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Australian Bahá'í Studies promotes analysis of issues relevant to the Australian Bahá'í community. It encourages exploration of the history, teachings, and philosophy of the Bahá'í Faith in systematic, reflective, or artistic ways. It thus offers itself as a medium of communication for anyone who is interested in the development of the Australian Bahá'í community. In view of the Bahá'í vision of scholarship as an activity accessible to all, rather than one limited to a small academic community, *Australian Bahá'í Studies* seeks input from people of diverse backgrounds and viewpoints, in a way that assists in redefining what is meant by scholarly practice. The readers of the journal have an interest in teaching the Bahá'í Faith, serving its administrative organs, and participating in its community life. It is also of interest to those studying the model that the Bahá'í community offers for the resolution of contemporary problems.

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Ether, Quantum Physics and the Bahá'í Writings

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Abstract

This paper deals with the use of the term "ether" in the writings and recorded utterances of 'Abdu'l-Bahá, and tries to correlate His definition of this term as a medium not only for the propagation of electromagnetic radiation, but also for the communication of spiritual impulses to the physical world with modern scientific concepts, especially those of quantum physics. In doing so it demonstrates that many statements about the origin and nature of energy and matter, the creation and evolution of our universe and other scientific topics that can be found in the Bahá'í Writings, while they contradicted the concepts current amongst contemporary scientists at the time they were made, actually alluded to and anticipated more accurate theories that were to emerge many years later.

The ether concept

One of the oldest and most puzzling questions of physics deals with the nature of light, and it was two of the most outstanding thinkers of their time who, on account of this question, split scientists into two parties in the seventeenth century: Sir Isaac Newton, famous for his discovery of the law of gravity and arguably the most influential physicist of all times, and Christiaan Huygens, discoverer of the Saturn moon, and inventor of the pendulum clock and numerous optical instruments. "Light consists of particles", Newton had postulated, whereas Huygens was fully convinced of having found in his wave theory the correct explanation for all light phenomena. Contrary to Newton's particle theory, which needed many different kinds of light particles—so-called corpuscles—to explain the different colours of the light spectrum, Huygen's wave theory was easily able to explain this phenomenon by differing wave lengths. Nevertheless, it had a different and definitely no less important weak point.

Experience had shown that waves always need a medium in which they can spread. Hence it is the air for example that transmits sound and the water that transports ripples. However, what could be the medium responsible for

the propagation of light waves? Since sunlight is obviously able to travel to the earth through the vacuum of space, it could not possibly be air. Scientists accepting Huygen's wave theory therefore simply made use of a substance that had already been used as a substitute for the unimaginable and frightening nothingness at the times of the ancient Greeks—the ether.

Ether, which, after the heyday of ancient Greek philosophy, had only been thought of as a spiritual and immaterial substance, was thus brought to physical life again after more than two thousand years. In order to fulfil its task of transmitting light waves, however, it had to have some extremely unusual qualities: to transport light even from the most distant stars and galaxies, it had to uniformly fill the entire universe. It had to be dense enough to allow for elastic collisions between its atoms to make a forward movement of light waves possible, while at the same time refraining from exerting any braking action on the celestial bodies. Furthermore, it had to be weightless and transparent and, in many other ways, totally different from any other known substance.

In spite of all these unusual and hardly imaginable qualities demanded of the ether, the theory of its existence established itself as an important component of the mechanical worldview, and by the beginning of the nineteenth century, was even regarded as proven following the result of experiments that had clearly demonstrated the wave-like nature of light.

When James Clerk Maxwell, with his famous equations, finally managed to show that not only optical, but also electric and magnetic effects were wavy in nature and could thus be described with a single common term as electromagnetic waves, ether gained, in addition to being the transporter of light, a number of additional tasks. It was no longer solely the medium in which visible light spread, but was also responsible for transmitting gamma, X- and ultraviolet rays, heat or infrared radiation, micro- and radio waves, and thus for all types of electric and magnetic powers.

'Abdu'l-Bahá's definition of ether

It seems to have been this theory of the spreading of electromagnetic radiation through the ether that 'Abdu'l-Bahá had referred to when using ethereal matter as an example for an "intellectual", that means not physically perceptible, reality:

> *[E]thereal matter, the forces of which are said in physics to be heat, light, electricity and magnetism, is an intellectual reality, and is not sensible* (Some Answered Questions 84).

In a letter to the Swiss scientist Dr August Forel, He also confirmed the existence of the ether in the following words:

> *[T]he existence of the Deity is intangible, yet conclusive spiritual proofs assert the existence of that unseen Reality. … For instance, the nature of*

> *ether is unknown, but that it existeth is certain by the effects it produceth, heat, light and electricity being the waves thereof. By these waves the existence of ether is thus proven* (*Tablet to August Forel* 16).

Here a scientifically well-versed reader might start wondering because, while the first statement was made at a time when the ether theory was still widely used and accepted, the second was written about one and a half decades later, when the scientific world, due to several new discoveries, had already discarded this hypothesis. Already in the years 1881 and 1887, the two American physicists Albert Abraham Michelson and Edward William Morley had discovered that a ray of light pointed in the direction of the earth's movement around the sun is not, as initially expected, "slowed down" by the ether but, relative to the earth's surface, moves exactly as fast as one pointed in any other direction. These experiments, which, instead of proving the existence of ether as had been intended, clearly challenged the theory of its existence, went down in the history of physics as the Michelson-Morley experiments. In spite of their results, which were devastating for the ether hypothesis, however, it needed a figure like Albert Einstein and his famous theories of relativity to finally banish this hypothesis from the models of physics and the minds of scientists the world over. These theories formulated in 1905 (special theory of relativity) and 1915 (general theory of relativity), though not taken very seriously by a majority of the scientific world for the first few years, did finally achieve general acceptance after 1919, when some of their predictions were experimentally verified.

Why is it, one might therefore wonder, that 'Abdu'l-Bahá repeatedly used such an outdated and disproved theory even at a time when it had already been discarded?

Considering the context in which these statements were made, one will find that in most cases He used the ether as an example to demonstrate that there are things which are not sensible to human beings but still evidently exist (another example of such an "intellectual reality" would be "the Deity" i.e. God) to refute empirical world views held by some of His contemporaries. If such an example is used to deal with a question that is essentially different in nature (for example the question of the existence of God) this does necessarily mean, one might now argue, a confirmation of the whole concept associated with this example. One can use the phrase, "the sun is rising", for example, without necessarily affirming the incorrect Ptolemaic system that assumes the sun revolves around the earth. As an answer to the question why 'Abdu'l-Bahá used this specific example to support His argument, one could thus state that He chose it because it was easily understood by His addressee rather than because He wanted to make a scientific statement about physics.

Nevertheless, since a scientist like Forel in the year 1921 was most probably

aware of the incorrectness of the ether hypothesis, and considering the fact that 'Abdu'l-Bahá could have easily chosen a different example (e.g. radioactivity) to prove His point of the existence of non-sensible realities without exposing Himself to the criticism of being scientifically incorrect, this argument is not necessarily completely convincing.

Therefore, in order to find a different and hopefully more satisfying explanation for the usage of the ether concept in the writings and utterances of 'Abdu'l-Bahá, we should first take a closer look at the person who was primarily responsible for the abolishment of the hypothesis of its existence, Albert Einstein.

In his theories, the four-dimensional space-time continuum performs the tasks previously expected of ether by being the propagator of all types of electromagnetic radiation, which, as Einstein also proved, does not consist solely of waves or only of particles, but actually has a twin-nature combining these two characteristics. Hence, he had simply transferred the postulated qualities of ether to empty space, or rather the vacuum, in which electromagnetic fields are formed that can then, in a way not yet explainable, exert an influence on matter.

> *Physical space and ether are just two different expressions for one and the same thing; fields are physical states of space.* (Trans. from: Einstein 143)

> *It seems like the only option we have is to simply accept the fact that space does have the ability to transmit electromagnetic waves, without puzzling our heads too much about the details. We can even continue using the word "ether", but from now on we only want to understand by it a certain quality of space.* (156)

According to Einstein, it is thus quite correct to use the term "ether" to describe the ability of space to transmit electromagnetic radiation. What Einstein rejected in the ether hypothesis was solely the idea of the physical existence of the ether, or rather of its atomic structure. This, however, had also been the way in which 'Abdu'l-Bahá had always used this terminology. For Him the ether had never been a physical but always an "intellectual", that is an immaterial, reality. Nevertheless, He did not seem to confirm Einstein's concept of empty space, which, as the latter also had to admit, was not able to offer a satisfactory explanation for the propagation of electromagnetic radiation, as for 'Abdu'l-Bahá "a void is impossible and inconceivable" and the celestial bodies "fall within subtle, fluid, clear, liquid, undulating and vibrating bodies"

It took a few decades before quantum physicists were able to find an explanation for the spreading of electromagnetic waves in the vacuum, which

also, without any such intentions of course, confirmed 'Abdu'l-Bahá's rejection of the idea of an absolute void. What these scientists found out is that due to quantum fluctuations, even in a seemingly matter free vacuum, a constant formation of all kinds of elementary particles occurs, which, after they have been generated, immediately disappear again. For each particle formed in this manner, also the corresponding antiparticle appears, and after a fraction of a second these particles destroy each other again. The formation and destruction of these particles thus always occurs in pairs. These so-called virtual particles seem to borrow the energy needed for their creation from nothingness, solely to release it immediately again in their act of mutual destruction. In this manner, the overall energy level of the vacuum is maintained, despite this constant uptake and release of energy. Thus, in accordance with the above words of 'Abdu'l-Bahá, the vacuum is anything but a void. It is in fact filled with tiny particles, which, like in a ghostly dance, are constantly formed everywhere and immediately disappear again.

If a particle of matter is now added to this "living vacuum" or the latter is exposed to a force field, the result will be an increased formation of certain kinds of virtual particles in the immediate neighbourhood of this source of disturbance. Around a magnet, for example, an increased formation of virtual light particles, so-called photons, occurs. These virtual photons can then interact with other particles and in this way create and transmit the magnetic force of the magnet.

Quantum physicists now hope to be able to explain in the near future all types of force fields with the help of these virtual particles. At the present stage they have managed to explain three of the four existing fundamental forces of physics in this way. According to these field theories (or more correctly "unified field theories"), the carriers of electromagnetic forces are, as already mentioned, virtual photons. The strong nuclear force, which binds quarks together, is transmitted by gluons and the carriers of the weak nuclear force, which plays a role in the atomic disintegration of radioactive elements, are W and Z bosons. So-called gravitons are thought to transmit the force of gravity, but no one has so far been able to prove their existence. The movement of a photon in a vacuum, or in other words the spreading of an electromagnetic wave in space, according to these theories, can be described as "the reaction of the vacuum to its [i.e. the photon's] presence, which is transported from place to place" (Trans. from: Treumann 254).

In this way the vacuum, with all its qualities and effects, after years and decades of research, has proven to be exactly what 'Abdu'l-Bahá had referred to when using the term "ether". In the words of a modern-day physicist this is described as follows:

> *Ether … does not seem absent to us: It can, on the contrary, be understood as the vacuum itself with all its reactions.*

The ability of empty space to create virtual particles, which are the transmitters of the signals, exactly corresponds with the qualities of ether.

> *Physics got into the habit of not using the disapproved of and defamed term 'ether' for this distance effect in the vacuum; it has put in its place the term 'field'* (254 f).

In this vacuum or field, matter and energy are interchangeable and basically the same. An area of high field strength manifests itself in a matter particle, which, in its turn, has an effect on the surrounding space or as 'Abdu'l-Bahá explains it: "… the substance and primary matter of contingent beings is ethereal power".

Nevertheless, the creation of force fields is, according to 'Abdu'l-Bahá, only one aspect of the twofold nature of ether. In a commentary on a passage in Bahá'u'lláh's Lawh-i-Hikmat, which states that "the world of existence came into being through the heat (al-harárat) generated from the interaction between the active force and that which is its recipient." (*Tablets of Bahá'u'lláh* 140 f.) 'Abdu'l-Bahá explains thus: "… ethereal substance is itself both the active force and the recipient: in other words, it is the sign of the Primal Will in the phenomenal world … The ethereal substance is, therefore, the cause since light, heat and electricity appear from it. It is also the effect, for as vibrations take place in it, they become visible. For instance, light is a vibration occurring in the ethereal substance."

Following this explanation, the term ether in 'Abdu'l-Bahá's usage therefore refers to a manifestation ("sign") of the creative word of God (the "Primal Will") in the world of matter, that is the expression of God's will in the "phenomenal world" and thus a medium between the spiritual realm and our material universe. It acts as an active agent because force fields are created in it that give form and shape to matter. Additionally, ether is at the same time the recipient of these forces, because this matter, as explained above, is in its turn nothing but an expression of strong fields of "ethereal power" or energy.

In another passage, 'Abdu'l-Bahá further elaborates on this twofold nature of ether that is omnipresent in nature, this time using the terms "Fashioner" and "Fashioned", which appear to be identical in meaning to the "active force and that which is its recipient":

> *Similarly they have said that the potentialities (qábiliyyát) and the recipients of the potentialities (maqbúlát) came into being and were created simultaneously. For example it has been stated that all things are composed of two elements: the 'Fashioner' (gábil) and the 'Fashioned' (magbúl). By 'Fashioned' is meant substance (mádda) and primary matter (huyúlá) and by 'Fashioner' is meant the form and shape which confines and limits the primary matter from its state of indefiniteness and freedom to the courtyard of limitation and definite form. For example,*

> *letters and words are composed of two things: The first is the substance which is ink and pencil-lead and is the 'Fashioned' while the second is the forms and features of the letters and words which are the 'Fashioner'. Now this specific substance and this specific form were created simultaneously although the general substance was created before the specific form. It is clear that, before the existence of this specific form and shape, the ink had an external existence which had no specific form or shape and had the ability and potential to assume the shape of any letter or word and was not restricted or specified to a particular shape or form. Similarly, the general shape and form had an existence before substance specified them since before being specified by substance (which is ink or pencil-lead) the general shape and form of letters and words had a mental existence in the mind of the writer. Moreover, general form and general substance were also created simultaneously. For it is not possible for a thing to have an external existence and not to be formed into a shape because substance and primal matter in order to exist need shape and form; while shape and form in order to appear need substance.*

In the same way that the letters in the above example given by 'Abdu'l-Bahá pre-exist in a non-material form in the mind of the writer, also every being in this physical world has a spiritual counterpart in the Logos, or Primal Will that is gradually imprinted upon matter to give it its desired form and shape. It is these archetypes or blueprints that 'Abdu'l-Bahá refers to when He speaks for example of the eternal existence of man. He is therefore not saying in these cases that human beings have always physically lived and existed on earth, but that God had always planned to create them and therefore an eternal archetype of human beings had always been (pre-) existent in the Logos.

Whereas it is the writer who, in 'Abdu'l-Bahá's example, brings the letters from a potential and archetypal existence to material reality, it is the love of God or the Holy Spirit which imprints the archetypes that exist for all created things upon matter and thus, through evolutionary processes, "creates" all contingent beings:

> *…while God does not create, the first principle of God, Love, is the creative principle. Love is an outpour[ing] from God, and is pure spirit. It is one aspect of the Logos, the Holy Spirit. It is the immediate cause of the laws which govern nature, the endless verities of nature which science has uncovered. In brief, it is Divine Law and a Manifestation of God. This Manifestation of God is active, creative, spiritual. It reflects the positive aspect of God.*

There is another Manifestation of God which is characterized by passivity, quiescence, inactivity. In itself it is without creative power. It reflects the

negative aspect of God. This Manifestation is matter.

> *Matter, reflecting the negative aspect of God, is self-existent, eternal, and fills all space. Spirit, flowing out from God, permeates all matter. This spirit, Love, reflecting the positive and active aspect of God, impresses its nature upon the atoms and elements. By its power they are attracted to each other under certain ordered relations, and thus, uniting and continuing to unite, give birth to worlds and systems of worlds. The same laws working under developed conditions bring into existence living beings. Spirit is the life of the form, and the form is shaped by the spirit. The evolution of life and form proceeds hand in hand. The powers of spirit are evolved by the experiences of the form, and the plasticity of the matter of the form is developed by the activity of the spirit. Working up through the mineral and vegetable kingdoms, sense-perception is reached in the animal, and the perfection of form is attained in man* (*Bahá'í Scriptures* 301).

> *The forms or bodies of component parts, infinite in variety, which in the course of evolution spirit builds as the vehicles of its expression, are, because of the instability of matter, subject to dissolution. As they disappear, others are built following the same patterns, carrying on the characteristics of each.*
>
> *When in the course of evolution the stage of thought and reason has been reached, the human mind acts as a mirror reflecting the glory of God* (302).

The importance of ether in creation and evolution

The previous quotation thus states that evolution is not an arbitrary process, but the gradual expression of spirit in matter. The vehicles for this creative principle or spirit appear to be the fundamental forces known to physicists, which are, as 'Abdu'l-Bahá explains, manifestations of the love of God, that is the Holy Spirit.

It is interesting to note in this context that Bahá'u'lláh, when referring to the act of creation, talked about a single mathematical structure (a line) that was turned into a fourfold one (a cross) by God: "Know then, that God, praised and glorified be He, took a line, split it lengthwise into two, rotated the one about the other, and so made from them the universe." This account of creation might relate to the one force described by the unifying field theory, that was the only one at the time when our universe had just been "born" (and was still extremely hot), and which then, after the cosmos had cooled down a little, manifested itself in the four fundamental forces that we know today.

The heat that prevailed in this early period of time is also mentioned in many of the statements on creation found in the Bahá'í Writings. This early heat was a result of the extremely high quantities of electromagnetic radiation

that existed at this time and which influenced sub-atomic particles to move around enormously fast. It was thus in the truest sense a result of "the interaction between the active force and that which is its recipient" and the cause of motion in the early universe:

> *… the cause of motion [harakah] hath ever been heat, and the cause of heat is the Word of God.*

When the early universe later cooled down and further expanded, this heat gradually decreased. This made it possible for sub-atomic particles, that had only existed individually before, to create the first hydrogen and helium atoms, which then, billions of years later, formed clouds of gas that, due to the force of gravity, gradually become denser and denser, thus reaching the state of fluids and finally becoming solid matter. It might have been this development Bahá'u'lláh had, many years before scientists formulated such a theory, alluded to in the following terms:

> *Know that the first tokens that emanated from the pre-existent Cause in the worlds of creation are the four elements: fire, air, water and earth… Then the natures (ustuqusát) of the four appeared: heat, moisture, cold and dryness—those same qualities that you both know. When the elements interacted and joined with one another, two pillars became evident for each one: for fire, heat and dryness, and likewise for the remaining three in accordance with these rules, as ye are aware.*

The four classical Greek elements of fire, air, water and earth mentioned here might thus correspond to the four physical states of matter: radiant (or plasma), gaseous, liquid and solid which, as we can see, are given by Bahá'u'lláh in the correct order of their appearance in our universe.

The two natures in them (temperature and moisture) could have a number of different meanings: Temperature (together with density, pressure and some other factors) distinguishes the physical state matter is in. If solid matter is gradually heated up, it first melts to become a liquid, then evaporates to form a gas and in the end is transformed into a radiant plasma in which no complete atoms, but only ions and free electrons, can exist. Therefore, temperature is definitely a "pillar", that is a distinguishing factor for the physical state of matter.

