-Wise.

(Baha'u'llah in Shoghi Effendi 1938:109)

## 2.2 Role of religion

What is religion? In the words of 'Abdu'l-Baha (Baha'u'llah 1943:224), 'religion is the outer expression of the divine reality'. It plays a central role in the progression and stability of society.

Religion is verily the chief instrument for the establishment of order in the world and of tranquillity amongst its peoples.

(Baha'u'llah 1978:63)

Consider whether there exists anywhere in creation a principle mightier in every sense than religion, or whether any conceivable power is more pervasive than the various Divine Faiths, or whether any agency can bring about real love and fellowship and union among all peoples as can belief in an almighty and all-knowing God, or whether except for the laws of God there has been any evidence of an instrumentality for educating all mankind in every phase of righteousness.

('Abdu'l-Baha 1957:83)

Should the lamp of religion be obscured, chaos and confusion will ensue, and the lights of fairness and justice, of tranquillity and peace cease to shine.

(Baha'u'llah 1978:25)

Religion is the human response to the manifestation; it is a uniquely human creation born out of a common core of belief, fuelled by revelation. In this sense religion is similar to science, which is also a human construct, born out of a world-view, fuelled by the desire to understand, and directed by systematic observation and questioning of reality. Religion can become corrupt, and stray far from the reality of revelation - but then, so can science stray from the reality of nature.

'Abdu'l-Baha has taken great care, in many of his writings, to distinguish between 'true religion', religion which faithfully follows the teachings of the founder, and religion which has degenerated into a series of practices or become corrupted with accumulated human interpretations and constructs.

But when we speak of religion we mean the essential foundation or reality of religion, not the dogmas and blind imitations which have gradually encrusted it and which are the cause of the decline and effacement of a nation.

(Abdu'l-Baha in Baha'u'llah 1943:272)

Thus religion, like science, is inherently progressive. Indeed, based on a progressive unfolding of truth through successive revelations of the divine manifestations of God, religion cannot be anything but progressive. Just as disciplines which cease to grow fall out of the mainstream of science, religion which becomes encrusted with dogma to the point at which it ceases to progress, degenerates away from true religion towards superstition.

### **3. Humans and nature**

#### **3.1 Nature**

In the Baha'i view God is contained in the creation not as, say, blood is contained in the arteries and veins of the body, but rather as the Sun is contained in the mirror. In the mirror one can see the image of the Sun and can feel the heat of its reflected rays - but the Sun itself is infinitely greater than the pale copy which is the image, and infinitely greater still than the limited and circumscribed object which is the mirror. The attributes of God, not the essence of divinity Itself, are reflected in the creation, and it is this reflection which gives nature its great beauty and makes it the repository of mysteries which have awed and delighted the artist and the scientist.

Nature in its essence is the embodiment of My Name, the Maker, the Creator. 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. Were anyone to affirm that it is the Will of God as manifested in the world of being, no one should question this assertion. It is endowed with a power whose reality men of learning fail to grasp. Indeed a man of insight can perceive naught therein save the effulgent splendour of Our Name, the Creator. Say: This is an existence which knoweth no decay ...

(Baha'u'llah 1978:142)

Whatever is in the heavens and whatever is on the earth is a direct evidence of the revelation within it of the attributes and names of God, inasmuch as within every atom are enshrined the signs that bear eloquent testimony to the revelation of that Most Great Light ... How resplendent the luminaries of knowledge that shine in an atom, and how vast the oceans of wisdom that surge within a drop!

(Baha'u'llah 1939:177)

Nature is a repository of the secrets of God. And nature is constructed in such a way that its mysteries will yield to investigation - mysteries which, layered in hierarchies of complexity, can be progressively uncovered and refined to forms which make them intelligible to the human mind. Nature is analogous to ore which has been deposited in a vein in the earth: the ore is hidden, and in its natural state is of no value to society, yet it can be mined and refined to produce something of great value.

Look at the world and ponder awhile upon it. It unveileth the book of its own self before thine eyes and revealeth that which the pen of thy Lord, the Fashioner, the All-Informed, hath inscribed therein. It will acquaint thee with that which is within it and upon it ...

(Baha'u'llah 1978:141-142)

The secrets of nature point to God. And remarkably, according to Baha'u'llah (1978:60-61), through reflection on nature one can discover not only God, but the reality of the prophets of God.

Every created being however revealeth His signs which are but emanations from Him and not His Own Self. All these signs are reflected and can be seen in the book of

existence, and the scrolls that depict the shape and pattern of the universe are indeed a most great book. Therein every man of insight can perceive that which would lead to the Straight Path and would enable him to attain the Great Announcement.

### 3.2 Humans

Every created thing reflects an attribute of the Creator. Humans, however, are unique in this reflection, and occupy a station at the apex of creation. I quote the Baha'u'llah (1939:177):

To a supreme degree is this true of man ... For in him are potentially revealed all the attributes and names of God to a degree that no other created being hath excelled or surpassed.

... [A]ll things, in their inmost reality, testify to the revelation of the names and attributes of God within them ... Man, the noblest and most perfect of all created things, excelleth them all in the intensity of this revelation, and is a fuller expression of its glory.

(Baha'u'llah 1939:178-179)

If man did not exist, the universe would be without result, for the object of existence is the appearance of the perfections of God.

(Abdu'l-Baha 1930:189)

Humans are the cultivators, the educators, the governors whose presence make the world complete.

The materialists hold to the opinion that the world of nature is complete. The divine philosophers declare that the world of nature is incomplete ... They hold that while nature seems perfect, it is, nevertheless, imperfect because it has need of intelligence and education ... When we consider existence, we see that the mineral, vegetable, animal and human worlds are all in need of an educator. If the earth is not cultivated, it becomes a jungle where useless weeds grow; but if a cultivator comes and tills the ground, it produces crops which nourish living creatures. It is evident, therefore, that the soil needs the cultivation of the farmer. Consider the trees: if they remain without a cultivator, they will be fruitless, and without fruit they are useless; but if they receive the care of a gardener, these same barren trees become fruitful, and through cultivation, fertilization and engrafting the trees which had bitter fruits yield sweet fruits. In brief, man through the possession of this ideal endowment of scientific investigation is the most noble product of creation, the governor of nature ...

(Abdu'l-Baha 1982:30)

Thus, through science and technology humanity can carry out the will of God in the world, and bring order and perfection to the material creation - provided, however, balance is maintained between material and spiritual development.

The civilization, so often vaunted by the learned exponents of arts and sciences will, if allowed to overleap the bounds of moderation, bring great evil upon men ... If carried to excess, civilization will prove as prolific a source of evil as it had been of goodness when kept within the restraints of moderation.

(Baha'u'llah 1939:342-343)

### 3.3 The nature of the human soul

The human soul is a divine and transcendent reality.

Know, verily, that the soul is a sign of God, a heavenly gem which the most learned of men hath failed to grasp, and whose mystery no mind, however, acute, can ever hope to unravel. It is the first among all created things to declare the excellence of its Creator, the first to recognize His glory, to cleave to His truth, and to bow down in adoration before Him. If it be faithful to God, it will reflect His light, and will, eventually, return unto Him.

(Baha'u'llah 1939:158-159)

The spirit of man is a circumambient power that encompasseth the realities of all things. Whatsoever thou dost see about thee - wondrous products of human workmanship, inventions, discoveries and like evidences - each one of these was once a secret hidden away in the realm of the unknown. The human spirit laid that secret bare, and drew it forth from the unseen into the visible world. There is, for example, the power of steam, and photography and the phonograph, and wireless telegraphy, and advances in mathematics: each and every one of these was once a mystery, a closely guarded secret, yet the human spirit unravelled these secrets and brought them out of the invisible into the light of day. Thus it is clear that the human spirit is an all-encompassing power that exerteth its dominion over the inner essences of all created things, uncovering the well kept mysteries of the phenomenal world.

(Abdu'l-Baha 1978:169-170)

The influence of the soul on human development continues beyond death.