Moisture, on the other hand, is extremely important for biological processes and is therefore a "pillar" for organic matter.

Similar accounts about the evolution of our universe, which are in complete conformity with modern scientific theories, are also given by 'Abdu'l-Bahá, who states that:

> *there is no doubt that in the beginning the origin was one: the origin of all numbers is one and not two. Then it is evident that in 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 (*Some Answered Questions* 181).

And furthermore:

Then it is clear that original matter, which is in the embryonic state, and the mingled and composed elements which were its earliest forms, gradually grew and developed during many ages and cycles, passing from one shape and form to another, until they appeared in this perfection, this system, this organization and this establishment, through the supreme wisdom of God (183).

The Heisenberg uncertainty principle and its implications for the interaction between mind and matter

'Abdu'l-Bahá's mention of the "original matter" here brings us back to our initial topic, the ether, which, according to His words, is both its originator and its shaper.

The idea that this ether is in fact the medium through which spirit can exert an influence on matter completely contradicted scientific theories at the time it was formulated, because in the deterministic worldview of contemporary physicists the movement and development of all things, from the largest celestial bodies down to single atoms and even subatomic particles, was completely and fully determined by the laws of physics (i.e. Newton's laws of mechanics). These laws seemed to dominate nature so completely and inescapably, that the idea of any kind of spirit that can influence matter or in other words anything like a free will, which might have enabled human beings to escape from the all encompassing law of cause and effect, would have been absurd.

This worldview was, however, soon to experience its almost complete extinction.

According to quantum mechanics, it is, as physicists found out in the 1920s, not only electromagnetic radiation that has a dual nature consisting of both particles and waves, but this dualism is in fact a quality that can be found everywhere in nature. Every single particle, every atom, molecule, complex atomic structure and biological organism and also every virtual particle and force field has such a twofold nature.

However, the wave function that is associated with a particle is fundamentally different to any other known types of waves (e.g. sound waves). It is a function that displays the information we can have about a certain

particle by describing the probability of this particle having certain qualities such as velocity, position or spin. It can therefore tell us for example that the probability that a particle can be found at a certain position x is five times higher than the probability of it being at position y. In a similar way it can also tell us something about the probability of the particle having a certain velocity. It cannot, however, give us any exact and unambiguous information about any of these qualities. If this uncertainty is not exact enough for us, we can of course make a measurement to find out the exact position of the particle for example, but in doing so, we inevitably cause the wave function of this particle to collapse (because there is no probability of the particle being anywhere else any longer), and the result of this collapse will be that it will henceforth not be possible anymore to find out what the exact velocity of that particle was at the time its position was measured. If on the other hand we want to measure the exact velocity of the particle, we will unavoidably lose the possibility of attaining any exact data about its current position.

One might now want to argue that this difficulty in obtaining accurate data can only be due to a lack of more precise methods of measurement. Such an opinion was in fact held by many physicists, including Albert Einstein, in the early years of quantum physics, but it soon proved to be incorrect. Many different experiments that have since been carried out clearly and unambiguously demonstrated that this indeterminist randomness is in fact an intrinsic part of nature. Regardless of how strange that might sound, a particle cannot have simultaneously both an exact position and an exact velocity (Gell-Mann 139). The more exactly the one is determined, the fuzzier the other one becomes.

Quantum physicists nowadays believe that a particle in fact does not have any exact and determined features, but rather exists in a hybrid state of many different, more or less probable qualities as long as no measurement is made. Some even go so far as to suggest that a wave function can only collapse if it is a conscious mind that observes or measures a quantum phenomenon and that therefore even the macroscopic apparatus used to make the measurement goes into some sort of quantum limbo until a human being actually looks at it. Whatever interpretation might turn out to be more accurate, it is clear that by making the decision to determine a particle's position for example, we take away the possibility of the particle having had a definite velocity at the time the measurement was made. We will still be able to make a statement about its most probable velocity, but there will no longer be a way of determining if this guess is correct. It is this principle, called the Heisenberg uncertainty principle after its discoverer Werner Heisenberg, that Paul Davies, professor of theoretical physics, is referring to when saying:

> *The fact that you can decide to create either an atom-at-a-place or an atom-with-a-speed confirms that, whatever its nature, your mind does, in a sense, reach into the physical world* (Davies 141).

By demonstrating the possibility of the existence of a mind over matter phenomenon in quantum physics, the Heisenberg uncertainty principle has thus, after centuries of deterministic thinking, made it scientifically justifiable again to speculate about ways in which spirit might be able to influence matter on a quite fundamental level. It should be noted, however, that such phenomena have only very recently come under the scrutiny of reputable researchers and that the existing hypotheses about these matters are thus still of a rather speculative nature. The ideas and hypotheses summarized in the following sections are therefore not necessarily representative of the current thinking of a majority of scientists.

God and quantum physics

We have seen above that the writings and utterances of the Central Figures of the Faith describe material forms (e.g. the physical bodies of living organisms) as something that "in the course of evolution spirit builds as the vehicles of its expression" (*Bahá'í Scriptures* 302) and that these forms are said to pre-exist in the divine plan or the Logos before they are realised through an evolutionary process in the material world. Having furthermore found out that 'Abdu'l-Bahá's ether, which can be related to modern concepts of force fields, appears to be the medium through which spirit is stated to influence and shape matter, we can now go on to examine how quantum physics, and especially the Heisenberg uncertainty principle described above, might be able to help us understand on what level such an interaction between spirit and matter might take place.

On a microscopic (i.e. atomic or sub-atomic) level, the uncertainty principle is of vital importance as it allows, for example, for virtual particles to be created from nothingness without any obvious cause and makes it possible for others to have qualities that no one would have expected them to have. According to this principle, a single particle can even go through two slits in a barrier at the same time or simultaneously be at two totally different places as long as no measurement is made that forces it to adopt one of the two (or more) possibilities.

On a macroscopic level, the uncertainty becomes less and less important, the greater the quantity of particles that are involved. This is due to the fact that the probability of a large group of atoms collectively behaving in a way that is already very improbable for any single one of them is extremely low. Nevertheless, quantum physics states, for example, that it is not absolutely impossible for an object of visible size to be found at a totally different place the next time someone looks at it, without anyone or anything having moved this object to its new position. This is also the reason why quantum physicists cannot deny the possibility of the existence of a God that can cause things to happen that were not foreseeable and might even appear miraculous

to us. The way in which such divine interference in the material world might take place is described thus by the physicist and mathematician Euan Squires.

> *Quantum theory offers at least two possible roles for a 'God'…*
>
> *The first role is to make the 'choices' that are required whenever a measurement is made that selects from a quantum system one of the possible outcomes. Such a God would remove the indeterminacy from the world by taking upon himself those decisions that are not forced by the rules of physics. … He would be very active in all aspects of the world, and would be totally omnipotent within the prescribed limits. It is interesting to note that this role might even permit 'miracles', if we were to regard these as events so highly unlikely that they would be effectively impossible without very specific, and unusual, 'divine' choice. For example, according to quantum theory, there must be a small, but non-zero, probability that if I run into a wall, then I will pass right through it. The second possible role for a God to play in quantum theory is more relevant to our principal topic. God might be the conscious observer who is responsible for the reduction of wavefunctions. Whether, in addition, he also decides the outcome of his observations, as in the above paragraph, or whether this is left to chance is not important here. What is important is the fact that God must be selective-he must not reduce all wavefunctions automatically (Squires 66 f).*

The elegance of such an interpretation lies in the fact that it allows God to influence the material world without having to break the natural laws by which this world is governed. It appears logical that an all-knowing and omnipotent God as portrayed in the Bahá'í Writings would rather create a universe controlled by laws that allow him to influence its development than one whose laws He would have to supersede to allow for such an act of divine interference.

The relationship between body and soul

One area where, as the Bahá'í Writings clearly state, spirit influences matter is in the interaction between the human body and soul:

> *As outer circumstances are communicated to the soul by the eyes, ears, and brain of a man, so does the soul communicate its desires and purposes through the brain to the hands and tongue of the physical body, thereby expressing itself (Paris Talks 86).*

The soul, according to 'Abdu'l-Bahá, is completely immaterial and therefore free from all physical limitations and independent of time and space. It interacts with the brain through a medium called "common faculty" (*Some Answered Questions* 210). This faculty, which seems to be identical with or

at least related to the human mind, is a partly spiritual ("pre-existent") and partly physical ("contingent") entity that "is connected with the brain" (242) and controls the functioning of the human body:

> *The mind force—whether we call it pre-existent or contingent—doth direct and co-ordinate all the members of the human body, seeing to it that each part or member duly performeth its own special function (Selections 48).*

The faculties of the human soul are described by 'Abdu'l-Bahá as the powers of imagination, thought, comprehension, memory and the common faculty described above (*Some Answered Questions* 210). These powers of the soul are called inner perception (*Promulgation* 325) in contrast to outer or sense perception, the main faculty of the human body. Other aspects of this inner perception are the ability to dream, (*Promulgation* 416) self-consciousness (*Promulgation* 258) and free will. The human soul has therefore "two means of perception: One [sense perception] is effected through instrumentality; the other [inner perception], independently" (*Promulgation* 416).

This description of the relationship between the human body and soul is remarkably similar to the picture drawn by the physiologist and Nobel Prize winner Sir John C. Eccles who distinguishes between the outer sense of perception and the inner senses of thoughts, feelings, memories dreams, imaginings and intentions, which he describes as properties of the immaterial mind (Eccles 184). Largely basing his argumentation on Margenau's work *The Miracle of Existence,* in which the latter proposes a description of the mind as "a field in the accepted physical term" or more precisely a quantum mechanical "probability field" (97), Eccles suggests that some components of the human brain might act as quantum-based receptors that can communicate information from the mind to the brain and from there to the rest of the human body. The structures he suggests for this role are certain synapses (i.e. interfaces between individual nerve cells) of the pyramidal cells in the cerebral cortex of the brain (Eccles 187). The firing of a nerve cell can be induced at these synapses by the release of neurotransmitters, which travel across the synapse from one nerve cell to the other, from tiny vesicles that form a presynaptic vesicular grid at the surface of a synapse. As the vesicles at these synapses are already in apposition for exocytosis (release of transmitters) and all it takes to trigger such an event is the displacement of 10^{-18} g of vesicular membrane, such an event would be "within the range of quantum mechanics and Heisenberg's uncertainty principle" (189). A mental activity such as thinking would, according to this model, "do no more than select for exocytosis a vesicle already in apposition" (190), and the combination of a larger number of such quantum mechanical events could then lead to the firing of a nerve thus communicating an immaterial mental impulse to the

brain and nervous system.

Another scientist engaged in research of this kind is Sir Roger Penrose, one of the worlds leading physicists and mathematicians. His hypotheses are similar to those of Eccles in that he also describes a process in which quantum phenomena might induce the firing of nerve cells, but differ from the former ones in regards to the physiological configurations proposed to fulfil this role. The structures which he suggests to serve as such quantum-based receptors to the human consciousness, are the so-called microtubules, tiny tubes filled with vicinal (i.e. atomically ordered) water that are part of a neuron's cytoskeleton. In these structures, Penrose states, quantum-entangled or coherent phenomena (many particles being entangled in such a way that they behave like one single particle with only one collective quantum state) might occur that could cause nerve cells to fire as a result of purely spiritual activities of human consciousness, that is activities of the human soul:

> *On the view that I am tentatively putting forward, consciousness would be some manifestation of this quantum-entangled internal cytoskeletal state and of its involvement in the interplay between quantum and classical levels of activity. The computer-like classically interconnected system of neurons would be continually influenced by this cytoskeletal activity, as the manifestation of whatever it is that we refer to as 'free will'. The role of neurons, in this picture, is perhaps more like a magnifying device in which the smaller-scale cytoskeletal action is transferred to something which can influence other organs of the body-such as muscles. Accordingly, the neuron level of description that provides the currently fashionable picture of the brain and mind is a mere shadow of the deeper level of cytoskeletal action-and it is this deeper level where we must seek the physical basis of mind! (Penrose 376)*

Both of these models therefore propose an interaction between immaterial mental activities and the human brain and nervous system based on the theories of quantum mechanics, especially that of Heisenberg's uncertainty principle. From a Bahá'í perspective, such an approach is supported by the fact that at least one aspect of this nervous system, the "sympathetic nerve", is described by 'Abdu'l-Bahá as "neither entirely physical nor spiritual, but … between the two [systems]" (*Tablets of 'Abdu'l-Bahá Vol. 2* 309). Much more solid scientific research is probably necessary to develop more complete theories and for some kind of consensus to form among scientists regarding these phenomena. The fact that preliminary models such as the two described above have already been formulated by reputable and world-renowned scientists, however, demonstrates that a fundamental shift of consciousness in regards to such topics is already starting to take place within the scientific world.

Conclusion

The above paragraphs have shown that striking similarities seem to exist between some scientific concepts as described in the Bahá'í Writings and the theories of modern physics—especially those of quantum physics—which, for the most part, only emerged long after the passing of the Central Figures of the Bahá'í Faith.

In these concepts, the ether as defined by 'Abdu'l-Bahá seems to play the significant role of a medium for the expression of spiritual impulses in the physical world and is thus of importance for the understanding of various Bahá'í ideas such as those of divine creation, a process of evolution that is at least partially guided by spiritual impulses, the relationship between the human body and soul, God's influence on the material world, etc.

By comparing this Bahá'í concept of ether to the models of quantum mechanics, it can be demonstrated that all these ideas appear to have counterparts in modern scientific literature and that the understanding of "the essence of existence" being "a spiritual reality because invisible forces of the spirit are the origin of matter and the foundation thereof" (Shoghi Effendi) can therefore not simply be dismissed as unscientific anymore. Quantum mechanics has in this way made a big step towards the reconciliation of science and religion, "the two wings upon which man's intelligence can soar into the heights, with which the human soul can progress" (*Paris Talks* 143).

As a final observation it should be noted that because many of the scientific discoveries and theories referred to in the Bahá'í Writings were yet unknown to the contemporaries of Bahá'u'lláh and 'Abdu'l-Bahá, They obviously could not have used the technical terms applied for their description nowadays. Instead, They had to make use of and sometimes redefine already existing concepts and terms (e.g. the ether concept or the idea of the four elements of ancient Greek philosophy) in a way that they would accurately explain what They had in mind. On a superficial level, this might give the impression that the Central Figures of the Faith did not actually formulate any new ideas about physical reality. When we study Their Writings more closely, however, we come to realise that this is only the case because Their references to such topics were purposefully made in such a way that they would neither offend Their addressees who believed in certain (erroneous) contemporary scientific concepts, nor make use of a terminology that these people would not have been able to understand.

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Towards a Spiritual Methodology of Scholarship: Some Reflections for the Youth

Chris Jones[1]

Introduction

This paper is written for the youth. It is an attempt to explore some of the more inspiring elements of Bahá'í scholarship that do not often get "air-time". It is written with a confidence in both the timeliness and the capacity of all youth to arise and enthusiastically[2] recreate civilization through realizing the transformative spiritual capacity of Bahá'í scholarship. The youth are the galvanising force that can enable a world civilization to become conscious of its own Divine origin, spiritual nature, sacred purpose and glorious destiny.

> *The transformation which is to occur in the functioning of society will certainly depend to a great extent on the effectiveness of the preparations the youth make for the world they will inherit.*
>
> (Universal House of Justice in Scholarship, 19)

It is time to realise and enjoy a culture of Bahá'í scholarship that 'Abdu'l-Bahá says is

> *...the dynamic power in the arteries of life; it is the very soul of the world.* ('Abdu'l-Bahá, Secrets, 109)

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2 The word "enthusiasm" comes from the classical Greek *enthousiazein* which can be translated to mean "to be possessed or infused with the Spirit of God"

It is the 'mightiest' and 'unshakable' 'pillar' 'of the Faith of God'.
('Abdu'l-Bahá, Selections, 126)

It is hoped that this paper will encourage a confidence in both the capacity and the duty of every single youth to pursue their own unique gift of genius in service to the Faith and the world. Scholarship is not the exclusive domain of academics in high towers of remote contemplation, rather it is the

inescapable duty imposed on every one of the friends of God...
('Abdu'l-Bahá, Selections, 126)

Among a range of implications, this statement indicates two important issues for our discussion. First, that scholarship must encompass a diverse range of approaches, as not all people are suited to academic professions or methods and 'Abdu'l-Bahá says scholarship is for 'every one of the friends of God'. The second thing this statement says is that each one of us has been given the gifts necessary to be scholars. God would not impose upon us an inescapable duty if She had not also given us the gifts to fulfil that duty.

Last, it is hoped that the youth will appreciate the urgent need to develop their own gifts of scholarship due to its capacity for developing solutions to all the worlds ills, and thereby mitigating the numerous and great forms of suffering the children of this world face every day.

...they must prepare themselves for the great tasks that lie ahead. This particularly applies to Bahá'í youth. Young men and women in the Faith must be deep and thoughtful scholars of its teachings, so that they can teach in a way that will convince people that all the problems facing them have a remedy.

The Cause needs more Bahá'í scholars, people who not only are ***devoted*** *to it and* ***believe*** *in it and are* ***anxious*** *to tell others about it, but also who have a* ***deep grasp of the Teachings and their significance,*** *and who can* ***correlate its beliefs with the current thoughts and problems of the world*** *(emphasis added).*

The Cause has the remedy for all the world's ills. The reason why more people don't accept it is because the Bahá'ís are not always capable of presenting it to them in a way that meets the immediate needs of their minds. Young Bahá'ís like yourself must prepare themselves to really bring the Message to their generation, who need it so desperately and who can understand the language it speaks so well.

(From a letter written on behalf of The Guardian in Scholarship, 5)

1. Some Suggested Qualities of Bahá'í Scholarship

1.1 Humility and Love of Diversity (Awe in the Face of the Infinite Range of God's Names and Attributes.)

First it is important to acknowledge that there are many different ways to approach scholarship[3]. Starting with the humbling knowledge that each perspective on scholarship potentially represents a unique gift of insight is necessary for the overall health and maturity of scholarship in our communities, as well as an appropriate starting place for the investigation of truth itself. Therefore, I make no claims that this article is representative of what 'true' scholarship is, nor that it is comprehensive in its overview of scholarship. My understanding of Bahá'í scholarship means that as soon as someone says, "THIS is what Bahá'í scholarship really is...", I start to get out my "grain of salt." It is human nature to think we have "arrived" at the truth. We often assume we have found "the philosopher's stone", or absolute criterion of truth, through our attachment to one particular discipline, thought, method or approach. But in so doing, we lose the freedom to discover the 'hidden mysteries of God' because we think we have already found them.

Shoghi Effendi has told us:

> *The greatest truth of Bahá'u'lláh's Revelation is that religious truth is relative, not absolute.* (Promised Day Has Come, v.)

One could write books on this one sentence alone and not exhaust its meaning.

Since this was written, the modern usage of 'relative' has made the understanding of the depths of this passage more difficult. Particularly through Christian culture's negative view of 'ethical relativism', and the popular secular usage 'everything is relative', which, among other things, conveys a postmodern assumption that truth is 'in the eyes of the beholder', that truth is fragmentary and has an elusive nature, and that it can be used to justify almost any belief or moral stance.

Although I refrain from even suggesting that I can fully comprehend what Shoghi Effendi meant by this statement, I can with confidence say that the above popular associations of meaning with the word 'relative' are *not* what Shoghi Effendi means here.

For the sake of our discussion it is important to suggest briefly that an important meaning of Shoghi Effendi's statement is that *Bahá'u'lláh's*

3 There are a growing number of articles and compilations on Bahá'í scholarship that all provide valuable resources for our contemplation and guidance. For example, in 1993 the Association for Bahá'í Studies Australia published *Bahá'í Scholarship: A Compilation & Essays*. This contains an important compilation on Bahá'í scholarship prepared by the Research Department of the Universal House of Justice, as well as various letters from the Universal House of Justice, and a number of essays written by individual Bahá'í believers. A simple search using the keyword 'scholarship' at http://bahai-library.org gives rise to many valuable articles and other compilations that have been published elsewhere.

Revelation is primarily about relationships. It is the 'relational' quality of 'relative' that most accurately assists us in our understanding of Shoghi Effendi's statement.

That Revelation is the expression of God's love for each and every one of us. Therefore there are special meanings allocated for each of us that finds expression in our unique relationships with God and each other.

For the Bahá'í scholar this has particular importance. It indicates that by assuming only one 'absolute' dogmatic meaning to particular statements of truth we miss experiencing *the personal nature of the expression of love from God*, its implications of unique relationship with ourselves and others, and the gems of meaning that arise from those infinite relationships.

I think if we explore further, we find this applicable to all forms of truth, and not surprisingly (from a Bahá'í perspective) this is actually reflected in many discussions in science[4].

In my opinion, this relational understanding of truth has particular significance for the Bahá'í scholar in emphasising the essential need for the *interdependence of humility and a deep love of diversity* that I consider hallmarks of Bahá'í scholarship. Such humility is not a lack of confidence, nor a polite, outward appearance of hesitancy, rather it is a result of the love of God: awe in the presence of the infinite diversity of God's attributes that shine throughout creation and in the hearts of His servants. It is the knowledge that to ascribe absolute importance to one's own fallible interpretations would be tragically to miss the wonder of the infinite range of ways to celebrate and explore the embrace of meanings in which the love of God is offered to us.

1.2 Two Pillars of Bahá'í Scholarship: Absolute Loyalty to Bahá'u'lláh and the Unfettered Search for Truth

It is suggested that another hallmark of Bahá'í Scholarship is an equally passionate commitment to both absolute loyalty to Bahá'u'lláh and the independent investigation of truth founded upon the 'searching and intelligent study of the Teachings and history of the Faith.'

On this matter the Universal House of Justice writes:

> *The combination of absolute loyalty to the Manifestation of God and His Teachings, with the searching and intelligent study of the Teachings and history of the Faith which those Teachings themselves enjoin, is a particular strength of this Dispensation. In past Dispensations the believers have tended to divide into two mutually antagonistic groups: those who held blindly to the letter of the Revelation, and those who questioned and doubted everything.*

4 One only has to spend a brief time studying Einstein and Quantam Physics to enjoy the parallels. For an example of such discussions see John Polkinghorne, *One World: The Interaction of Science and Theology*, (SPCK, 1986)

> *Like all extremes, both of these can lead to error. The beloved Guardian has written that "The Bahá'í Faith ... enjoins upon its followers the primary duty of an unfettered search after truth...".* (Scholarship, 5)

This 'particular strength of this Dispensation' is a feature of the Covenant of Bahá'u'lláh that will ensure that the unity of the followers of Bahá'u'lláh is maintained. Other religions have not had the benefit of the unity of both these pillars of protection and have often fractured into completely differing schisms and denominations based on developing antagonisms caused by such differing commitments.

A word of caution however. Even though the Bahá'í community enjoys the grace of the Covenant of Bahá'u'lláh, it is a grace that requires obligations on the part of the scholar if she or he is to remain within the protecting boundaries of the Covenant.

The invisible forces released by the Revelation of Bahá'u'lláh have infused the universe with new capacities. This Revelation is inexorably 'resurrecting' the world, causing the twin processes of the death of institutions whose existence is contrary to its animating spirit, and is simultaneously giving birth to, and reinforcing the growth of those institutions whose existence are in harmony with the spirit of this Revelation. In regards to the consciousness of humanity as expressed in the institutions of higher learning, this process is most clearly evident in an ever-maturing vision within all academic disciplines. There have been great advancements made in the academic study of all the basic Bahá'í principles, such as the equality of women and men, elimination of all forms of prejudice, a global system of governance, the harmony of science and religion, and others. Regarding this, a letter written on behalf of the Guardian states:

> *The world has - at least the thinking world - caught up by now with all the great and universal principles enunciated by Bahá'u'lláh over 70 years ago, and so of course it does not sound "new" to them. But we know the deeper teachings, the capacity of His projected World Order to re-create society, are new and dynamic. It is these we must learn to present intelligently and enticingly to such men!* (Scholarship, 6)

If the thinking world had 'caught up' with us 55 years ago, how much more so is it true now?!

The study of the many academic disciplines affords the Bahá'í scholar opportunities to explore differing ways the principles of Bahá'u'lláh's Revelation have invisibly influenced and become clearly manifested in secular thinking, and this reflection can mature our own visions and greatly benefit the Bahá'í community.

The danger is that even as we enjoy the excitement of exploring such wonderful avenues of knowledge we can forget the requirements of a

passionate commitment to an absolute loyalty to Bahá'u'lláh and the unfettered search for truth. It can happen like this:

Because current academia is only just beginning to become influenced by the principle of the unity of knowledge, and multi-disciplinary studies are only just beginning, academic 'disciplines have become specialized and isolated from one another' (Universal House of Justice in Scholarship, 17) and often are regarded as complete methods to investigate reality[5].

If one falls for the narrowness of such a perspective there are dangerous possibilities for the Bahá'í scholar. Regarding this the Universal House of Justice writes:

> *The House of Justice feels that Bahá'í scholars must beware of the temptations of intellectual pride. 'Abdu'l-Bahá has warned the friends in the West that they would be subjected to intellectual tests, and the Guardian reminded them of this warning. There are many aspects of western thinking which have been exalted to a status of unassailable principle in the general mind, that time may well show to have been erroneous or, at least, only partially true. Any Bahá'í who rises to eminence in academic circles will be exposed to the powerful influence of such thinking.*
>
> (Scholarship, 17)

Those scholars who choose to absolutise the methodological assumptions of particular academic disciplines and, for example, conform studies of Bahá'í history or theology to 'fit' such theories, potentially lose the capacity for true Bahá'í scholarship. Why? First, this can occur by the loss of a commitment of absolute loyalty to Bahá'u'lláh through a gradual allegiance to the more materialistic elements that still persist in most disciplines and a concurrent loss of spiritual vision. Second, the scholar in such a situation may argue that the principle of the independent investigation of truth gives them justification to apply such materialistic methodologies to the Revelation of Bahá'u'lláh, no matter how extreme or inappropriate such methods may be. Ironically, the absolute commitment to only one form of academic method can cause a loss of the capacity of the scholar for the unfettered search for truth. This occurs through excluding the diversity of contributions from other perspectives, disciplines and cultures, ignoring the principles and value of consultation,

5 On this David Harmon comments, "It is often said that any coherence that once may have existed in the Western scholarly tradition is long gone. Gone too, so the reasoning holds, is any hope for a broad, intelligible view of what is going on in this particular region of thought. The few remaining would-be generalists must skulk through a fragmented, fractured intellectual landscape, picking their way on cat's feet through minefields laid down by increasingly specialized and insular disciplines, moving gingerly so as not to detonate the latest fashionable theory. Erosion, of a kind, is responsible for the dominant feature of this landscape: a chasm between science and the humanities, now grown so wide and deep that it is often given up as unbridgeable. Actually, 'given up' is a mild way of putting it. There are plenty of people who positively relish the distance, thankful of any opportunity to dismiss the other side, on guard always against any attempts at bridge building.", David Harmon, 'On the Meaning and Moral Imperative of Diversity,' in Luisa Maffi, ed., *On Biocultural Diversity: Linking Language, Knowledge and the Environment*, Washington, Smithsonian Institution Press, 2001, p. 53

combined with a loss of humility in asserting such absolutism.

There is a saying that 'the nature of the object will prescribe the method of knowing'[6]. In other words the nature and qualities of what we study will require particularly appropriate ways to study and know it. The Revelation of Bahá'u'lláh is of a Divine spiritual nature, and therefore materialistic methods of knowledge are not suited to understanding the spiritual qualities of Its nature. This does not mean that disciplines cannot be transformed in a unity of spiritual and material methodology that is more suitable for such investigations. It is the very gift of the Revelation of Bahá'u'lláh that gives Bahá'í scholars the capacity to transform academic disciplines and enable their true capacity for insight. To lose sight of this is dangerous. To accept blindly the often materialistic methodologies some academic disciplines incorporate, and then apply these same methodologies to 'explain' the Revelation of Bahá'u'lláh is an unfortunate loss of a great capacity of the Bahá'í scholar to contribute to the spiritualization of such disciplines.

It is suggested that the creation, application and sustenance of this great transformative capacity of the Bahá'í scholar will largely depend upon the degree to which they are passionately committed to both an absolute loyalty to Bahá'u'lláh and an unfettered search for truth.

1.3 Appreciation of the Intrinsic Value of Every Culture and the Genius in Every Person

Appreciating the Intrinsic Value of Culture

Until now, most Bahá'í scholarship has been recognised as being generated from only several cultural groups. Yet this world contains over 6000 distinct cultures[7], each possessing unique gifts and vision. I have proposed elsewhere[8] that cultures, from a Bahá'í perspective, are social manifestations of the human spirit to diverse ecological contexts in which the human form develops its spiritual and physical relationships. As Bahá'u'lláh tells us that every creature in nature manifests a unique name or attribute of God[9], it follows that such a cultural definition means that each culture will generally manifest completely unique sets of spiritual attributes in response to their long-term equally unique ecological relationships. Therefore each culture has

6 I encountered this idea first through Karl Barth, but it can be traced back earlier to Thomas Aquinas who said, 'Cognita sunt in in cognoscente secundum modum cognoscentis' or, 'Things known are in the knower according to the mode of the knower.' (*Summa Theologiae*, II/II, 1, 2; p. 1057)

7 There are 6703 languages catalogued by Grimes, B. ed. 1996. *Ethnologue: Languages of the World*. 13th ed. Dallas: Summer Institute of Linguistics. (Available on the World Wide Web at: http://www.sil.org/ethnologue/.)

8 This understanding forms the basis for much of my teaching in Indigenous Studies. A discussion of this concept is on an online lecture at http://www.warawara.mq.edu.au/abst100/lecture_culturalknowledge.html or a more detailed discussion is in my Masters Thesis, *An Examination of the Environmental Crisis with Particular Focus on the Balance Between the Instrumental and Intrinsic Value of Nature From a Bahá'í Perspective*, 2001, University of Sydney. You can download a copy from http://laurel.ocs.mq.edu.au/~cjone005/Complete Thesis for Masters.doc

9 "Upon the inmost reality of each and every created thing He hath shed the light of one of His names, and made it a recipient of the glory of one of His attributes.", *Gleanings*, p.65

unique and valuable appreciations of Divine Attributes that will offer us diverse approaches and types of knowledge through their own Bahá'í scholarship. These are my own conclusions, but I think they are warranted.

What will be the impact on our understanding of progressive revelation and the advancement of civilization when scholars arise from India with a unique insight into the balance between linear and cyclic understandings of time or their appreciation of the pantheon of the attributes of God as manifested in their history, among many other unique gifts? What will be the impact on our understanding of the unity of the 'concourse on high' with us here and now when indigenous scholars arise from Africa with a unique insight into the active relationships we maintain with the spirits of our ancestors? What will be the impact on our understanding of the unity of spiritual and material reality when Australian Aboriginal and American Indian scholars arise who offer us the many gifts of their insights into the implications of such a unity? With at least 6000 cultures in the world, we are in for an exciting period of scholarship when we learn to value the gifts of other cultures and find ways for their voices to be heard in the international forum of Bahá'í Scholarship

The Genius in Every Person

I think the Revelation of Bahá'u'lláh will revolutionise the popular understanding of 'genius' in modern civilisation. Our current understanding of genius is generally limited to materialistic definitions that analyse the processing speed and storage capacity of the human brain. This may allude to often culturally biased, types of intelligence, but intelligence is not the same thing as genius. Current assumptions of intelligence do not adequately demonstrate any capacity for assessing wisdom or more importantly, the individual capacity to offer unique gifts of spiritual insight that have a positive transformative capacity upon civilisation no matter what our 'IQ' may happen to be.

Regarding our individual capacity for scholarship, Bahá'u'lláh tells us God has given us all two particular gifts of significance here. He has bestowed upon us each the name of 'the Incomparable' as well as 'the All-Pervasive' indicating that each one of us has a completely unique form of genius and that our capacity to influence others with that genius is all-pervasive, to the farthest ends of the universe. This is an understanding of genius that assumes the unity of spiritual and material reality, is based on the Writings, but is beyond the limitations of this paper to explain sufficiently. However I will offer some justification.

First, let me offer a visual model and then I will offer some texts that support its construction. In this visual analogy, let us assume that our souls, instead of being flat mirrors are actually closer to multi-dimensional crystalline structures (or perhaps 'gems'). Each crystalline structure is 'composed'

of an absolutely unique combination of spiritual attributes[10]. It also helps to support this image to remember that God's Names and Attributes are infinite in range.

Next let us imagine that the universe is immersed in an Ocean of the Light (Love) of God. This light passes through us and is refracted/reflected into completely unique spectral variations due to our unique reflective composition of spiritual facets. In other words we each will reflect different 'colors' of light back out in the universe and these sets of color will not be found anywhere else.

Our 'genius' is our utterly unique capacity to reflect a unique range of the spectrum of the light of God. In that sense we do not 'possess' such virtues, but reflect them. Furthermore, the variety of spiritual expressions available to us is infinite. This is because our actual value is found in the meeting of light between relationships. However the actual inner reality of our unique composition is not seen by anyone save God[11].

The expression of our value is 'seen' when we encounter others, in relationship. Our unique reflection of light then 'meets' the reflected light of the 'other'. This then creates a completely new quality of light at the point of contact between them. This meeting point of relationship is also a completely unique expression of Divine attributes.

The uniqueness of each person and indeed each creature cannot be underestimated. Each being has an internal intrinsic value inscrutable to all save the Mind of God. As Adib Taherzadeh illustrates, every creature manifests the name of God, the 'Incomparable':

> *…the attribute of God, the Incomparable, appears in every created thing and therefore everything is unique.* (Taherzadeh, 199)

He quotes the following from Bahá'u'lláh to illustrate:

> *Consider, in like manner, the revelation of the light of the Name of God, the Incomparable. Behold, how this light hath enveloped the entire creation, how each and every thing manifesteth the sign of His Unity, testifieth to the reality of Him Who is the Eternal Truth, proclaimeth His sovereignty, His oneness, and His power. This revelation is a token of His mercy that hath encompassed all created things.* (Gleanings, 190)

10 It is not that any soul has attributes that another one does not, rather the uniqueness is in the orientation of the composition of their reflective capacity.

11 "When we consider the world of existence, we find that the essential reality underlying any given phenomenon is unknown. Phenomenal, or created, things are known to us only by their attributes. Man discerns only manifestations, or attributes, of objects, while the identity, or reality, of them remains hidden. For example, we call this object a flower. What do we understand by this name and title? We understand that the qualities appertaining to this organism are perceptible to us, but the intrinsic elemental reality, or identity, of it remains unknown. Its external appearance and manifest attributes are knowable; but the inner being, the underlying reality or intrinsic identity, is still beyond the ken and perception of our human powers". `'Abdu'l-Bahá, *Promulgation of Universal Peace*, p. 421

As previously mentioned, each being is incomparably unique in its reflective capacity.

This is more explicitly stated by Bahá'u'lláh:

> *It should be borne in mind, however, that when the light of My Name, the All-Pervading, hath shed its radiance upon the universe, each and every created thing hath, according to a fixed decree, been endowed with the capacity to exercise a particular influence, and been made to possess a distinct virtue ... The potency infused into all created things is the direct consequence of the revelation of this most blessed Name.* (Gleanings, 189)

The exciting implication of such a principle is that even the most basic forms of beings then possess the creative capacity to create, through relationships, infinite forms of emergent value. Say for instance a basic atom possesses the intrinsic value of a form of unity in its reflective capacity, this most basic of reflections will still form a unique emergent quality dependent on the relationships surrounding it.

Such relationships are not essentially dependent upon physical proximity. The simplest of beings expresses infinite emergent value in that it is presently engaged simultaneously in interdependent relationship with every other being in the entire cosmos.

> *Know thou that every created thing is a sign of the revelation of God. Each, according to its capacity, is, and will ever remain, a token of the Almighty. Inasmuch as He, the sovereign Lord of all, hath willed to reveal His sovereignty in the kingdom of names and attributes, each and every created thing hath, through the act of the Divine Will, been made a sign of His glory. So pervasive and general is this revelation that nothing whatsoever in the whole universe can be discovered that doth not reflect His splendor. Under such conditions every consideration of proximity and remoteness is obliterated....*
>
> *…the things which have been created … and ordained to be the manifestations of His names and attributes, stand, by virtue of the grace with which they have been endowed, exalted beyond all proximity and remoteness.* (Gleanings, 184-185)

'Abdu'l-Bahá further explains the all-pervading influence our unique genius has with all other members of the universe:

> *How much the organs, the members and parts of the body of man are intermingled and connected for mutual aid and help, and how much they influence one another! In the same way, the parts of this infinite universe have their members and elements connected with one another, and influence one another spiritually and materially .... the beings, whether great or small, are connected with one another by the perfect wisdom of God,*

and affect and influence one another ... This subject is worthy of examination. ('Abdu'l-Bahá, Some Answered Questions, 246-247)

It is apparent that the nature of this exaltation beyond proximity and remoteness is due to the capacity of the Divine light that is being reflected, rather than in the beings themselves. The qualities of light that are reflected by each being, universally include this quality of God as the 'All-Pervading' and mutually influence other beings across the farthest reaches of the universe.

If we incorporate modern scientific knowledge about the nature of light, it becomes apparent that such influence is not only universal in range of influence, but is also potentially immediate in effect. Physics provides us with an astounding example of this interchange of forces and mysterious unity. The Einstein-Poldoski-Rosin Paradox, an empirically tested theory[12], demonstrates that if two photons are emitted by the same source, they will simultaneously change their polarity if only one is changed. This is regardless of distance. So two photons separated by billions of light years both change their corresponding polarity instantaneously. This is in spite of the fact that there is no apparent signals passed, and that this signal would have to travel faster than the speed of light. This potentially implies an interdependence of relationships between particles, which transcends physical laws, as we know them and leads to the conclusion that local actions may have immediate consequences on the farthest side of the universe.