The purpose of their [the manifestations of God] revelation hath been to educate all men, that they may, at the hour of death, ascend, in the utmost purity and sanctity and with absolute detachment, to the throne of the Most High. The light which these souls radiate is responsible for the progress of the world and the advancement of its peoples. They are like unto leaven which leaveneth the world of being, and constitute the animating force through which the arts and wonders of the world are made manifest ... All things must have a cause, a motive power, an animating principle. These souls and symbols of detachment have provided, and will continue to provide, the supreme moving impulse in the world of being.

(Baha'u'llah 1939:157)

What is the connection between the divine Spirit and the soul, and between the human soul and the intellect?

... [T]he Holy Spirit is the very cause of the life of man; without the Holy Spirit he would have no intellect, he would be unable to acquire his scientific knowledge by which his great influence over the rest of creation is gained. The illumination of the Holy Spirit gives to man the power of thought, and enables him to make discoveries by which he bends the laws of nature to his will.

(Abdu'l-Baha 1979:59)

These faculties [the faculties of the mind] are but the inherent properties of the soul, such as the power of imagination, of thought, of understanding; powers that are the essential requisites of the reality of man, even as the solar ray is the inherent property of the sun. The temple of man is like unto a mirror, his soul is as the sun, and his mental faculties even as the rays that emanate from that source of light. The ray may cease to fall upon the mirror, but it can in no wise be dissociated from the sun.

(Abdu'l-Baha in Baha'u'llah 1943:346-347)

#### 4. Revelation and science

The manifestation of God is not a scientist, any more than he is an artist or poet. Science, like religion, is a human creation. The manifestation, however, founds science, or rather, a new way of doing science, in the same way that he founds religion. The manifestation of God sets into motion a religious and social process which will profoundly affect the course of science - sometimes directly, in a civilisation formally associated with his name; sometimes among people far removed from his place of appearance and in a society which bears no formal allegiance to his faith.

From the beginning of time until the present day the light of Divine Revelation hath risen in the East and shed its radiance upon the West. The illumination thus shed hath, however, acquired in the West an extraordinary brilliancy. Consider the Faith proclaimed by Jesus. Though it first appeared in the East, yet not until its light had been shed upon the West did the full measure of its potentialities become manifest.

(‘Abdu'l-Baha in Shoghi Effendi 1938:74-75)

The Baha’i writings state that the spiritual impulse behind the civilisation of Ancient Greece was the revelation of Moses. ‘Abdu'l-Baha (1957:90-91) makes the following observation regarding the rise of European civilisation in the Middle Ages:

... [F]rom 490 AH to 693, kings, commanders and other European leaders continually came and went between Egypt, Syria and the West, and when in the end they all returned home, they introduced into Europe whatever they had observed over two hundred and odd years in Muslim countries as to government, social development and learning, colleges, schools and the refinements of living. The civilization of Europe dates from that time.

In addition, the manifestation of God at times makes specific statements which have direct implications on the sciences of the day and on their development. For instance, Muhammad wrote in the Qur'an that the sun was ‘a fixed star’, a statement which had tremendous implications for cosmology. It would be not a Moslem astronomer, however, but a Christian who, undoubtedly unaware of Muhammad's statement, or if aware, unlikely to have been influenced by it, proposed the heliocentric theory which, with modification and development, became the reigning paradigm.

About the scientific knowledge of the manifestation of God, Baha'u'llah (Shoghi Effendi 1938:109) writes:

Within the treasury of Our Wisdom there lies unrevealed a knowledge, one word of which, if We chose to divulge it to mankind ... would enable every one to discover the secrets of all the sciences, and to attain so high a station as to find himself wholly independent of all past and future learning.

Baha'u'llah has made a number of statements which had, and have, powerful implications for the sciences of the day.

##### 4.1 Cosmology, cosmic evolution and physics

A sprinkling from the unfathomed deep of His sovereign and all-pervasive Will hath, out of utter nothingness, brought into being a creation which is infinite in its range and deathless in its duration.

(Baha'u'llah 1939:61)

The one true God hath everlastingly existed, and will everlastingly continue to exist. His creation, likewise, hath had no beginning, and will have no end. All that is created, however, is preceded by a cause. This fact, in itself, establisheth, beyond the shadow of a doubt, the unity of the Creator.