In other words not only do our actions influence fellow beings in our local ecosystem, but instantly influence beings on the farthest side of the universe.

This model from Bahá'u'lláh and 'Abdu'l-Bahá offers us a great range of astounding possibilities, but several come to mind in relation to scholarship.

First, although each of us is a genius of priceless and unique value, we do not possess such genius, we merely have the capacity to reflect it through being immersed in the light of God. Therefore, we can also choose to 'switch off' our capacity for genius by turning away from the light that is our empowering agent. Such knowledge inspires our humility and our commitment to absolute loyalty to Bahá'u'lláh.

Second, scholarship through consultation is seen as essential. This model inspires a great excitement and love in our anticipation of the meaning created in our relationship with others. Whether they are Einstein or someone with Downs-Syndrome, this spiritual level of 'consultation' will produce an emergent ray of light that expresses a set of Divine attributes that will not be generated anywhere else in the universe except between each other.

12 See I J R Aitchison, *Gauge Theories in Particle Physics*, 1989

"This subject is worthy of examination". This vision of reality as an infinite series of loving relationships immersed in the Light of God has numerous consequences for all academic disciplines. It is well beyond the capacity of this paper to explore them, however it should be said that it heals the breaches in knowledge that have occurred in our recent history of western thought. For example, it offers an alternative to the dichotomies of subjective vs. objective knowledge. Truth is acknowledged to be real, but is generated in relationships, in contrast to the 'either/or' of only an internal act of the imagination vs. an external concrete fact.

1.4 The Unity of Spiritual and Material Reality and Our Intimate Relationship with Members of the Abhá Kingdom

Once again, it is beyond the limitations of this paper to adequately address this vital issue that is at the heart of Bahá'í scholarship. There are many areas and methods one can approach and use to discuss it, but I will limit myself to two important areas. First, I will very briefly touch on the history of how our civilisation has largely lost its capacity to have an integrated vision of spiritual and material reality. This approach I consider of great value in that it opens the door to exploring intelligently the limitations of current materialistic methodologies, in both academic disciplines and in popular thought. This then empowers us to make rational explorations of how this breach in thought can be remedied in each discipline.

Second, I will suggest that a fundamental agency, or empowering relationship, that makes Bahá'í scholarship possible, is the active relationship we have with members of the Abhá Kingdom, here and now. It is suggested that the creativity of our thoughts, responsible for the advancement of civilisation, are not necessarily independently generated in our brains, but are largely a result of the loving 'suggestions' of thought from members of the Abhá Kingdom. This is not a truth often discussed in examinations of scholarship, even though the Writings, I feel, make this very clear.

Restoring the unity of spiritual and material reality

The harmony of science and religion is seen as a defining feature of the next, inescapable stage in the organic evolution of the spiritual and social life of humanity.

> *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.* (Shoghi Effendi, World Order of Bahá'u'lláh, 203-204)

The imbalanced and fractured perspective of spirit and matter in western consciousness can be traced historically back to the enlightenment period in which European philosophers, politicians and scientists developed what has

often been called a dualistic metaphysics or world-view. This period has often been caricatured as a war between science and religion, with science the ultimate victor. However this fracturing of metaphysics is due to a somewhat more complex history. Such a fractured worldview was the product of over-reactions to the tyranny of knowledge enforced by both political and religious leaders at the time. Such tyrannical assertions of absolute truth resulted in such great injustices as the thirty-year war and the grand inquisition. The philosophies and political reactions to this injustice that were largely perpetuated by religious institutions, resulted in the removal of the "tyrant God" from the centre of modern thought. This process of the removal of the Divine was gradual but effective. Ironically most of the central figures considered responsible for this process all believed in God, and some of them quite strongly, yet the fashion in which they were interpreted by radical secularists is largely to be blamed for the fracturing effect. Here is a representative summary of some of the forces at work in our history:

Newton's success in explaining the operations of the universe through mechanistic principles was often equated with seeing the physical order as a machine. Newton actually encouraged this metaphor in that it alluded to Divine intelligence behind the design. Later science would adopt the concept of universal principles and law explaining all physical relationships, but lose the idea of design and God. This was enabled as the "machine" gained the principle of independent internal momentum, through Descartes and others; and finally when the machine acquired a random, purposeless evolutionary force of its own, through Darwin. The machine had once been a marvel of genius in its sophistication, elegance and universal intelligibility that alluded to an infinitely virtuous Creator. However through a distorted interpretation of both the processes themselves, and the intentions of their authors, it became a self-winding, self-operating, and self-designing machine, as it were. The result is our currently predominantly materialistic and positivistic world-view. Associated with these developments, the assertion grew that truth is completely relative to the individual. Such an idea was developed so that tyrannical forms of injustice could not assert their hold on the minds of entire populations. While such a goal is a noble one, the over-reactive nature of the philosophies that developed out of such a context created a kind of spiritual neurosis in the west in which it is impossible to assert that their are universal truths that are relational to us all. Such a process resulted in the splitting of reality that has formed unnecessary dualities that usually incorporate a hierarchical objectification of matter and spirit, male and female, objective and subjective, nature and humanity, culture and civilisation, among many other categories.

Such a summary does not properly represent the many historical and philosophical elements that contributed to such a process, but I think it provides

an adequately brief example of one of many valuable approaches we can take[13]. If Bahá'í scholars take the time to investigate the unique ways in which the above process impacted on the particular discipline(s) they are studying, it enables them to suggest ways in which this process of division was unnecessary and encourage others of the benefits of a restoration of vision of spiritual and material reality. As they study with this confidence, undoubtedly unique insights of practical applications arise from their increasing understanding of the importance of the spiritual realm for their own discipline.

Last, the effects of such a restoration of vision upon our civilisation cannot be underestimated. It is suggested that an entirely new dimension will open up before us.

> *With regard to the harmony of science and religion, the Writings of the Central Figures and the commentaries of the Guardian make abundantly clear that the task of humanity, including the Bahá'í community that serves as the leaven within it, is to create a global civilization which embodies both the spiritual and material dimensions of existence. The nature and scope of such a civilization are still beyond anything the present generation can conceive. The prosecution of this vast enterprise will depend on a progressive interaction between the truths and principles of religion and the discoveries and insights of scientific inquiry. This entails living with ambiguities as a natural and inescapable feature of the process of exploring reality. It also requires us not to limit science to any particular school of thought or methodological approach postulated in the course of its development…*
>
> (Universal House of Justice, Letter to an individual, 19 May, 1995, cited in a letter 13, August 1997 viewed at http://www.bahai-library.org/uhj/science.religion.htm, last viewed May 16, 2000)

If we use the analogy of the eyes, and consider that one eye can see the material realm and the other eye can see the spiritual realm, an astonishing realisation opens before us. We have all trained ourselves to see with one eye shut. This does not merely mean we have lost half our vision. It means that we have been limiting ourselves, as a civilisation, to a two-dimensional capacity of vision. When both eyes are used in co-operation, an entirely new, third dimension, never before seen, opens up before us. Who can even begin to imagine what possibilities will open up to our civilisation as its capacity to perceive a whole new dimension of reality is opened up before it. The exciting opportunity for the youth to act as the scholarly catalysts that enable this to occur is before you.

13 The best example of this technique I have found is in: Alister E. Mcgrath, *Science and Religion: An Introduction*, (Oxford, UK, Blackwell Publishers, 1999)

Our Intimate Relationship with Members of the Abhá Kingdom

For most Bahá'ís, our capacity to appreciate the relationship between our 'world' and the 'world' of the Abhá Kingdom has been affected by the secular 'spiritual neurosis' that sees reality as split on many levels, including spiritual and material. We often think of the Abhá Kingdom as being in a different place and having an entirely different function than this world.

We are told, however, that the Abhá Kingdom, is not a remote world that we may 'travel' to someday when we pass 'away'. It is within this world.

> *Those souls who are pure and unsullied, upon the dissolution of their elemental frames, hasten away to the world of God, and* ***that world is within this world.*** *The people of this world, however, are unaware of that world, and are even as the mineral and vegetable that know nothing of the world of the animal and the world of man.* (Selections, 194-195)

> *But if ye ask as to the place, know ye that* ***the world of existence is a single world,*** *although its stations are various and distinct. For example, the mineral life occupieth its own plane, but a mineral entity is without any awareness at all of the vegetable kingdom...*
>
> ('Abdu'l-Bahá in London, 96)

> ***Those who have ascended have different attributes... yet there is no real separation.*** ('Abdu'l-Bahá, The Divine Art of Living, 124)

Those who are in the next world still intimately associate with us and are concerned with our progress and the progress of our civilisation and they still communicate with us, but rather than hearing words, we have creative thoughts.

> *In prayer there is a mingling of station, a mingling of condition. Pray for them as they pray for you! When you do not know it, and are in a receptive attitude, they are able to make suggestions to you...*
>
> ('Abdu'l-Bahá in London, 96)

They have designated 'jobs' that they receive from God in which they work with us to advance Divine civilisation.

> *Those who have passed on through death, have a sphere of their own. It is not removed from ours; their work, the work of the kingdom, is ours...*
>
> ('Abdu'l-Bahá in London, 96)

We are told that they are responsible for the progress of the world and the advancement of its peoples.

> *Such a soul provideth, at the bidding of the Ideal King and Divine Educator, the pure leaven that leaveneth the world of being, and furnisheth the power through which the arts and wonders of the world are made manifest.* (Gleanings, 161)

There are countless examples of Bahá'í's of capacity who have passed on to the next world, acquiring greater power, and then assisting the Cause to advance to new stages of development and increased capacity.

> *During the past five years, the historical dialectic of triumph and disaster has operated simultaneously within the Cause of God. The Army of Light has sustained the loss of six Hands of the Cause and waves of bitter persecution which have again engulfed the long-suffering community in Iran, and have resulted in the razing of the House of the Báb, the demolition of Bahá'u'lláh's ancestral home in Takur, and the martyrdom of scores of valiant souls. Yet these disasters have called forth fresh energies in the hearts of the friends, have fed the deep roots of the Cause and given rise to a great harvest of signal victories.*
>
> (The Universal House of Justice, Messages 1963 to 1986, 574)

One of those new capacities of the Faith after this period was represented in the creation of the Department of Social and Economic Development and the sudden ability of the Faith to engage in systematic plans to assist the developing nations of the world through a growing variety of dynamic methods of assistance.

What implications does all this have for Bahá'í scholarship?

I can only speak personally, but I feel it offers an opportunity to recognise the often unnoticed role of members of the Abhá kingdom in inspiring our thoughts and creating opportunities in our attempts to rise to the challenge of scholarship. It is both awe inspiring and humbling to know how 'in this very room' are sanctified souls, often those whom we have known and loved, waiting to help us with our tasks of scholarship, yet only impeded by our own readiness and capacity to receive such inspiration. It is through aligning ourselves with the Covenant, immersing ourselves in prayer, meditating upon the writings, purifying our character, and arising to act in the interests of others and the Faith through deeds characterised by self-sacrifice that we acquire such ongoing and increasing capacity to receive the inspiration of those who 'stand next to us'.

1.5 Some Suggested Practical Strategies of Bahá'í Scholarship for Bahá'í Youth at University

I hope to have emphasized the value of a great diversity of approaches to scholarship that we must learn to appreciate for a global culture of Bahá'í scholarship to reach fruition. However, since this Congress is composed primarily of Bahá'í university students, it is of course necessary to focus on that particular context.

I can only offer some of the insights gained through my own experience at university. Such suggestions may be suitable for some or even many, but

not for all. To start with, I think it is helpful to understand our periods at University as pioneering posts. This knowledge of ourselves as pioneers inspires an appropriate attitude of service, self-motivation, individual creative initiative and assurance of Divine assistance.

In the following substantial quote, Shoghi Effendi provides us with a vision of how we can each individually pursue a systematic program, incorporating practical applications of our Bahá'í scholarship on campus:

> *Let him not wait for any directions, or expect any special encouragement, from the elected representatives of his elected community, nor be deterred by any obstacles...*
>
> *'Be unrestrained as the wind,' is Bahá'u'lláh's counsel to every would-be teacher of his Cause....*
>
> *Having on his own initiative, and undaunted by any hindrances which either friend or foe may, unwittingly or deliberately, obstruct his path, resolved to arise and respond to the call of teaching, let him carefully consider every avenue of approach which he might utilize in his personal attempts to capture the attention, maintain the interest, and deepen the faith, of those whom he seeks to bring into the fold of his Faith.*
>
> (The Advent of Divine Justice, 50-51)

And here, Shoghi Effendi, continuing his encouragement to potential pioneers, links our periods of activity at University as pioneering posts:

> *Let him survey the possibilities which the particular circumstances in which he lives offer him, evaluate their advantages, and proceed intelligently and systematically to utilize them for the achievement of the object he has in mind. Let him also attempt to devise such methods as association with clubs, exhibitions, and societies, lectures on subjects akin to the teachings and ideals of his Cause such as temperance, morality, social welfare, religious and racial tolerance, economic cooperation, Islam, and Comparative Religion, or participation in social, cultural, humanitarian, charitable, and educational organizations and enterprises which, while safeguarding the integrity of his Faith, will open up to him a multitude of ways and means whereby he can enlist successively the sympathy, the support, and ultimately the allegiance of those with whom he comes in contact. Let him, while such contacts are being made, bear in mind the claims which his Faith is constantly making upon him to preserve its dignity, and station, to safeguard the integrity of its laws and principles, to demonstrate its comprehensiveness and universality, and to defend fearlessly its manifold and vital interests. Let him consider the degree of his hearer's receptivity, and decide for himself the suitability of the direct or indirect method of teaching...*
>
> (The Advent of Divine Justice, 51)

The wisdom of this advice is beyond the capacity of this paper to explore fully, but some particular elements can be considered.

The Golden Age of humanity will see universities very different in character than from where they stand today. We can already see the incredible influence of Bahá'u'lláh's Revelation upon the thoughts and subjects of study. As has already been mentioned, this invisible influence has resulted in such academic thinking 'catching up' with all the great principles of the Faith as early as 1949. However the deeper significance of the principles enshrined in that Revelation have yet to manifest themselves in academic disciplines.

Some of these qualities, in my opinion, include a more intimate relationship of consultation between the academic disciplines based on the knowledge of the unity of God, the unity of humanity and the unity of knowledge; a quality of research that is goal directed at the practical advancement of human civilisation and which initially is primarily concerned with the alleviation of human suffering; and ultimately whose methodology is universally characterised by a recognition of the harmony of spiritual and material reality.

So what can we do, as youth, to make such a fundamental shift in university culture occur? As Shoghi Effendi said in the above quote, that will largely depend upon the unique circumstances and opportunities that each person finds themselves in. Each person will have to make those initial decisions of action and method themselves. However, I can offer some minor examples from my own experience.

At a youth meeting in Haifa, Universal House of Justice Member Ian Semple emphasized the importance of being systematic planners, and in having short, medium and long-term goals. The governing principles mentioned by Shoghi Effendi above are very helpful in that regard but will again rely on personal initiative and creativity.

Among the long-term goals, I have already mentioned the value of eventually becoming familiar with the historical and methodological origins of each particular discipline that we study. Particularly in regards to becoming conscious of how spiritual considerations became separated from materialistic ones since the Enlightenment, and how, in a number of disciplines, to varying degrees, this division is being repaired. For most people this familiarisation will be a long-term process, as they become more aware of their discipline. But the sooner we are conscious of its value in offering a tool to rationally justify spiritual approaches, the sooner we can begin the process and recognise significant issues in what we study.

Some more practical short-term strategies that we can engage in are the following.

The Bahá'í consultation model is of great value on all levels, as it represents a practical manifestation of the principle of the unity of knowledge and

humanity. This can mean recognising that each discipline may have a different approach to solving a problem or looking at an issue. Because of the unity of knowledge, these different approaches often complement the approach of our own particular discipline and even sometimes offer a fresh approach not considered by our discipline due to the entrenched culture of the separation of disciplines. This approach reinforces the value of multidisciplinary studies within the university culture. More importantly this approach often has the effect of making our own work very advanced and original, when all we have done is use the principles of consultation to our benefit. I cannot stress how much this method 'pays off'. One does not have to be an expert in any of the areas of consultation, (although of course the greater your expertise, the greater your capacity to relate) because you are consulting the experts themselves in a variety of disciplines in querying their approaches to particular issues or problems. All you have to do is become familiar with at least the basics beforehand, be a good listener when consulting the experts, and then reflect on what you have heard or read at length.

For me, over the past fourteen years, this has meant recognising the value of other religions' theological methodologies for exploring Bahá'í principles; recognising the spiritual value of Bahá'í theological principles for the field of environmental ethics; recognising the value of environmental philosophy arguments (particularly those from ecological feminists) about the intrinsic value of nature for the field of Indigenous Studies in using the same arguments to recognise the value of culture; valuing and linking the arguments within Indigenous Studies about the spiritual and cultural concerns of Indigenous Peoples and recognising its value for different types of law (Human Rights, Environmental Law, Intellectual Property Law etc.); and this has meant recognising the value of a closer collaboration between the different branches of law in both recognising spiritual concerns of Indigenous Peoples and in developing more effective means of responding to their concerns. All of these investigations then lead full circle to a deeper appreciation of Bahá'í principles of progressive revelation, equality of women and men, elimination of all forms of prejudice, harmony of science and religion, expression of the Divine in nature, the unity of God, unity of Humanity, unity of knowledge and other principles.

Another suggestion offered is that whenever we are aware that we may be meeting a lecturer, whether at a public meeting, a departmental seminar, privately, or any other means, that we read some of their works beforehand if available. Ideally read as much as possible of their work, but if we have very limited time then at least read the introduction and conclusion of selected works they have written. This way at least we gain an appreciation for what issues they consider important and what conclusions they came to when they focused on those issues. That way we can meditate on Bahá'í responses to

the approaches they have used and intelligently present them with a Bahá'í position, whether directly or indirectly, by starting with an appreciation of the valuable elements we have seen in their own work. Nothing opens the door to the hearts of lecturers more than having someone in front of them who genuinely appreciates their work and may even have practical suggestions for how their work may have relevance in other fields. Equally, we can be more systematic about determining which lecturers may have more affinity with particular Bahá'í principles and, once we have prepared ourselves, specifically approach them.

Another advantage to applying principles of consultation is the writing of papers for publication and otherwise. Scientific culture already incorporates multi-authored papers in Journals, and this is by necessity of the many scientists required to complete various types of scientific research projects these days. However, they still do not often collaborate between differing disciplines, like between Quantum Physics and Ecology. Within the Humanities, one very rarely sees collaborative papers. The emphasis is usually on individuals getting credit for developing new ideas. A Bahá'í approach to consultation once again produces amazing results. If we collaborate with another person from another culture or discipline in the writing of a paper it often creates a more innovative paper that also has more credibility, as this gives it a unique multi-disciplinary quality.