(Baha'u'llah 1939:162)

Know that it is one of the most abstruse spiritual truths that the world of existence - that is to say, this endless universe - has no beginning ... Yes, it may be that one of the parts of the universe, one of the globes, for example, may come into existence, or may be disintegrated, but the other endless globes are still existing; the universe would not be disordered nor destroyed. On the contrary, existence is eternal and perpetual. As each globe has a beginning, necessarily it has an end because every composition, collective or particular, must of necessity be decomposed. The only difference is that some are quickly decomposed, and others more slowly, but it is impossible that a composed thing should not eventually be decomposed.

(‘Abdu'l-Baha 1930:180-182)

The learned men, that have fixed at several thousand years the life of this earth, have failed, throughout the long period of their observation, to consider either the number or the age of the other planets ... Know thou that every star hath its own planets, and every planet its own creatures, whose number no man can compute.

(Baha'u'llah 1939:163)

That which hath been in existence had existed before, but not in the form thou seest today. The world of existence came into being through the heat generated from the interaction between the active force and that which is its recipient. These two are the same, yet they are different. Thus doth the Great Announcement inform thee about this glorious structure. Such as communicate the generating influence and such as receive its impact are indeed created through the irresistible influence of the Word of God which is the Cause of the entire creation, while all else besides His Word are but the creatures and the effects thereof.

(Baha'u'llah 1978:140)

... [I]n the beginning matter was one, and that one matter appeared in different aspects in each element. Thus various forms were produced, and these various aspects as they were produced became permanent, and each element was specialized. But this permanence was not definite, and did not attain realization and perfect existence until after a very long time. 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.

But it is clear that this terrestrial globe in its present form did not come into existence all at once, but ... gradually passed through different phases until it became adorned with its present perfection. Universal beings resemble and can be compared to particular beings, for both are subjected to one natural system, one universal law and divine organization. So you will find the smallest atoms ... are similar to the greatest beings of the universe. It is clear that they come into existence from one laboratory of might under one natural system and one universal law ...

(‘Abdu'l-Baha 1930:180-182)



## 4.2 Chemistry

Baha'u'llah (1931:189) called alchemy 'a vain and discarded learning'. In one passage, however, he does express the hope that someone will 'translate this science from the realm of fancy to the domain of fact and from the plane of mere pretension to that of actual achievement'. In another passage, however, after having stated that copper can be transmuted into gold, he adds,

That copper can be turned into gold is in itself sufficient proof that gold can, in like manner, be turned into copper ... Every mineral can be made to acquire the density, form, and substance of each and every other mineral. The knowledge thereof is with Us in the Hidden Book.

(Baha'u'llah 1978:69)

Certainly, ensuing discoveries have borne this out: gold cannot be created through a chemical process - hence, alchemy will never succeed. Through a nuclear process, however, any mineral can be transmuted into any other mineral. To what does Baha'u'llah (1978:69) refer, in the following passage, if not to nuclear power?

In all matters moderation is desirable. If a thing is carried to excess, it will prove a source of evil ... Strange and astonishing things exist in the earth but they are hidden from the minds and understanding of men. These things are capable of changing the whole atmosphere of the earth and their contamination would prove lethal.

## 4.3 Evolution

Each one of the luminous bodies in this infinite firmament has a cycle of revolution which is of a different duration, and every one revolves in its own orbit, and again begins a new cycle. So the earth, every three hundred sixty five days, five hours, forty-eight minutes and a fraction, completes a revolution; and then it begins a new cycle, that is to say, the first cycle is again renewed. In the same way, for 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, and the old one, on account of the great events which take place, is completely forgotten, and not a trace or record of it will remain. As you see, we have no records of twenty thousand years ago, although we have before proved by argument that life on this earth is very ancient. It is not one hundred thousand, or two hundred thousand, or one million or two million years old; it is very ancient, and the ancient records and traces are entirely obliterated.