This happened to me a few months ago where I had the chance to replace a speaker in a last minute cancellation, and give a paper at an International conference at Washington University on 'Biodiversity, Biotechnology and the Protection of Traditional Knowledge'. I noticed that there were no Indigenous presenters in my section, considered this a relative form of injustice, and determined to ask another Indigenous student doing his Masters (on preserving the knowledge of his own Aboriginal community) to co-write and present with me. Although we only had 5 weeks for preparation, we met with an Indigenous elder (interestingly, a white man who had been raised by rural Aboriginals from childhood), who gave us advice on inter-cultural consultation and on how to present a united paper. It was decided that besides co-writing the paper (on the relevance of Indigenous spiritual knowledge for the law) my Indigenous friend would make a painting of the ideas of the paper in a semi-traditional indigenous manner. We then presented both the painting and the paper at this conference. The conference was attended by numerous world experts, including, in our section, directors of the World Trade Organisation and the World Intellectual Property Organisation. Our presentations were received very well, with dozens of experts in different fields following up with us by engaging in further consultation over the next few days about the impact of spiritual considerations for the field. This resulted in offers of support through long-term research collaborations, requests for the paper to

be published in both a book and an international law journal, a grant offer from a German based institution, an offer of positions as researchers at the United Nations University in Tokyo and other practical offers of assistance.

At the end of the conference the head of the Law faculty summed up the conference by saying that he personally felt that the most important truth that emerged from discussions was the importance of the unity of spiritual and material reality for the field of Law.

I think this adequately demonstrates the benefits of valuing others cultures and disciplines through an application of consultation in our attempts to develop our capacity for Bahá'í scholarship.

I want to emphasise that one does not need to wait until you are a post-graduate student to write collaborative papers that will get published. It is better to start initiating the methodology of consultation sooner, rather than later.

The next suggestion is that there is an exciting new pattern of Bahá'í post-graduate research available to students from all disciplines in Australia. Those who anticipate doing an honors degree in their subject, or are already completing one, should contemplate this. In Australia, there is something called an Australian Postgraduate Award Industry (APAI) scholarship. This is like a normal APA scholarship, except that it has the added component of a contributing industry partner. The scholarship is worth over $23,000 per year, with $18,000 of it coming from the Australian Research Council and a further $5,000 coming from the industry partner. APAI research applications submitted to the ARC have about a 48% chance of success, and that is a significantly higher rate of success than other forms of research grants have.

If an honors student achieves class II honors or higher upon completion, they are eligible for this scholarship. For the Bahá'í scholar, the opportunity exists to develop a research proposal that is characterised by a deep appreciation of certain Bahá'í principles they have managed to relate to their field. If the research proposal is of a high enough quality, and manages to successfully incorporate a mature appreciation of Bahá'í principles, whether implicitly or explicitly, then there is the opportunity to approach a Bahá'í institution, or even certain individuals and ask them to consider becoming the industry partner. As the financial capacity of the Faith grows, it is anticipated that this will become increasingly viable as an option. This approach gives the Bahá'í scholar a scholarship to complete a Masters or a PhD with a research focus incorporating Bahá'í principles. This also gives the Faith an opportunity to have the prestige and development of credibility within the Australian academic community by becoming known as the industry partner for successful and innovative research projects. Even if the research project proposal does not make it as one of the 48% successful applications, a service to the Faith has still occurred, as many within their particular educational

institution, as well as many of those involved in its governmental review, will have gained an appreciation for the focus and quality of the research proposal, as well as the willingness of Bahá'í institutions to support such research. Such research applications have already occurred and students interested in pursuing such a process should contact the ABS for further advice.

While there are many other possible avenues of practical techniques for students at university to express and develop forms of Bahá'í scholarship, I want to conclude by offering one last suggestion.

Bahá'í societies often engage in organising seminars or conferences of a Bahá'í theme. Often we merely focus on trying to get some good quality presenters to present papers at such functions. Yet there are many opportunities to transform university culture through these conferences and seminars by facilitating an environment during the conference that enhances appreciation of the benefits of the qualities of what may be considered the hallmarks of the future universities of the Golden Age. It is suggested that the Bahá'í society consult about what these qualities may be and find small ways to incorporate them into the context of the conference.

The Australian Association for Bahá'í Studies has decided that one such practical method is to hold, when possible, a parallel children's conference on the same theme as the academic conference, simplified to the capacity of the children. This idea was originally developed out of a concern to encourage more female presenters to attend. But it was thought that it was possible to move beyond mere child-care and hold an actual children's conference on the same theme. This encourages several principles in university culture that are not traditionally considered. First, it demonstrates a practical commitment to the equality of women and men. Second, it encourages a child-centered community. Third, it demonstrates the long-term nature of the issues discussed and suggests that an intelligent focus on such subjects can begin at a much earlier age than previously considered. Last, it facilitates family consultation on the issues of the conference. This last point is important because often academics have little time with their families, are bound by the specialised and individualistic contexts of their work, and do not often discuss the complex nature of their work at home. This encourages a very different culture of family participation and gives the child a sense of value that will undoubtedly manifest itself in their future capacity to carry their own insights further.

Two upcoming conferences are going to incorporate this method, the first, on November 29, 2003, on 'Collective Security in the 21st Century', and the second, April 21-24, 2004, on 'Bioprospecting and Indigenous Knowledge'. The first conference will have a children's conference focusing on themes of peace, the unity of humanity, and simple methods of conflict resolution. The second conference will have a children's conference focusing on celebrating

Indigenous culture through workshops on Indigenous dance, art, music, folklore and language.

Even though these conferences have not been held yet, the international response of the academic community to the proposition of such a model (through website advertising) has been significant. For example, the Chair of the American Philosophical Association Chapter of Indigenous Philosophy has commented on how wonderful and radical an idea this is, and that she is already recommending it as a model in her travels. This is from one of the world's most educated Indigenous peoples, who holds Doctorates in both Law and Philosophy, is an editor of several international journals, and who has respected positions with a number of prestigious universities and other Indigenous communities.

Conclusion

There are many traditional and valuable issues of Bahá'í scholarship that this paper has not focused upon. This does not mean that these subjects are any less important, such as historical explorations of the foundations of the Faith, the development of a defensive capacity, the value of developing specialist expertise, the value of literary and historical criticism in studying the Bahá'í Writings, or a review of other works that have focused on Bahá'í scholarship.

In spite of the limitations of this paper, it is hoped that it has offered the youth a vision of their sacred duty to pursue scholarship and a confidence in their own utterly unique spiritual genius to impact upon the world. I hope to have indicated the importance to the scholar of the qualities of humility, love of the diversity of the Names and Attributes of God, the intrinsic spiritual value of all cultures and the supreme value of consultation. Equally I hope to have alluded to some of the exciting implications that the unity of spiritual and material reality has upon our capacity for vision, and the future vision of civilisation. Similarly, realisation of how the members of the Abhá Kingdom, here and now, inspire the creativity of our thoughts, offers us powerful resources and strength. Perhaps of greatest significance is the suggested importance to Bahá'í scholarship of an equally passionate commitment to both pillars of absolute loyalty to Bahá'u'lláh and the unfettered search for truth.

You are all greatly needed:

> *The field is indeed so immense, the period so critical, the Cause so great, the workers so few, the time so short, the privilege so priceless, that no follower of the Faith of Bahá'u'lláh, worthy to bear His name, can afford a moment's hesitation.* (The Advent of Divine Justice, 39)

The knowledge of our supremely creative spiritual interconnections with each other and with the Abhá Kingdom empowers us to realise that we are not alone in our endeavors.

By the righteousness of God! Whoso openeth his lips in this Day and maketh mention of the name of his Lord, the hosts of Divine inspiration shall descend upon him from the heaven of My name, the All-Knowing, the All-Wise. On him shall also descend the Concourse on high, each bearing aloft a chalice of pure light. Thus hath it been foreordained in the realm of God's Revelation, by the behest of Him Who is the All Glorious, the Most Powerful. (Gleanings, 280)

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The Benevolence of Chaos and Uncertainty

Billy D. Todd †

Abstract

At the dawn of the 21st Century we seem to be further than ever from the promise of harmony, unity and peace for mankind. If anything, the world appears to be more chaotic, complex and disordered than ever. A close examination of Nature suggests that disorder and chaos are universal and characteristic of naturally occurring physical and biological systems. Why then should we expect that human society would ever display systematic order and stability? In this paper, an attempt is made to show that chaos and complexity are integral components of highly sophisticated systems and that one need not fear this. Indeed, complexity is essential for self-organization; without it, life, indeed the universe, could not exist. It will also be argued that complexity is merciful, allowing a toleration of errors in our lives, as long as these errors are within the bounds of moderation.

Inscribed upon the Gate of Hell are the words: "Through me is the way into the suffering city; through me the way into grief eternal; through me the way among lost humanity… Abandon every hope ye who enter." [1] Related to a fearful humanity some 700 hundred years ago, the words of Alighieri Dante may well have been describing the terrorized state of humanity in the early 21st century, rather than the condition of Hell. For it is quite reasonable for those who do not share the Bahá'í vision for the future to share instead a sad pessimism for those unfortunate enough to be born in this age. And great vision is indeed what is needed if one is to remain optimistic; an informed and well-educated mind could be forgiven for coming to the conclusion that humanity is doomed to extinction at the best, or an endless masquerade of "peace in our time" superlatives at the worst. Life, it seems, has become far too complex and uncertain for most to truly enjoy. And how can one make sense of such a complex and chaotic world?

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The observation that life is extremely complex is not a new one, nor is it something that can be denied. A close examination of anything – be it from the raging bulls of the stock market to the lifecycle of a humble moth – reveals layers of complexity that are only just being understood. This complexity must not be ignored and we cannot run away from it. No matter how much we might like to think that in essence all things are simple to understand, the evidence that Nature herself provides suggests otherwise. Just because Nature is complex does not imply that we cannot make great strides in understanding her deeply and thereby gain a more profound knowledge of ourselves and our purpose in life. Bahá'u'lláh, in the Kitáb-i-Íqán, recounts an Islámic tradition from Sádiq, son of Muhammad, which says: "Knowledge is twenty and seven letters. All that the Prophets have revealed are two letters thereof. No man thus far hath known more than these two letters. But when the Qá'im shall arise, He will cause the remaining twenty and five letters to be made manifest [2]." While the Guardian has stated that this should not be taken literally[1], it does suggest that from the moment the Báb was made manifest, whatever was hidden from the intellect of Man was also *potentially* manifest. It means that we have made, and will continue to make, discoveries the likes of which no previous age could ever have even imagined, let alone accomplished. The history of science and art in the 20th century provides spectacular proof of this, and whatever discoveries lie ahead of us are likely to be at least as marvellous.

Our predisposition to simplify life as a sequence of identifiable cause-and-effect relationships has its roots deeply embedded in our psyches and is echoed in the language of ancient Scriptures. In these texts God 'speaks' to Man and says in simple language: "Do this and I shall reward you. Do that and feel my wrath." More often than not, Man does the wrong thing and, behold, he is indeed chastised, plagues of locusts, rivers of blood and so on. The Scriptures may at times read like epic novels, and in some respects that is their purpose: to teach men and women by dramatic stories, couched in simple terms, the most abstruse of all concepts: the meaning of their lives, the purpose of existence, and their relationship with a God that they will never be able to see, feel, touch, hear or smell. The Scriptures were never intended to encapsulate the totality or magnitude of the intricate relationship that exists between the Creator and His creatures, or to reveal the full extent of just how limitless this universe is, in every level of its outward manifestations. While the language was suitable for the largely uneducated people of ancient times, it is no longer appropriate in an era of mass education. We are therefore fortunate to live in an era in which it is possible to learn more about those extra "twenty and five letters" that have been revealed through the Revelation of the Báb, but are yet to be fully explored.

[1] See *Lights of Guidance*, Bahá'í Publishing Trust, New Delhi, India (1988), 483.

We would like to believe that Nature reflects God's virtues in a simple, albeit naïve, way: that all God's creatures live harmoniously with each other, that all mothers care for their young, that all mates are faithful to each other, and so on. This is what a good number of pre-Darwinian naturalists and theologists believed: that God is good, and all natural things that have been uncorrupted by satanic influences (i.e., anything not touched by mankind's inherent predisposition to evil) are also good, and this sometimes involved elaborate rationalizations of cruelties apparent in Nature.[2] They did not closely examine the facts that Nature openly presents, as did Darwin and his contemporaries. Modern science has now discovered many of those facts, and the truth is not as comforting as many would like. The fact is that not all creatures do live harmoniously with each other. In fact, it is in the nature of some to be downright hostile or predatory to others (literal wolves and literal lambs shall *never* dwell together, unless one happens to be in the belly of the other). Nor do all mothers care for their young; there are instances when mothers *will* abandon at least one child either to preserve itself or its other offspring, or siblings will kill fellow siblings in order to gain a competitive advantage (this is true amongst both animals and man). Mates are *not* always faithful to each other.[3] These are just a few examples that represent scientific fact. All seekers of religious truth must also acknowledge the validity of scientific truth, for all truth must, by definition, lead to the same common conclusions.[4] 'Abdu'l-Bahá stoutly defended the application of science and its methods to religious belief by these words: "I say unto you: weigh 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 conform, then reject it, for it is ignorance! [3]" This is not to say that Nature does not reflect the virtues of God, or is not 'good'. It does, and it is. But God's Divinity is unfathomable, and its expression in Creation can appear on occasion as cruel and insensitive. In the same way, what we may regard as 'good' may not in fact be in accord with Divine law.

Such simple models of Nature were based, either consciously or unconsciously, upon an exclusively deterministic[5] causal mind-set. Condition A leads categorically to outcome B, which in turn leads to outcome C, which in

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2 A good source of examples is contained in the Editor's Introduction to Darwin's *Origin of Species*, by Prof. John Burrow (Charles Darwin, *The Origin of Species*, Penguin Books, London, 1968).

3 Perhaps the most bizarre example being that of the female preying mantis who, after copulation with its mate, will, if she gets the chance, bite off his head as an appetiser, before proceeding to devour his body as the main course.

4 The Oxford dictionary defines truth as "Quality or state of being true or accurate…" where true is defined to be "In accordance with fact or reality, not false or erroneous." If both science and religion have a particular view about a particular issue and if there is contradiction in these views, the only conclusion can be that either one or both views are false.

5 A deterministic process is one that is strictly causal in nature: A leads to B, which leads to C, etc, is a deterministic process. A leading to B1 or B2 or B3, etc, is also a deterministic process. A non-deterministic process is one in which it is impossible to define rules about how a process *exactly* evolves in time.

turn leads to outcome D, and which in turn leads to… etc. An example of this might be: God is good; therefore all things that emanate from God are good; therefore Nature is good because Nature emanates from God; therefore all things that are encompassed by Nature must be good, because Nature is good; therefore all animal mates are good to each other (because animals are encompassed by Nature, which is good) and, as they are good, shall never deceive. Such logic is flawed (especially for male preying mantises) for it fails to take into account this possibility: Condition A may well lead to outcome B, but *under certain circumstances* it may also lead to outcome B2. Under a slightly different set of circumstances it may lead to outcome B3, or B4 or B5, etc. And these possibilities, in their totality, lead in turn to a plethora of outcomes, C or C2, or C3, or C4… *ad infinitum*. The failure in the logical sequence that goes: "God is good; therefore Nature is good; therefore …" is, first, that we have not allowed for all possibilities of outcomes from a single origin, and, second, that we have not even defined what we mean by the word 'good'.

The saying: 'One man's meat is another man's poison' is an apt one in this instance. In a very real sense, what is 'good' to one of God's creatures is not necessarily 'good' to another, when measured on the same scale of 'goodness'. Yet when measured in accord with Divine law (and by this is meant measured in the totality wherein *all* things are considered) all things that proceed from God are indeed good, for they all have a purpose, even if that purpose seems senseless to the finite mind of man. This does not mean that evil does not exist, for it does. It is unique to man and exists because man is free to use his rational faculties for acts that can either benefit or harm others. The Bahá'í teachings inform us that it is the absence of good, rather than a force in its own right, in the same way that darkness is the absence of light. With this perspective it is apparent that evil cannot exist in the animal kingdom because there is no meaning in 'good' for an animal. The practice of 'good' implies a conscious definition of what is *good*, and a clear conscious differentiation to its antithesis, what we call 'bad', or evil. Man has the ability to define what is good and what is not; sometimes God through His Manifestations reveals these definitions, and sometimes they are purely man-made. Animals have no such consciousness, no such definitions, and no such language. There is nothing good or bad about a blackheaded gull swallowing a neighbour's chick, or female preying mantises devouring their mates, from the perspective, that is, of *these* creatures. We are shocked by such horrific actions, only because they are horrific according to our rules, our definitions, and our standards.

To understand how it is that from one beginning a plethora of outcomes may result, we can again look to Nature as our guide, for she has draped herself with innumerable ornaments that testify to the immensity of her

diversity. Wrapped within the core of each of these ornaments is a distinction that differentiates between a world whose potential is limited and doomed to rapid extinction, and one of infinite potential and self-perpetuating existence. In the language of mathematics, this distinction is one between systems that are linear, and those that are not.

A linear system is, simply stated, a system that is *entirely* the sum of its parts, no greater and no less. A clear example of this is what happens when ocean waves intersect or collide with each other.[6] If one wave has a height of say 1 metre, and another has a height of 2 metres, then when their paths cross one finds that at the instant their peaks align the new combined wave will have a height of 3 metres.

A nonlinear system is one that defies such simple arithmetic. Examples of nonlinear phenomena also occur in the ocean. The fact that waves break on a shore is just such an example. In shallow water, the top of the wave travels faster than the base because the friction between the base and the ocean floor slows down the bottom of the wave with respect to the top. The wave's centre of mass[7] thus shifts and it becomes inherently unstable (or 'top-heavy'), eventually rolling in on itself and breaking onto the shore. If one could find two such superposing waves, one might find that the height of the combined wave was not just the simple linear sum of both separate waves (in this case 1 metre plus 2 metres does not equal 3 metres!).

Nonlinear systems are ubiquitous in Nature. Almost everything in our universe is nonlinear. Simple linear systems are largely an abstraction, an idealization of a far more complex reality. We go through a dozen or so years of schooling with the erroneous notion that our universe can be understood by simple relationships, and (whether we know the terminology or not) that linear laws govern these. Our minds are still developing as children and teenagers, and so, perhaps justifiably, we have been misled into believing that Nature is linear and simple so that we may more easily understand her. Students of university physics and mathematics realize how misleading this simplification is by the time they complete their second year of study.

In the 1970s and 1980s great progress was made in the understanding of nonlinear systems, and the term 'chaos' was coined to describe them. This is perhaps an unfortunate choice of words, for beneath this apparent level of 'chaos' lies an underpinning dynamics that is not at all chaotic, but is in fact fully deterministic. Fully deterministic, that is, only if we have a complete knowledge of all possibilities. We will return to this shortly.

There is a considerable amount of material published in the popular literature that tries to apply chaos theory to the modern world, much of which

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6 In technical jargon, this is referred to as superposition.

7 The centre of mass of a body is that point on it that moves in exactly the same way as a single point-particle with the same mass would if it were subjected to the same forces. One may think of it as the point on the body that represents the location of its spatially averaged mass.

is folly based upon a misunderstanding of what scientific chaos really means. From a rigorous scientific perspective, a system is chaotic if it has a sensitive dependence on its initial conditions. Take for example a spinning top. No matter how accurately one may try to spin it each time in exactly the same way, one finds that on some occasions the top is stable, and spins for a long time, and on other occasions it is catastrophically unstable, spins out of control, and collapses almost immediately. This, despite the fact that one has been very careful in how and where the top has been spun. In fact, unless one was able to perform each spin in *exactly* the same way (and by 'exact' one means just that: 100% certainty) one would *never* be able to guarantee a perfectly spinning top. This is because the top is an example of a nonlinear, chaotic system.