('Abdu'l-Baha 1945:54)

... [A]s man in the womb of the mother passes from form to form, from shape to shape, changes and develops, and is still the human species ... 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.

('Abdu'l-Baha 1930:193-194)

... [L]et us suppose that man once resembled the animal, and that now he has progressed and changed ... it is merely like the change and alteration of the embryo of man until it reaches the degree of reason and perfection.

(Baha'u'llah 1969:32)

## 4.4 Psychology

According to Baha'u'llah (1969:32), there are great discoveries yet to be made:

In the treasuries of the knowledge of God there lieth concealed a knowledge which, when applied, will largely, though not wholly, eliminate fear. This knowledge, however, should be taught from childhood, as it will greatly aid in its elimination.

## 5. Science and religion

### 5.1 Science

The Baha'i view of science encompasses the contemporary, generally mechanistic, view, and transcends it. Science is an activity not of the brain but of the soul.

Science is the first emanation from God toward man.

(‘Abdu'l-Baha 1945:60)

The virtues of humanity are many but science is the most noble of them all. The distinction which man enjoys above and beyond the station of the animal is due to this paramount virtue. It is a bestowal of God; it is not material, it is divine. Science is an effulgence of the Sun of Reality, the power of investigating and discovering the verities of the universe, the means by which man finds a pathway to God. All the powers and attributes of man are human and hereditary in origin, outcomes of nature's processes, except the intellect, which is supernatural. Through intellectual and intelligent inquiry science is the discoverer of all things ...

(‘Abdu'l-Baha 1945:61)

All created things except man are captives of nature. The stars and suns swinging through infinite space, all earthly forms of life and existence whether mineral, vegetable or animal come under the dominion and control of natural law. Man through scientific knowledge and power rules nature and utilizes her laws to do his bidding. According to natural limitations he is a creature of earth restricted to life upon its surface, but through scientific utilization of material laws he soars in the sky, sails upon the ocean and dives beneath it. The products of his invention and discovery so familiar to us in daily life were once mysteries of nature. For instance, man has brought electricity out of the plane of the invisible into the plane of the visible, harnessed and imprisoned that mysterious natural agent and made it the servant of his needs and wishes ... Man as it were takes the sword out of nature's hand and with it for his sceptre of authority dominates nature itself ... The ideal faculties of man, including the capacity of scientific acquisition are beyond nature's ken. These are powers whereby man is differentiated and distinguished from all other forms of life. This is the bestowal of divine idealism, the crown adorning human heads.

(‘Abdu'l-Baha 1945:61)

### 5.2 Science and religion

There is no contradiction between true religion and science. When a religion is opposed to science it becomes mere superstition: that which is contrary to knowledge is ignorance ... The true principles of all religions are in conformity with the teachings of science.

(‘Abdu'l-Baha 1979:141)

It is impossible for religion to be contrary to science, even though some intellects are too weak or too immature to understand truth. God made religion and science to be the measure, as it were, of our understanding. Take heed that you neglect not such a wonderful power. Weigh all things in this balance.

(‘Abdu'l-Baha 1979:145)

... [T]he religion of God is the promoter of truth, the founder of science and knowledge, it is full of goodwill for learned men; it is the civilizer of mankind, the discoverer of the secrets of nature, and the enlightener of the horizons of the world ... knowledge is the most glorious gift of man and the most noble of human perfections ... [H]e who detests knowledge and science is not a man, but rather an animal without intelligence.

(‘Abdu’l-Baha 1930:137)

Surely the world, contracted and transformed into a single highly complex organism by the marvellous progress achieved in the realm of physical science, by the world-wide expansion of commerce and industry, and struggling under the pressure of world economic forces, amidst the pitfalls of a materialistic civilisation, stands in dire need of a restatement of the truth underlying all the revelations of the past in a language suited to its essential requirements.

(Shoghi Effendi 1938:47)

### 5.3 The scientific method

What I see emerging from the above quoted passages is a remarkably unific view of science and religion. Both science and religion are human creations, products of the human soul - the divine nature within us - and fuelled by revelation. What keeps them on track, so to speak? They both remain faithful to reality through conscientious application of that potent method of investigation, discovery, verification and refinement which we have come to call the scientific method. The Baha’i Faith itself, according to Shoghi Effendi, is ‘scientific in its method’.