Assume an idealized situation: one has two trials at spinning the top.[8] On both trials one is able to impart *exactly* the same force on the top. In this respect, one has perfect knowledge. One is unable, however, to have perfect knowledge of the top's base-position at the start of the trials, except that it is known that this location in trial 2 is within some distance (say, *d*) to that of trial 1. If one then measures the trajectory of the top in both trials one would find that *d* increases in time *exponentially*. In other words, the value of *d* increases by the same factor after some characteristic time *t*. This is what is meant mathematically by something growing exponentially: a doubling (or tripling, or quadrupling, etc.) of some quantity (be it the separation *d* of top trajectories, or the population of *E-coli* bacteria in a Petri dish) in equal periods of time.[9] If one were able to give the top sufficient force to enable it to spin for a very long time, one would find that the top in trial 2 is very far from the top in trial 1, even though they were initially separated by only a very tiny distance, *d*. This is a simple example of a chaotic system. Imagine then the complexity of trying to figure out what is happening to a group of thousands of tops, each separated by some minute distance *d* from an idealized starting point, each of which diverges exponentially as time advances, and each of which interacts and collides with neighbouring tops, thus setting them off in new trajectories! And these are just tops. Imagine the enormity of trying to understand the population dynamics of animal species as they interact with each other, or how the billions of stars in our galaxy interact with – and influence - each other, or most of all, how human society organizes and regulates itself.

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[8] This is indeed a highly idealized example and the assumptions made here are not elaborated on. What causes the chaos in the motion of the top is complex and depends on a number of physical factors, including the friction between the top and the surface it spins on, as well as the force at which it is spun.

[9] This geometrical factor does not have to be an integer. It could be a fractional number. In general, exponential dependence can involve both positive and negative factors, where a positive factor implies the quantity increases in time, and a negative factor implies it decreases in time. Exponential divergence implies a positive factor, which means that the quantity (in this case a difference in trajectories, *d*) increases with time.

We can now have a better appreciation of why a single possibility may lead to a number of equally likely outcomes. For a system that is nonlinear (and as we have seen, this means most of the universe) if the initial condition A is *exactly* known and there is absolutely no uncertainty in its knowledge, then yes, outcome B is the *only* possibility. But if there is even the *slightest* uncertainty in the knowledge of A, then *any* of B, B2, B3… B∞ may result. This makes the business of predicting the future at best very difficult, and more practically impossible to determine precisely with existing knowledge, because there is always some uncertainty – no matter how small – in *anything* that we can know.[10] Even the most precise atomic measuring devices can only specify an object's position and time to within some inherent uncertainty based upon the physical limitations of the instrument. And while such uncertainties may be minute (billionths of a metre or billionths of a second), the fact that they grow *exponentially in time* is what makes prediction of the future so fraught with danger.[11] And this too is why Melburnian weather prediction is not always right, especially the notorious "7 day forecast". Small uncertainties in atmospheric conditions can bring about huge variations in climate over a relatively short period of time.[12]

In the above discussion, reference has continually been made to physical or natural (including biological) systems. It would suggest that the only way to gain a complete knowledge of the future is to somehow transcend the very dynamics of those processes that lead to the future! As such transcendence is unphysical, presumably it can only be exercised by spiritual experiences, such as those experienced by the Prophets of God and other inspired souls. 'Abdu'l-Bahá describes this type of knowledge as the "bounty of the Holy Spirit" which, He says, is the only kind of condition "in which certainty can alone be attained [4]". This in itself is another topic of vast richness, but which will not be pursued further in this article.

The prospect of an unpredictable future is indeed frightening. Precisely this kind of fear prevails in our uncertain world today. No one can take his or her individual or collective future entirely for granted. While the Bahá'í Writings attest to the ultimate acceptance and adoption of the Bahá'í Faith throughout the globe (for this knowledge indeed *does* transcend the dynamics that leads it there), we know little or nothing about the path we will tread to get

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[10] By 'know' here is implied knowledge gained through the senses, through reason, or though acquired learning. It does not refer to the only type of infallible knowledge possible, that which 'Abdu'l-Bahá describes as the 'bounty of the Holy Spirit' ('Abdu'l-Bahá , *Some Answered Questions*, Part 5, section 83).

[11] As an example of exponential growth, consider a bacterium that divides in two every hour. If there was only one such bacterium to start with, after one hour there would be two such bacteria; in two hours there would be four; in three hours there would be eight; after twelve hours there would be four thousand and ninety six; in twenty four hours there would be over sixteen million; and after thirty six hours there would be almost seventy billion!

[12] This is the famous "butterfly effect" example often quoted in popular accounts of chaos.

there, or how long it will take. It may be fraught with many tests and calamities. Bahá'u'lláh even anticipated that should He be slain "God will assuredly raise up one who will fill the seat made vacant through my death," and if His enemies "attempt to conceal His light on the continent, He will assuredly rear His head in the midmost heart of the ocean and, raising His voice, proclaim: 'I am the lifegiver of the world!'" [5].

The science of chaos has brought about an emergence of a probabilistic view of Nature. While some theories may go too far in this interpretation, the best of them are those that tie in the determinism of the fundamental laws of Nature with a probabilistic interpretation of those things we are unable to know with 100% certainty. An interesting consequence of this is the notion of what has been termed an 'attractor'. An attractor is a set of possibilities that any dynamical system[13] may ultimately evolve towards. In physical systems, these 'possibilities' might be the coordinates and velocities of some complex system, like the planets in our solar system, or the molecules of a gas flowing down a pipe. For microbial systems, they may be the location of sources of nutrients and warmth from which bacteria might be able to thrive.

It turns out that attractors can exist for both linear and nonlinear systems. An attractor for a linear system is generally simple: it consists of only a single set of possibilities that can never be violated. It is entirely predictable and leaves no surprises or tantalising new possibilities. It is, alas, rather boring, both in its structure and its consequences.

Attractors for real non-idealised systems are actually impossible to draw because they have more than 3 dimensions, and therefore cannot be visualized in our 3-dimensional world. They are essentially mathematical constructs. But for certain 'low dimensional' systems, they can be visualised.[14] An example of an idealized low dimensional linear system is a pendulum swinging in a plane. The attractor can be drawn by plotting its velocity on one axis and its position on another axis (it is thus a 2-dimensional diagram), resulting in a perfect circle. The idealization in this example is the absence of friction, and hence no energy dissipation.[15] Without loss of energy via friction, the pendulum has exactly the same energy at all times, so will continue swinging in its up-down motion forever. So, for this simple example, the attractor is a circle in what is known technically as 'phase space', i.e., the set of all allowable coordinates specifying the location and velocity of the pendulum. This is shown in the figure below.

[13] A dynamical system is one which evolves as time increases, as opposed to a static system, which remains constant in time.
[14] In particular, a low dimensional system with three or fewer dimensions.
[15] By dissipation is meant the conversion of mechanical energy into heat that is then lost to the system.

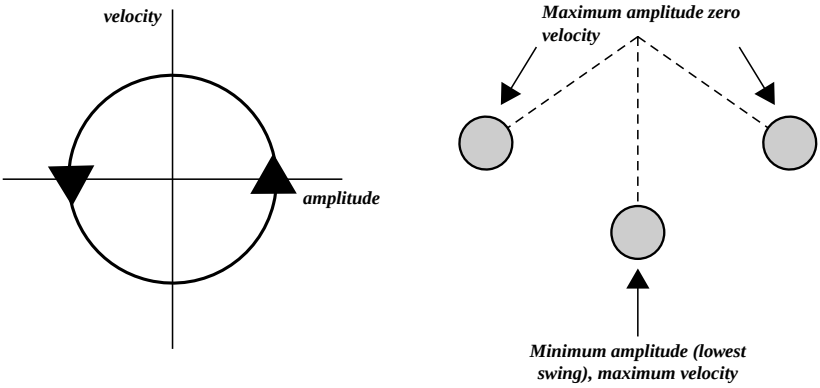

Diagram of an attractor (left) for a frictionless, non-dissipative pendulum (right).
Velocity is plotted as a function of amplitude (left). Maximum velocity corresponds to the point at which the pendulum is at its lowest swing amplitude, whereas zero velocity corresponds to the point where the pendulum is at its maximum swing amplitude. The intersection of the two axes represents the point (0, 0), i.e. zero velocity and zero amplitude. The pendulum is shown (right) at three different positions in its swing cycle.

If one now considers the real world, then friction comes into play, and because this means dissipation of energy, the idealised circle will in fact become a spiral, spiralling inwards until it reaches a point with the coordinates that correspond to zero velocity and the rest position of the pendulum (i.e. the pendulum comes to a complete stop). This is because the energy of the pendulum is lost to friction, diminishing both the amplitude and velocity of the pendulum in time. Friction in the real world invariably results in nonlinearity.

For a highly nonlinear system the attractor is much more richly structured than that of a linear system, with many more possible paths of evolution available to it. Because a nonlinear chaotic attractor usually has an unusual and complex 'shape'[16] it is termed a 'strange attractor'. A low-dimensional strange attractor, one that can be completely visualized in three or fewer dimensions, often has a wispy, hair-like structure, wherein each strand represents a set of possible paths along which a system might evolve. Each strand

[16] 'Shape' is parenthesised because for dimensions greater than three it is impossible to draw an attractor (we can only draw one, two or three dimensional objects). Its structure is complex and exists in a multidimensional abstract hyperspace that can only be analysed mathematically.

in turn can be fractal (see below), constructed of finer self-similar strands, which are themselves constructed of finer self-similar strands, *ad infinitum*. In between these strands and sub-strands are voids that represent forbidden zones, pockets of phase space not allowed by the laws that govern the behaviour of the system. However, no matter which evolutionary path the system takes, it remains in the domain (known as the 'basin') of the strange attractor, as long as it is stable in time. This means that even if something, some modest perturbation, knocks the system off its phase space trajectory, as long as the perturbation is not catastrophic and not sustained, then the system will return back to its stable attractor. This is why they are called attractors: because they 'attract' a phase space trajectory back onto its allowable evolutionary course.[17] And this is true, *despite* the exponential divergence of neighbouring trajectories that are characteristic of chaotic systems.[18] A stable strange attractor *guarantees* that there are in fact boundaries to evolution. While there may be an infinite number of possible paths within the attractor, the attractor is nonetheless finite in its extent.

An example of this 'finite contains the infinite' relationship may be found in the fractal nature of certain objects, such as a snowflake. Fractal objects, according to physicist Leo Kadanoff "contain structures nested within one another like Chinese boxes or Russian dolls [6]." A snowflake is just such an object, and while there are many forms of snowflakes, one nice idealized model is known as the Koch snowflake. One can construct a Koch snowflake oneself. Simply draw a triangle of equal side lengths of 1. Then, in the middle of each side insert a new triangle of equal size lengths of one third. Do the same for all the new triangles created and one will find an object that is self-similar, in that each section of the boundary resembles a smaller microcosm of it, and so forth. If one was able to do this forever one would find this snowflake in fact has a boundary whose length is infinite, despite it having a finite area! In an analogous way, a stable strange attractor can allow for a limitless range of possible evolutionary paths, while yet ensuring that the entire system is bounded within some finite range of total possibilities.

The comforting thing about this is that no matter how chaotic a system may get, no matter how uncertain its initial conditions or its eventual evolutionary path, the determinism of the dynamics that governs its evolution ensures that it will, in time, move along its unique strange attractor. In this sense then, there *is* order in chaos; there *is* certainty in uncertainty. The universe is not out of control and things are not free to do whatever they like! Natural law allows for chaos, yes, but this chaos has reigns that keep it under control.

[17] It is important to appreciate that 'attract' here implies a tendency for a trajectory to evolve along its attractor. There is no actual force of attraction, unlike, for example, the gravitational force of attraction between the earth and the moon.

[18] Why this is the case is interesting and has to do with the stretching and folding of chaotic trajectories in phase space. It is however beyond the scope of this article and will not be discussed any further.

When contemplating this, one is actually amazed how, out of such uncertainty and chaos, the universe and life emerged at all. Despite the complicated interactions that exist between all things, some as simple as the fundamental particles that constitute all matter, others as complex as human beings trying to organize their society on this planet, there is a glue that unites each component into a whole, a glue that guarantees their cooperation. How then can we rationalise such a contradiction? On the one hand deterministic dynamics leads to chaos, yet on the other it is *precisely* this complicated chaotic behaviour that in turn leads to the cooperativity that underpins the universe's existence and the existence of life itself!

Examples of this paradoxical behaviour abound; all we need do is look for them. Consider a fluid in a cup. Let us suppose that the fluid is at equilibrium, which means it is not being in any way stirred or shaken, and is thus at rest relative to us. At the molecular level we find molecules interacting with each other by two processes: the exchange of interaction forces, and by collisions. We consciously experience an interaction force every day, namely gravity. Though we cannot see it, we feel its influence all around us. It is the glue that binds us and everything else to our world, and the glue that binds the constituents of the universe together. Similarly, atoms and molecules also have interaction forces associated with them. This is not gravitational, but rather electromagnetic in nature: the attraction of positive charge with negative charge, or the repulsion of like charges (in the same way that like poles of a magnet repel each other, whereas unlike poles attract). Such forces are sometimes termed *configurational* forces, because they depend on *where* one atom is in relation to another. These forces act at a distance, just like the earth and the sun are attracted to each other, though they are over a hundred million kilometres apart. The other type of force is collisional, which is easier to visualise. Think of billiard balls colliding on a pool table, and one has a simple but effective model of how atoms and molecules collide. In these collisions kinetic energy (the energy of motion) is transferred between atoms and molecules.

Now, these interactions – both configurational and kinetic – result in the redistribution of mass, energy and momentum[19] in the fluid. They are governed by precise laws of motion and are fully deterministic. And yet, the system is chaotic because it is highly nonlinear. It is thus impossible to predict with constant accuracy the trajectory of any one molecule, let alone the collective system of the billions upon billions of molecules that comprise the fluid. So, on the fundamental level of the laws that govern the interactions and motion of each molecule, there is complete determinism. On the next level up, that of the collective system, there is chaos. But there is yet another

[19] Momentum is mathematically defined as the product of mass with velocity. The change in momentum of a body as time progresses is a measure of the force experienced by that body during that time.

level beyond that, the *macroscale*, in which our senses have direct experience. On this scale we see the fluid as a collective whole, a mass of fluid, in which we have no knowledge or awareness of its atomic or molecular constituents. We can characterize it fully only by its density, its pressure, its temperature and other physical and chemical properties readily accessible to observational measurement. Despite the underlying chaos of the microscopic world, in the macroscopic world all is calm and perfectly predictable. We can measure the pressure of the fluid to very high precision, and measure the same pressure again and again with almost perfect consistency in the results. No chaos there. We can similarly measure its temperature over and over again, always with the same predictable value. Somehow in going from the chaotic microscale to the macroscale we have crossed the barrier again, this time from chaos into order.

So here we have three levels: on the first, there is inherent predictability based on the determinism of the laws that govern the dynamics of atoms and molecules; on the next, there is chaos, where the determinism of the laws of motion lead to unpredictable outcomes due to the exponential divergence of nearby molecular trajectories; and in the final, there is again order, in which macroscopic quantities can be measured (and predicted) with high precision. Interestingly, if we were now to stir the fluid vigorously with a teaspoon, order would again be transmuted into chaos, this time manifested as turbulence within the fluid *on the macroscale*. But at the fundamental level of the laws that govern the dynamics of the motion of atoms and molecules, there is still complete determinism. On this level, nothing has really changed.

There are no simple explanations of these types of conundrums, but it is patronising and unedifying to rationalize our lack of understanding as another of God's mysteries. Certainly, these processes *are* mysterious, but written into the twenty-and-five remaining letters of Knowledge revealed through the Revelations of the Báb and Bahá'u'lláh is the means to a greater understanding of them. There are, for instance, some instructive examples we might consider, from both the material and spiritual realms of existence, which could shed light onto our sometimes dimly lit minds. On the level of material phenomena, we realize now that complexity results from interactions that are nonlinear in nature. Linear phenomena are not 'complex', and for this reason they are devoid of the potentialities that make an intricate universe stable, or life possible. In terms of spiritual phenomena, we need to appreciate that there is an almost unimaginable wisdom in the necessary inter-relationships that exist between what we naively term 'good' and 'bad'. Good and bad are a little like white and black. They are extreme opposites and idealized abstractions. Nothing is only 'good', nor is anything completely 'bad'. The universe is a far more palatable place to live in because of the reds and greens and blues and yellows that abound in it. A black and white universe would be somewhat boring and lacking in imagination and combinatorial beauty.

Let us first look at an example of how material complexity is good for us. This example is actually wrapped within us. It is our genes. Genes are, of course, composed of that remarkable molecule known as deoxyribonucleic acid, more familiarly known as DNA. DNA is an immensely large molecule comprised of millions of atoms. DNA in fact consists of a double-stranded helical molecule: two strands of DNA intertwined together in a helix. In turn, each DNA molecule is composed of four different types of sub-molecules, known as bases (adenine, thymine, guanine and cytosine, commonly known by their first letters: A, T, G and C), and each base is paired with another base on the adjacent strand. What DNA does is that it sends messages to other biological molecules, and these messages tell them what they should do and what they should make. The result is life. Furthermore, the order in which these base pairs are arranged is critical. Within this order is encrypted the unique message to be imparted to other molecules.

But this is not the end of the story. Recall that DNA is what genes are comprised of. Genes are much larger, far more complex structures consisting of *sequences* of DNA bases. Genes are, again, the imparters of messages, this time to a class of biological molecules known as proteins. And it is proteins that manufacture and control the engines of life: the cells of which we are all composed. A gene for brown skin, for example, gives instructions to skin cells to produce brown pigmentation, and so-forth for all other genes. Relatively simple creatures, such as viruses, exist with only a few genes. While 'simple', each virus gene is still hundreds of thousands of DNA bases long. Something as small as yeast consists of a colossal 15 million bases. And when we consider more than single-celled organisms we are faced with a complexity that has never been known to the human mind before. The human genome (the collective word for the whole family of genes that together make us what we are) itself consists of some 30000 genes!

The point is this: we humans, and life itself, can only exist due to the enormous complexity of biochemistry. At its core, this involves billions upon billions of interactions between billions and billions of molecules, each molecule in turn may be composed of millions of atoms. Anything simpler, anything smaller, and life could not exist. And, yes, these interactions are nonlinear, and hence chaotic. Life *could not exist* without this crazy and complex world of chaos occurring within our every cell! We should not therefore curse a universe that is complex; rather should we embrace and marvel at it.

As an example of how something spiritually complex is beneficial to us, consider the following. We accept as a matter of faith that all things spiritual are good for us, and that by some mysterious process all these spiritual realities must be essentially 'simple'. If they were so simple it should be asked (but seldom is), how is it that so few people are gifted with what we might term a divine nature? How is it that most people, even those who profess allegiance to one of the world's great Faiths, still struggle with their daily

temptations, fight their own demons and struggle to maintain their own sense of purpose? Why is it that so many of us fail so many times in our spiritual challenges, rather than enjoy an endless string of successes? Perhaps it is because the acquisition of spiritual virtues is not at all easy, and we deceive ourselves by claiming anything other. Perhaps also because we do not understand that spiritual evolution, like the evolution of biological creatures or the evolution of planetary trajectories, involves a type of deterministic dynamics.

There is in fact a dynamics of spiritual evolution. Its laws are contained in our Writings and indeed the Writings of all other Faiths, but we have to look for them. This is another topic in its own right, but in summary the dynamics goes something like this: God creates man to know Him and to love Him. But as it is impossible to know the Nature or Essence of God, what is meant is the attainment of His attributes *as they are reflected* in His creation. And since Man is the pinnacle of God's creation[20], then knowledge of our own selves is equivalent to gaining the highest *possible* knowledge of God. The path that leads unto our true selves is laid clear by the Manifestation of God, through His teachings, and through His Person. But this is where our role comes in: we must make, in the words of Shoghi Effendi, "sustained and intelligent effort" [7] towards this end, and this is done fundamentally through prayer and meditation. From this spiritual storehouse we are able to manifest the attributes of God amongst each other through, in the words of 'Abdu'l-Bahá, "good actions, which are the fruits of faith" [8]. Does it end here? Not quite, because by attaining the highest level of spiritual progress, i.e. the manifestation of Divine virtues through tangible deeds, one's spiritual capacity is increased, and therefore one is able to 'know and to love' God to a greater extent, and this after all is our ultimate purpose in existing. And so it is that we return to the beginning of the spiritual cycle, and indeed the process is infinitely cyclic, with each cycle possessing greater capacity than the previous one.

This is an idealized model, and in practice it is not quite so simple, not quite so straight-cut. If it was, we would all be wonderfully virtuous, and God's Kingdom would well and truly have been established on earth. It is highly likely that the cyclic 'feedback' process described above is in fact inherently nonlinear. While the paths towards spiritual progress may appear clear enough, it is proposed here that they are infinitesimally spaced along a manifold. By this is meant that any spiritual path is, when examined in *minute* detail, constructed from an infinite number of equally likely sub-paths, paths that are fractal in nature, in the sense that they are self-similar. Thus, setting out on one sub-set of one path may lead to an entirely different end than if

[20] This is attested to in the Bahá'í scriptures as well as all others. By Man is meant, in the author's opinion, any creature that possesses the intellectual capacity 'to know and to love' God, be it in this world or any other.

one had set out on even a slightly different sub-set. Again, we see the markings of a type of chaotic dynamics in operation: small differences in initial conditions leading to vastly different outcomes.

Unfortunately no experiment can ever be devised to test this theory. One never has a second chance at life on this planet, so we can never have two 'trials' at life, like we may with spinning tops. But if there is some consolation, it is this: no matter what path one does take, even if in time that path turns out to be a mistake and leads to a fate far removed from what one might have imagined or hoped for, as long as one is not totally reckless in one's undertakings, then one *will still remain* on the stable 'strange attractor'[21] that allows for the total range of possible spiritual experiences. An analogy can be made with the swinging pendulum. Slight disturbances to the pendulum will only temporarily disturb its trajectory, but in time it will again settle down to its regular periodic motion.

There are many examples in all our lives in which we have made a mistake, but which some good nevertheless comes from that mistake, and from which we have taken great strides forward on the path of spiritual progress. This is an example of choosing a sub-set of a particular path that may not have been ideal when viewed with hindsight, but which remarkably still leads us to advance our spiritual condition, and which may ultimately bring us great reward and personal fulfillment. It is an example of how complexity in the spiritual world can be beneficial to us.[22] In fact, one could reasonably argue that it is indispensable for our development as creatures that are fundamentally spiritual in nature. But then, this also depends upon our own intelligence, and our willingness to learn from our mistakes, and this comes down to the importance of volition, again a topic in itself so vast that it requires a series of articles in its own right.

So what have we learned from all this? Perhaps most importantly it should be this: Do not be afraid of the strange and complex universe we live in, and the unpredictable nature of the laws that govern it, laws that describe both the physical and spiritual domains of existence. Remember that these laws are themselves but reflections of God's purpose for Man, reflections of His Will. No matter how unpredictable our future, be assured that despite the small errors that we make from time to time, we will still move along our 'strange attractor', confined to within the limits of God's decree, yet with an infinite degree of latitude to explore the vast richness of spiritual and material existence. The only thing to be truly cautious about is that these small errors in judgment remain small. For if the errors get larger and larger we run the risk of creating for ourselves an *unstable attractor*, and then we *have* entered the

[21] Strange attractor is parenthesised here because one must be cautious in extrapolating spiritual reality into physical or mathematical terms. One uses 'strange attractor' here as a metaphor for a spiritual reality that is analogous to the strange attractors measurable in the physical world.

[22] It is also an example of how marvellously merciful God is to Man!

9th circle of Dante's hellish Inferno, from which there is little chance of escape.

The title of this article has the word "benevolence" in it. Where is benevolence to be found in chaos? It is in this: a linear, simpler world is in fact the cruelest and most awful of all places to live in. It would be testimony to an uncaring God Who does not wish to have creatures to know or love Him; a sole, alone God Who wants to love none other than Himself and has time or interest for nothing else. Recall that linear laws of Nature preclude not only life, but the very formation of the universe itself! The universe exists, life exists, *we exist*, our purpose in life in knowing and attaining the presence of God, is only possible *because* of the benevolence of our highly nonlinear world, and the chaos and uncertainty that is part-and-parcel of it. And this benevolence is itself a mere reflection of the benevolence of God in the hearts and minds of Man.

Finally, a closing remark about He Who brought all this about in the first place. If God has so willed that our universe and our eternal lives be bound within an infinitely unknowable reality, a reality that is at its core nonlinear, complex and chaotic, then what does that say about God Himself? Is not His universe but a reflection of His Purpose? Is God, therefore, *nonlinear*? Is He – far from being simple in Essence – in fact quite the opposite: complex beyond all imagination? Is He chaotic?

Fortunately, such questions are ridiculous. The reason that they are ridiculous is encapsulated by an unambiguous statement by Bahá'u'lláh, in which He says clearly that God is "exalted beyond every human attribute, such as corporeal existence, ascent or descent, egress and regress" and that "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 [9]." By this is implied that the universe, and all within it, is contained by God, but that God can never be contained by it. So it is that the universe and Man in his totality are indeed nonlinear. This is how God designed His Creation. So be it. Bahá'u'lláh also says "…the utmost limit to which they who lift their hearts to Thee can rise is the confession of their powerlessness to enter the realms of Thy holy and transcendent unity, and that the highest station which they who aspire to know Thee can reach is the acknowledgment of their impotence to attain the retreats of Thy sublime knowledge…[10]" God is, for want of a suitable superlative, *supra-linear*, and there is no definition in any language in any world for what this really means. The Essence of God, no, actually the essence of *anything*, is where our knowledge strictly ceases.

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Youth Suicide in Australia
Future Directions in the New Millennium

Farahnaz and Kynan Feeney

Introduction

The state in which an individual no longer finds life bearable, and finds the only solution in removing his or her own life can evoke feelings of sadness, disbelief and shame. Perhaps this is most alarming when it occurs in youth, with the inherent potential and optimism that is often associated with this stage of life.

The increasing prevalence of youth suicide over recent decades in Australia has been alarming. One in seven deaths of males aged between 15-19 years is currently caused by suicide. In 1966 the corresponding figure was one in twenty [Hassan, 1995]. This trend is found throughout the developed nations of the world. For example, in the United States teenage suicide rates have registered a 287 per cent increase between 1960 and 1980 [Hassan, 1995].

Paralleling increases in youth suicide rates has been a substantial increase in psychosocial disorders in youth since World War II [Diekstra 1998; Eckersley, 1997]. The fact that this increasing prevalence of mental distress has occurred within the context of an increase in the overall material well-being of youth in the industrialised world is perplexing for some authors [Klerman and Weissman, 1989; Clarke & Lester, 1989].

In this article, we will briefly review the recent trends in suicide rates in Australia. Then we will review the current theories and arguments which attempt to explain these trends in youth suicide in our community, and the current preventative strategies. We conclude with Bahá'í perspectives on both the underlying issues relating to youth suicide and potential interventions for its future prevention.

The Problem

Suicide is a complex area of scientific study. When discussing the difficulties in the study of suicide, Diekstra [1998] highlights that the very nature

of suicide, being a behaviour, as opposed to a discrete disease, makes it difficult to predict and study. Suicide can have an infinite number of motives. It can happen to any type of person, regardless of background. Its often hidden nature, and the stigma surrounding the act of suicide in most cultures, makes this another factor in the difficulty in studying and fully understanding this condition.

Within Australia, suicide rates overall have not changed significantly since the Second World War [Clarke & Lester 1989]. Rates for youth suicide, however, have shown a marked increase in recent years. The rates of completed suicide have not consistently increased in younger women, although attempted suicide has increased over time.

Suicide Rates per 100 000 Population in Australia 1891 - 1990 by Gender and Age

[Hassan, 1995]

Age	Male				Female			
	1891-1910	1964	1986	1990	1891-1910	1964	1986	1990
15-19	**3.2**	**5.8**	**13.2**	**17.8**	4.0	2.9	3.0	5.0
20-24	**11.9**	**16.3**	**29.2**	**36.1**	6.7	7.7	7.8	3.9
40-44	36.1	34.6	25.8	25.1	7.6	17.9	7.3	6.4
65-69	**56.0**	**39.7**	**23.3**	**25.1**	6.9	21.0	7.6	7.7

Predisposing Factors

Suicide is due to a complex interplay of variables, with each person affected being unique in the predisposing and precipitating factors for their suicidal convictions. There is currently no infallible mechanism for predicting who will commit suicide [Krupinski 1998].

There have been a number of proposed individual risk factors for suicide. We have restricted this review to those risk factors that are specific to youth suicide.

Predisposing Factors for youth suicide

Individual risk factors

(1) Psychiatric Illness

The risk of suicide with depression is a commonly recognised phenomenon. This may be related to a number of factors including poor coping

mechanisms, feelings of worthlessness, hopelessness, and wanting to escape their depressed state. Several authors have extrapolated from attempted suicide studies that hopelessness is the "missing link" between depression and suicide, although this is not supported by all studies [Hassan, 1995, Schmidtke et al, 1998, Atkinson, 1998]. There is also an increased rate of suicide in people suffering from other psychiatric disorders, such as personality disorders and psychotic illnesses [Hassan, 1995].

(2) Family/Interpersonal Conflict

It has been shown in a number of studies that there is an increased incidence of family conflict amongst youth suicides [Marttunen et al, 1998; Hassan, 1995; Beautrais, 1998]. Various specific factors, such as substance and physical abuse within families, parent-child discord and parental legal difficulties, have been proposed to be strong predictive risk factors [Brent et al, 1998]. Specific parental characteristics, such as being frustrating, rejecting and unkind are also more likely to bring up children who are prone to become preoccupied with thoughts of death and suicide [Hassan, 1995]. The relationship between interpersonal conflict and suicide, as with other risk factors, may also be related to poor or rigid coping mechanisms, and underdeveloped problem solving skills.

(3) Social Isolation

Social isolation and loneliness have been demonstrated to be risk factors for suicide [Hassan, 1995]. Lack of meaningful social interaction can predispose to feelings of depression, boredom and emptiness. It may be precipitated by separation from a significant friend or relative, or may be a pervasive pattern in a person's life.

Related to social isolation is unemployment. Employment fulfils a number of needs in our society, and for many is an important source of social interaction and personal meaning. Unemployment in general has been shown to be associated with low self-esteem, and psychological and emotional insecurity [Hassan, 1995]. It is also a recognised risk factor for suicide, and has been proposed to be a contributing factor towards the predominant increase in male suicide rates over the past 30 years [Hassan, 1995, Dudley, 1998]. Other factors, such as changing gender roles, data-gathering procedures, communication skills and methods of suicide used, with males usually using more violent forms of suicide, have all been proposed to explain this gender difference [Hassan, 1995].

Both social isolation and the high unemployment rate in small rural areas of Australia may also be significant contributing factors explaining the dramatic rise in male youth suicide rates (almost 12-fold in some areas) over the last 30 years [Dudley et al, 1998].

(4) Hopelessness

Some authors have suggested that suicide is linked to hopelessness independent from clinical depression [Beautrais, 1998, Hassan, 1995, Eckersley, 1997].

(5) Worthlessness

Akin to hopelessness, worthlessness has been found to be typical amongst those who commit suicide [Tiller *et al*, 1998]. An analysis of 176 suicides in South Australia in 1982 found that worthlessness was attributed to being a major factor in predisposing to suicide, and usually associated with marital breakdown or professional failure [Hassan, 1995].

(6) Drug and Alcohol Abuse

Drug and alcohol abuse have been consistent risk factors for youth suicides over recent decades [Marttunen et al, 1998], and recent research from America has suggested that substance abuse is the single most common denominator for suicide risk [Hassan, 1995].

This may be due to increasing the risk of psychiatric illness such as depression. Drugs and alcohol also lower inhibitions and may increase rates of impulsive suicide.

The high incidence of alcohol and drug abuse amongst people who have committed or attempted suicide may also be related to the predispositions that brought them to abuse substances in the initial instance. Some people use substances as a maladaptive coping mechanism to help them to resolve internal conflicts and deal with stress [eds. Marmot and Wilkinson, 1999].

Risk factors – a population perspective

The above risk factors, which attempt to describe the risk factors within an individual, are unfortunately not as powerful when applied to a population perspective. To discuss this further, a number of fundamental concepts within population health are briefly introduced.

Geoffrey Rose (1992), a medical epidemiologist, successfully demonstrated that for most conditions, not just medical conditions, there exists a continuum of risk. He demonstrated that for the individual, having a higher cholesterol level conferred a higher risk for having a heart attack (myocardial infarction) than lower cholesterol levels. However, at a population level, the people who had higher cholesterol were the minority of people in terms of total numbers who had a heart attack. This unusual finding was due to the fact that the vast majority of people lie within the more ‘normal’ cholesterol levels, and even though as individuals they had a lower risk for having a heart attack, as they were much more numerous than the people with higher cholesterol they contributed a much higher absolute number of heart attacks.

This apparent paradox, that large numbers exposed to a small risk can produce more disease than small numbers exposed to a higher risk, was one of the major movements in health to focus on whole-of-population risk factors rather than high risk individuals in isolation. Rosenman [1998] demonstrated that suicide was one of these conditions that exists within a continuum of risk, and that most suicides actually occur within lower risk populations.

Changes at a population level must therefore be the primary cause for changes in suicide prevalence, reflecting population-wide changes in psychosocial health, rather than a discrete effect within a small minority of the population. The possible causes and manifestations of these changes will be discussed below.

Current Preventative Strategies

Our review of current accepted suicide preventative strategies and programmes can be outlined under three main headings: improvement in diagnosis and treating depression and other psychiatric illness, development of suicide prevention and crisis intervention centres, and restriction of access to lethal means for committing suicide [Clarke and Lester, 1989; Lester, 1995].

Treating Psychiatric Disease

There is no doubt that we have come a long way in the understanding and management of psychiatric illness in this century. Diagnosing and treating people with psychiatric illnesses that predispose to suicide are fundamentally important in the management of people at risk of suicide.

Rates of depression in youth populations have increased significantly since World War II [Klerman, G.L. and Weissman, M.M. 1989]. Despite the increased ability to treat such psychiatric conditions, ecological studies have demonstrated that this increased ability to treat psychiatric disease has nevertheless been paralleled by increased rates of youth suicide, indicating that the ability to treat end-stage conditions that precede suicide in themselves will not adequately prevent suicide at a population level.

Prevention Centres and Programmes

A review of the literature on suicide prevention programmes demonstrates that there is no empirical evidence to support their effectiveness, and that some programmes may actually make things worse [Kerkhof and Diekstra, 1995; Rosenman, 1998].

Interestingly, there are no comprehensive preventative programmes currently developed that target the individual's interaction with the community, with both a preventative and curative intent. It has been recognised that many risk factors for suicide involve the interaction between individuals and their society, but most social antecedents are difficult to address. Other authors

have commented that such programmes would "demand difficult social engineering" [Rosenman, 1998, p.101], which is an undesirable target area for policy makers not only because it is difficult, but also poorly understood.

Reducing access to lethal methods of suicide

Access to lethal means of suicide are an easily identifiable risk factor within easy reach for reduction [Tiller et al, 1998]. This strategy is based upon the belief that suicide is not an inexorable condition that inevitably will lead to a successful attempt by an individual, but rather a combined result of temporal despair, weakening of moral restraints against behaviour and the availability of a method that is not difficult to use. [Clarke and Lester, 1989]. If this theory is true, it may help to bring about a decrease in impulsive and psychiatric-dependant suicidal behaviour.

The proposal of such methods for reducing youth suicide, however, do not address the underlying emotional and social antecedents leading to suicide [Tiller et al, 1998; Rosenman, 1998]. This is reflected in suicide rates in Australia, in which a reduction in suicide by firearms over the last ten year has been more than offset by an alarming increase in suicide by hanging and carbon monoxide [Baume and McTaggart, 1998].

Youth Suicide – Perspectives from the Bahá'í Faith

There is undoubtedly an interplay of biological, psychological and societal factors in the aetiology of suicide. However, we propose that the dramatic overall increase in youth suicide over recent decades must have a significant social and spiritual influence in its cause, reflecting changes within the whole of Australian society.

Suicide-specific factors

The following areas are some brief concepts from the Bahá'í Faith that have direct relevance to addressing this growing problem.

Science and Religion

Improved understanding

The Bahá'í Faith recognises the value of science in promoting and developing society. Science and religion are seen as two forces of truth, each developing society on its path of progress. We are still understanding the phenomenon of suicide, and are still developing effective strategies for prevention. This is an area which as Bahá'ís we feel would require ongoing scientific research and evaluation. It is imperative to have more research that considers the more distal determinants for suicide as well as considering population perspectives.

Relationship with psychiatric conditions

The Bahá'í Faith encourages any person who is ill, in any way, to seek the help of a competent physician. There is no doubt that a certain proportion of people who attempt or commit suicide are suffering from an identifiable psychiatric condition, such as depression or schizophrenia. Improvements in psychotropic medication and therapeutic counselling may improve the mental health of people and reduce the rate of suicide amongst a proportion of youth who have recognisable psychiatric conditions.

The Value of Religion

Research suggests that religion can have a protective effect in preventing suicide [Stack & Lester 1991]. Nevertheless, when religion is found to be protective, it relates to the individual's actions and behaviour, reflecting an inner reality and conviction. Religion is more protective in cases such as suicide when it also provides strong social support networks [Stack & Wasserman 1992].

For Bahá'ís, the fundamental purpose of religion is an inner change and development through the acquisition of spiritual virtues and powers. Bahá'ís recognise this as the process of spiritual transformation. It implies the inner spiritual potential latent in humans is released and brought to its full potential through prayer, service and obedience to divine teachings.