Consider what it is that singles man out from among created beings, and makes of him a creature apart. Is it not his reasoning power, his intelligence? Shall he not make use of these in his study of religion? ... [W]eigh carefully in the balance of reason and science everything that is presented to you as religion. If it passes this test, then accept it, for it is truth! If, however, it does not so conform, then reject it, for it is ignorance!

(‘Abdu’l-Baha 1979:144)

What is the scientific method? In my view, it is composed of three essential steps:

- The first step is acceptance of a source of reality and adoption of a world-view. Science begins with a world-view whose assumptions are accepted on faith. Consider the passage below by Alfred North Whitehead (1967:12):

I mean the inexpugnable belief that every detailed occurrence can be correlated with its antecedents in a perfectly definite manner, exemplifying general principles. Without this belief the incredible labours of scientists would be without hope. It is this instinctive conviction, vividly poised before the imagination, which is the motive power of research: that there is a secret, a secret which can be unveiled. How has this conviction been so vividly implanted in the European mind?

... [T]here seems but one source for its origin. It must come from the medieval insistence on the rationality of God, conceived as with the personal energy of Jehovah and with the rationality of a Greek philosopher. Every detail was supervised and ordered: the search into nature could only result in the vindication of the faith in rationality ... I am not talking of the explicit beliefs of a few individuals ... [but] the impress on the European mind arising from the unquestioned faith of centuries.

The rationale for this faith in nature is contained in the following passage of Baha'u'llah (1978:141-142):

Look at the world and ponder awhile upon it. It unveileth the book of its own self before thine eyes and revealeth that which the Pen of thy Lord ... hath inscribed therein. It will acquaint thee with that which is within it and upon it.

The faith which animates the great scientist is essential to the practice of his science, and is no different from the faith which moves the religious mystic and saint. In the world-view of the physicist, 'Nature is the sole arbiter of truth'. The universe is rational, and the mind of man is capable of discovering and understanding the rational pattern behind the workings of Nature. Why does a physicist accept this? His faith may be supported by reason and by the successes of those who have gone before him. In this sense, it is not 'blind' faith, but ultimately the validity of his belief cannot be proven and he simply accepts. In my personal experience, what has distinguished the greatest scientists I have met from the others has not been intelligence, learning, drive or cleverness - although all these are necessary, to a degree - but their deep faith in the rationality of the Universe and in their ability to make sense of nature.

Religion, as Baha'is conceive it, begins with acceptance of the manifestation of God - with Buddha, with Christ, with Mohammad, with Baha'u'llah. He is the source of reality, the arbiter of truth. This belief on the part of the true follower, although it may be supported by logical arguments and by overwhelming evidences of success - in this sense, no more 'blind' than the faith of the scientist - is, like the faith of the scientist, beyond proof.

- The second step is a systematic questioning of reality. In the physical and biological sciences this 'questioning' takes the form of selective observation and carefully conceived experimentation. Reality is too complex, too subtle to be comprehended without sophisticated questioning; its truths must be uncovered. Often the nature of the answer is determined by the type of experiment performed. Nature tends to answer only the questions we ask; to obtain new answers we must ask new questions. It is partly this aspect of scientific investigation - asking the right questions - which makes science so creative an activity, and which reveals the greatness of genius. Biographers of Albert Einstein have written that what distinguished him from others of his generation, and which led him to his discovery of relativity, was just this profound ability to ask the right questions.

In religion this questioning is no less an essential part of the process of discovery. Many of the recorded utterances of Christ, for instance - statements which must be taken to form the backbone of Christian belief - were made in response to questions. Much of the Qur'an was revealed as a result of questions (challenges, actually) posed to Muhammad. Many of the written communications of Baha'u'llah, likewise, were revealed in response to questions. Many of the things which were not revealed, we may surmise, were not revealed because the questions were not asked. This is known for certain with regard to Baha'u'llah. It may be inferred from statements of Christ such as 'I have many things to tell you, but you cannot bear them now'. One could argue that had the believers of his generation been able to ask more sophisticated questions - such as, for instance, exactly how the Church should be organised, or details on the constitution of an ideal or 'Christian' society - this would have been taken as a sign that they could bear the answer, and the answer would have been forthcoming.