General Social Factors Contributing to Youth Suicide

> *"The deepening crisis in western culture is both social and spiritual: a failure to provide people with both a sense of being part of a community and a valued member of a society, and a sense of spiritual fulfilment, that is, a deep sense of relatedness and connectedness to the world and the universe in which we exist." [Eckersley, 1993, p. 16]*

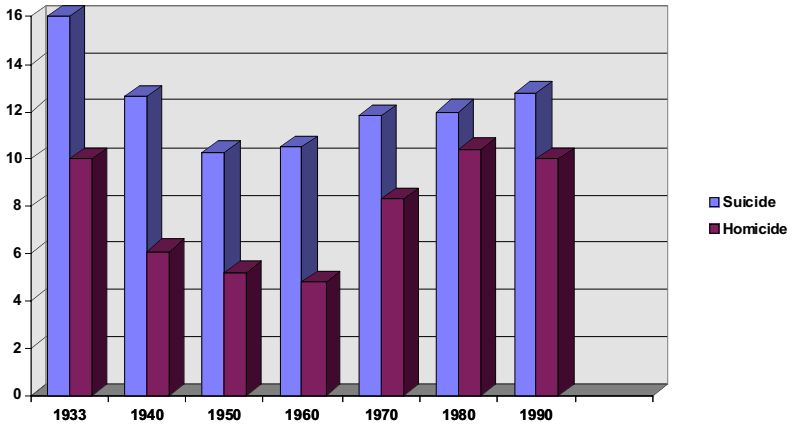
We have argued that suicide is a final outcome of a diverse number of factors, including individual genetic and psychological differences, secular influences, social and economic background and psychological stability. We propose that the rising rates of youth suicide over recent decades, however, may be seen as a marker of a more general problem reflecting social stress and breakdown, rather than something particular to an isolated minority.

Along with the marked increase in youth suicide over recent decades, there has also been a concomitant increase in homicide, drug and alcohol abuse, delinquency and crime [Hassan 1995, Eckersley 1997]. A comparison between main disciplinary problems in public schools in America from 1940 to 1990 found that the main problems in 1940 were talking out of turn, chewing gum and running in the halls, and the main problems in 1990 are drug and

alcohol abuse, pregnancy and assault [Covey 1997]. Recent research is revealing the extent of distress and disillusionment amongst youth in contemporary society, and youth suicide may be the tip of the iceberg of psychological distress and disturbance currently being experienced amongst young people [Eckerlsey 1997]. Suicide prevalence may therefore be viewed as one of many social markers, rather than a discrete entity in isolation from society.

Pattern of Suicide and Homicide in the United States 1933-1990

[Hollinger et al, 1994]



The above graph demonstrates the relationship between homicide and suicide from 1933 to 1990. It shows that as suicide changes over time, homicide changes with it, reflecting common social shifts within society being expressed in violent end points.

If the increase in acts such as youth suicide is the tip of the iceberg of psychological distress and disillusionment, then why is it occurring? Factors which we identify as major contributing variables include loss of meaning and vision amongst youth in our society, social decline in the standard of morals and values and the erosion of family and community structure and cohesion.

1) Vision and Meaning.

Contemporary psychology associates well-being with feelings that life is meaningful, strong religious beliefs, values that transcend the self, membership in groups, dedication to a cause and clear life goals [Eckersley, 1997].

Eckersley [1997] proposed that rising rates of markers for social decline, including suicide, drug abuse and depression, reflect a growing failure of modern Western culture to provide a framework of hope, moral values, and a sense of belonging and meaning in our lives. This leads to weakened social cohesion and personal resilience. Rather than seeing material prosperity as a means to develop ourselves and the society around us, modern western culture exalts shallow goals such as material gain and positional advancement as ultimate ends and distinguishing features of moral virtue.

We propose that there is an increasing lack of vision and true meaning in the lives of the youth of this generation. Vision gives a perspective beyond the immediate. It motivates people, provides meaning and gives them hope. It provides a context that gives solace in times of misfortune, and motivation for advancement towards an ultimate goal. As the old prophets warned us - those without vision perish.

Vision can take many forms, however, and the vision we refer to is one that elevates humans to advancement of both themselves and society as a whole. We have witnessed visions of such destruction during the course of this century, leading to wars and suffering beyond ordinary contemplation, that having any vision and goal is not the answer to all problems in society. Clarity and purity of vision are other important elements in the power of vision.

Those without such an elevating vision cannot see past temporary trials and obstacles, which hastens feelings of hopelessness. People will be less motivated to advance beyond ongoing struggles. This can manifest itself in increasing self-destructive behaviours such as drug and alcohol abuse, crime and other delinquent behaviour.

Bahá'ís believe that humanity is traversing a transitory period in the history of humanity, a time of turmoil during which peace in the world will come in stages. Although we recognise the immediate future is dark, we also feel the ultimate future for humanity is very bright. It is this vision which animates our daily lives and one which allows us to feel optimistic amidst mind-boggling atrocities, injustices and social decline.

Our vision as Bahá'ís also incorporates involvement in service in order to contribute towards an ever-advancing civilisation. Bahá'ís believe that having a sense of hope, a broader vision, and a perspective transcending their own individual lives, ennoble and uplift and facilitate spiritual growth.

Hope and meaning are components of the broad concept that Bahá'ís term spirituality. It is a way of life and understanding which brings one closer to God. Bahá'ís feel that one of the main challenges facing youth of these turbulent times is that of spirituality:

> *"How to attain spirituality is indeed a question to which every young man and women must sooner or later try to find a satisfactory answer. It*

is precisely because no such satisfactory answer has been given or found, that the modern youth finds itself bewildered, and is being consequently carried away by the materialistic forces that are so powerfully undermining the foundation of man's moral and spiritual life." [Shoghi Effendi, 1935].

We have seen through agricultural development a gradual increase in the material well being of developed nations. This was replaced in the industrial revolution with machines, and the human mind became an increasingly prized commodity. In contemporary history, we are witnessing that achieving human happiness in accumulating material wealth is a chimera. As we realise that this emptiness cannot be filled with bigger and brighter material possessions, a spiritual revolution will inevitably be pursued, in which spirituality will be seen to be as important as material and intellectual progress in personal fulfilment and advancing civilisation.

Although we have discussed the increase in destructive behaviour in youth, such as suicide and drug abuse, a more subtle and pervasive change occurring amongst youth is the promotion that life's meaning is found in isolated material progress. We feel that increasingly youth are replacing idealism and enthusiasm with indulgent materialistic goals. Thus not all manifestations of psychosocial discontent express themselves in socially undesirable acts such as suicide and violence, but can also be manifest as selfishness and self-aggrandisement.

Whilst Bahá'ís believe that service to humanity and contributing to an ever-advancing civilisation is a practical application of religion and spiritual values, the activities of this life are always understood within the context of the next. Inevitably, we all leave this world at physical death to continue our journey towards continual spiritual happiness. Having a belief in an immortal soul, one that transcends the mortal limitations of this world, transports the perspective of goals in this life to a much loftier level. "To know and love God" is a succinct summary of the Bahá'í perspective of the ultimate purpose of life on this planet, and to manifest this love and knowledge in the progress of civilisation is an essential and practical outcome.

One example of how spirituality and having such a perspective can transform our lives is the concept of work in the Bahá'í Faith. Contemporary society tends to measure success in employment by material advancement and prestige. The finding that many suicides in young and middle-aged men are precipitated by business failure is an example of this social value. The Bahá'í concept of work is different. Bahá'ís perceive work done in the spirit of service like worship of God, regardless of the form of work that it may take: "...all effort and exertion put forth by man from the fullness of his heart is worship, if it is prompted by the highest motives and the will to do service to

humanity. This is worship: to serve mankind and to minister to the needs of the people. Service is prayer..." ['Abdu'l-Bahá, Paris Talks, 1995]. Thus prestige and pride lose their focus, and more meaningful and enduring goals are found in all of our occupational endeavours.

2) Social decline in morals and values - Frogs in Hot Water

Frogs adapt to their external temperature. If you put a frog in a pot full of water, and slowly bring it to boil, then the frog, adapting faithfully to its external environment, will not notice the bubbles of boiling water around it until it is too late.

We propose that human beings are like frogs socially, that is we adapt to small changes in the social atmosphere. Over the last century we have witnessed large changes in social structure and values, often without our full awareness. This has produced profound changes across the full spectrum of society.

Not all the changes over the past few centuries, however, have been bad. Some of these changes, such as the emancipation of women, increasing awareness of human rights and the advancement of science have all been a source of progress and development. Paralleling these changes, however, we have also seen destructive changes within society. It is beyond the scope of this essay to discuss the various changes in any detail, but one of the major changes that we feel impinges directly on the state of morality and how it relates to social decline, is a loss of spirituality and belief in God.

The gradual exaltation of science as an ultimate Truth, and religion being an antiquated set of stories and rituals, has lead to a dichotomy between logic and values, science and religion. There is a growing atheism in our population, and a decline in affiliation in traditional churches, especially amongst younger populations. Without a source of reference for values, we are bereft of navigation amidst a sea of conflicting views, and need to compromise to a middle-mean, a standard that seems to slide inexorably downward. This leads to a compromising attitude towards the standard of values and a loss of sense of those things that may be considered sacred.

Eckersley [1993] highlights the role that technological advances in recent times, such as the mass media, has produced in the disintegration of values and human development. He emphasises the role that this plays in fuelling our spiritual discontent, by promoting superficial, materialistic, self-centred and self-indulgent lifestyles. Although we agree that such influences promote a decline in moral values, the more important factors to be considered are the underlying factors which may have provoked such a situation from initially occurring. Media is a reflection of acceptable standards, and are partly driven by consumer demand. They reflect a trend that purpose equals pleasure, and present us with a confusing array of conflicting messages about the values of our society precisely because such a situation exists.

Eckersley [1993] summarises the above points in his arguments in the gradual inability of modern western society to provide meaning, despite its advances in material well-being and progress, by stating that "..while tragedies such as suicide arise from intensely personal circumstances, they also represent the extreme end of a spectrum of responses by many young people to modern life, ranging through degrees of depression, drug abuse, delinquency and suicidal ideation to a pervasive sense of alienation, disillusionment and demoralisation" [Eckersley, 1997, p. 424].

As Bahá'ís, we believe that this process of decline does not occur without a reactive process of development. These turbulent movements produce both confusion and hope, precipitating an ever increasing search for the true meaning of our lives. This is manifest in various forms. The growth in recent times of more fundamentalist sects of established religions, a growing awareness of global unity and peace, the multiplication of new movements and a growing restlessness and dissatisfaction with the current state of society, can all be seen as manifestations of this emergence of spiritual yearning. Bahá'ís believe that this will inevitably lead to a growing world consciousness, and a realisation for the need for spirituality in daily life. We as Bahá'ís propose the Bahá'í Faith and Bahá'í world community are a successful, working model for such a way of life.

An example of a 'population approach' to addressing some of the fundamental determinants of social progress and health within the Bahá'í Faith is the notion of the training institute. As the Bahá'í Faith has no clergy, each member is responsible for the propagation and administration of the Faith's affairs. To facilitate this process, a network of training institutes has been developed throughout the Bahá'í world. These function as the core of individual and spiritual progress, in which members of the Bahá'í Faith and wider society study the sacred Writings of the Faith and learn to apply these teachings to their individual and collective lives.

The system developed to perpetuate this process is both self-sustaining and is designed to accommodate large numbers. It is thus a vehicle for broad, population approaches to reverse the fundamental determinants of the social decline we are witnessing in contemporary society. It aims to produce a new social pattern and culture, characterised by such virtues as tolerance, empowerment, a learning attitude, spirituality and service.

Conclusion

The increased prevalence of youth suicide witnessed within Australia over recent decades may be viewed as a manifestation of increasing psychosocial distress and spiritual disillusionment due to a pervasive loss of religious influence within the life of our society. These changes are manifestations of population-wide changes, and are not limited to a small number of people with unique features or risk factors. These changes are also manifest in subtle

changes in society such as loss of moral values, rising materialism and the exaltation of personal achievement as an inherent moral virtue.

Medical research has been successful in isolating some of the individually based risk factors for suicide, but has not been successful in explaining or addressing the changes from a population or society-wide perspective. Although the importance of these social influences in the prevalence of conditions such as youth suicide are being increasingly recognised, addressing these fundamental determinants is a more difficult task. From a Bahá'í perspective the essentially social and spiritual causes of the general psychosocial changes in society have been largely ignored. Until these broader fundamental determinants of social decline are addressed, interventions to deal with issues such as youth suicide will only shift the mode of expression of this psychosocial distress, but not the overall existence, or the underlying cause, of the social crisis that we currently face.

The authors wish to note that, since the writing of this paper four years ago, new evidence may have come to light which has not been included in this review.

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Protocols in Aboriginal Communities

Darryl French

To improve relations between Indigenous Communities and those who seek to work in those communities, it is vitally important to know the basics of Indigenous cultures, but more importantly the protocols needed by non-Indigenous people to get to know and develop on-going relationships with Indigenous people.

These are the basic lessons that we know to work. These have been learnt through years of painful mistakes and ineffective consultation and communication between Aboriginal and non-Aboriginal peoples. It is our experience that when simple protocols have been observed then cross cultural understanding will take place, as both groups will gradually learn from each other. As the trust increases with time and consistent effort, more knowledge is shared.

The following comments are generalizations and there are exceptions to all of these.

In this there is an important lesson. Indigenous people and communities are diverse, they are as diverse as the country they come from regardless of the dominant view in our society. However, there are also common threads. The following will also need to be carried out with care and with every Indigenous person in our community that you come into contact. And just because you know some Indigenous people does not mean that all will want to know you or feel comfortable with you.

1 It is important to be sensitive to history. Not all Indigenous people have the same history or perspectives on history. More specifically, the Indigenous view of time does not separate the nearer distant past from the present. It is more of a Western perspective to separate these and this is convenient when you do not want to be burdened with the sins of your fore fathers.

2 In meetings of Indigenous organisations, always wait to speak. Do not try to push the pace of the meeting along. Often, non-Indigenous people are

not sensitive to the fact that often the first part of any meeting involves what appears to be small talk. This talk in fact is very important as people re-acquaint themselves with each other. Always wait until this is finished and then you will find that the business you came to complete will be addressed and dealt with very quickly. Often, non-Aboriginal people do not pick up the subtle nonverbal communication that is going on. This is why it is important to sit back, wait, listen, and watch. We are always identified as lateral thinkers and tend to move away from the linear approach.

3 Consider the barriers that many Indigenous people face in dealing with Western systems. Many Indigenous people with responsibilities have many commitments to family and community. When organising meetings, it is better to organise them in a place that community members can easily get to. It is also wise to arrange transport and child care for meetings to ensure that you get a wide range of the community there. Have the meeting in a place at which Aboriginal people feel comfortable. This generally means a place that is close to or amongst where most of the local communities live.

4 Ensure that you understand most aspects of Aboriginal English (AE). Aboriginal English is a recognised dialect of standard Australian English, it is highly efficient in its expression, and has a significant non-verbal aspect. It is not recommended that you use it, but rather that you are aware of its subtleties. After a while it is easy to pick up and you will probably start using AE expressions and hand actions unconsciously.

5 Do not try to change things. Aboriginal culture is steeped in oral traditions and continues to survive because of these traditions amongst other reasons. You must work with these traditions and practices.

6 You can only work within existing social structures. This is why getting to know who is related to who, and who they will be comfortable working with, is a must. Often, separating the genders and different kinship groups can improve consultation and communication as you will not be placing people in situations they are not comfortable with.

This is not to say that it is proper to bring up the past, especially the darker parts of Australia's history, rather just be aware of where people's attitudes may come from. If we understand the history of relations between Aboriginal and non-Aboriginal Australia, then we can never make value judgments on the actions and lifestyles of Aboriginal communities today.

When considering history or teaching history always try to weave in an Aboriginal perspective as a normal part of Australian history. It is a shared history.

It is important to listen for a long time before professing any form of understanding. Always demonstrate that you can be taught and can laugh at yourself. People who take themselves too seriously are generally not liked.

It is important to share. This means sharing anything: time, money, knowledge, skills, t-shirts, food, almost anything. In Aboriginal culture, people are more important than objects or possessions. It is far more important to work on the nature and quality of the relationships between people. This involves taking time to sit down and talk, sharing your own experience and history freely when you are asked. Over such times, Aboriginal people will slowly get to know you. The questions will not come all at once, but eventually you will be placed onto the human landscape.

One of the most impressive aspects of Aboriginal thought is that ability to build and hold a massive memory of networks of people, of who they are, who they are related to, who they are married to, etc. Of course, this stretches back over time. This is one expression of the Dreaming that ties all things together.

People skills are important. Remembering names and the relationships between people will help you. Aboriginal people easily and commonly read body language. Too much direct eye contact may be inappropriate depending on whom you are talking to.

It is usually a good idea for men to speak to the men, and women to speak to the women, especially if you do not know people personally. Over time, this is not so important. But Aboriginal people are sensitive to body language and often a well-meaning person can offend by being too friendly with someone they have not been properly introduced to.

Elders are highly respected and should be treated as such. The knowledge and culture Elders hold is valuable and will be shared with those considered worthy of custodianship of' language, culture and country. Every conceivable effort must be made to ensure Elders are consulted and treated with respect. This may often mean things such as arranging people to pick Elders up from airports and meetings, and that they are paid at the same rate as a professional consultant, especially if the Elder is passing on information or consulting on a document or project.

It must be remembered that knowledge in Aboriginal culture is owned and not shared without a fair trade or with good reason. This should be seen in comparison to Western cultures where information and knowledge is expected to be shared at all times and at minimum cost. Do not expect Elders to just give you information. If you demonstrate enough respect and a genuine commitment to the Elders' goals, then information may be shared with you.

Consultation is a must. Non-Aboriginal people cannot speak for Aboriginal people unless they are known and trusted by the people for whom they speak and even then you must indicate to whom you have spoken and that you have done your best to find out what the Community thinks. Always state that you do not know everything and are always open to correction.

To find out what people think, you must take the time to talk to a wide range and cross-section of the community. Such consultation takes time. It is important that, if you are carrying out consultation on something that requires Aboriginal input, you go back to the people involved a number of times to check and re-check your facts. This allows time for the people involved to consider all aspects and angles of the knowledge they are sharing with you.

Taking time to consider, formulate, and express a response to a question is considered appropriate. Too often in classrooms, teachers will not wait long enough for Aboriginal students to respond. They think the pause before answering means the student does not know the answer. Yet, in Aboriginal culture, taking this time is considered polite.

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The editors are seeking papers that have the following qualities:

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- The paper provides appropriate and accurate citations for all material referred to

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In view of the Bahá'í vision of scholarship as an activity accessible to all, rather than one limited to a small academic community, *Australian Bahá'í Studies* seeks input from people of diverse backgrounds and viewpoints, in a way that assists in redefining what is meant by scholarly practice. The readers of the journal have an interest in teaching the Bahá'í Faith, serving its administrative organs, and participating in its community life. It is also of interest to those studying the model that the Bahá'í community offers for the resolution of contemporary problems.

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