This process of questioning takes the form of study of divine scripture. Scripture, according to religious belief, expresses - manifests - spiritual reality. The divine Word is infinite in meaning and in profundity. Through study based on specifically formulated questions, aspects of the truths contained in scripture are revealed. 'Immerse yourselves in the ocean of My words, that ye may unravel its secrets, and discover all the pearls of wisdom that lie hid in its depths' (Baha'u'llah 1992:par 182).

From questioning reality one obtains a body of facts - but this body of facts is not, in itself, science.

- The third step is synthesis into laws, codes of conduct, new world-views. It is perhaps this final stage which Albert Einstein had in mind when he called science a 'free creation of the human spirit', since any synthesis must inevitably bear the stamp of the culture in which the synthesis is performed, and is what gives any science its unique human flavour. This last step is no less essential to science than the preceding two; it is the fruit of the scientific method. It requires logic and insight, reason and intuition. When a religious believer takes this third step in the scientific method, he attains the stage of certitude. When a religious community takes this third step by letting the knowledge and insight gained and distilled from revelation take form in laws, codes, world-views and patterns of thought, a new dynamism is injected into the community; when an entire society does this, a new civilisation is born and develops.

One hour's reflection is worth seventy years of pious worship.

(Tradition of Muhammad in Baha'u'llah 1931:238)

The source of crafts, sciences and arts is the power of reflection. Make ye every effort that out of this ideal mine there may gleam forth such pearls of wisdom and utterance as will promote the well-being and harmony of all the kindreds of the earth.

(Baha'u'llah 1978:42)

## 6. Conclusion

The world today desperately needs a new reconciliation of science and religion. Such a reconciliation would have to be characterised by a new appreciation of God and of man's spiritual nature and capacity, without a concomitant dilution of the scientific impulse which has carried us, as a species, to the threshold of intellectual maturity and technological mastery of the planet.

Much of the discord and disunity of the world is created by these man-made oppositions and contradictions. If religion were in harmony with science and they walked together, much of the hatred and bitterness now bringing misery to the human race would be at an end ... Put all your beliefs into harmony with science; there can be no opposition, for truth is one. When religion, shorn of its superstitions, traditions, and unintelligent dogmas, shows its conformity with science, then will there be a great unifying, cleansing force in the world which will sweep before it all wars, disagreements, discords and struggles - and then will mankind be united in the power of the Love of God.

('Abdu'l-Baha 1978:144, 146)

What of the future of science and of civilisation? 'Abdu'l-Baha, at the end of the First World War, stated that in the provisions of the Treaty of Versailles were contained the seeds of another war, 'fiercer than the last'. He also stated, however, that by the end of the twentieth century the political powers would forge the beginnings of a lasting peace which,

as it developed, would become permanent. In such a world, science would begin to rise to the plenitude of its influence as servant of civilisation:

The enormous energy dissipated and wasted on war, whether economic or political, will be consecrated to such ends as will extend the range of human inventions and technical development, to the increase of the productivity of mankind, to the extermination of disease, to the extension of scientific research, to the raising of the standard of physical health, to the sharpening and refinement of the human brain, to the exploitation of the unused and unsuspected resources of the planet, to the prolongation of human life, and to the furtherance of any other agency that can stimulate the intellectual, the moral, and spiritual life of the entire human race.

(Shoghi Effendi 1938:204)

In such a world society, science and religion, the two most potent forces in human life, will be reconciled, will cooperate, and will harmoniously develop ... such is the goal towards which humanity, impelled by the unifying forces of life, is moving.

(Shoghi Effendi 1938:204)

I would like to end with a final quote from Baha'u'llah (Shoghi Effendi 1938:168):

The heights which, through the most great favor of God, mortal man can attain in this Day, are as yet unrevealed to his sight.

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