

## The Seven Valleys and the Scientific Method

by Robert Sarracino

### I. Introduction

**T**he Seven Valleys is extolled by Shoghi Effendi in *God Passes By* as Bahá'u'lláh's "greatest mystical composition."<sup>1</sup> In this Treatise "He describes the seven stages which the soul of the seeker must needs traverse ere it can attain the object of its existence."<sup>2</sup> It is written in the language of Sufi mysticism, and contains references and allegories familiar to those who would be conversant with the literature, traditions and history of Sufism. Indeed, the very choice of "Seven Valleys" finds precedent in the greatest work of 'Attár.

If we consider that the supreme goal of mysticism is to attain "the Presence of God," the Revelation of Bahá'u'lláh, according to Bahá'í belief, has unleashed such a flood of grace and divine knowledge into the world of humanity that this supreme pursuit, the pursuit of attaining the Presence of God, has now become the legitimate pursuit of every member of the human race. A careful reading of Scripture would reveal that, in fact, this has always been true. But religious truth has in the past been clouded by the often self-serving interpretation of the clergy, and despite the truths contained in Scripture, supreme spiritual attainment was considered possible for only a few. Although renunciation of the world was not sufficient, it was necessary: only those who turned their backs on the secular world, the world of work and family and wealth and politics, who became reliant for material sustenance on the generosity of those who by choice or force of circumstances pursued "lesser" spiritual goals—only such professionals in the path of God could attain mysticism's highest goal.

With the Bahá'í Revelation comes a revolution in our perception of the path to spiritual attainment. Bahá'u'lláh, recommending those branches of knowledge which do not "start with words and end with words," elevates work which is done in the spirit of service to the rank of worship. Monks and priests are enjoined to "give up the life of seclusion," to "direct their steps towards the open world," to marry and to "bring forth one who will make mention of God."<sup>3</sup>

We have exalted your engagement in such work to the rank of worship of the one true God!"<sup>4</sup>

Having attained the stage of fulfillment and reached his maturity, man standeth in need of wealth, and such wealth as he acquireth through crafts or professions is commendable and praiseworthy...<sup>5</sup>

Thus mysticism—that is, the supreme goal of mysticism—is for all. In this sense the Seven Valleys is truly revolutionary. This short but potent work distills the arcane knowledge of mysticism, clarifying and purifying the true and the divine while exposing and abandoning the residue of human fancy and invention. Written to a member of a fraternity which had existed for centuries, this work thus marks the fall of that fraternity as a community of the spiritual elite.

The Seven Valleys, whose pages outline "the seven stages the soul must needs traverse" in its search for truth, thus becomes a universal guide for all who pursue their professions and support themselves and their dependents, and who, while living lives of material, intellectual and social service, strive to bring their lives and pursuits in line with the will of God. It is a guide for anyone engaged in a process of discovery, whether personal discovery or discovery as part of a professional pursuit. Specifically, it is—or can be—an inspiration and sourcebook for the scientist engaged in scientific research. The essence of the scientific method is contained within its pages.

There are, in my view, three basic steps in the scientific method:

1. Acceptance of a source of reality and adoption of a "world view." The modern sciences accept nature as this source of reality. To a Bahá'í, the Manifestation of God is the source of reality. One of the best presentations of the world view of the modern physicist is contained in *The Character of Physical Law*, a transcript of a series of lectures by Nobel laureate Richard Feynman.<sup>6</sup> Perhaps the most concise statement of the Bahá'í world view, a world view which must necessarily accompany acceptance of Bahá'u'lláh, is contained in "The Dispensation of Bahá'u'lláh" from *The*

*World Order of Bahá’u’lláh* by Shoghi Effendi.<sup>7</sup>

2. Questioning of reality. For the scientist this *questioning* takes the form of selected observation, controlled experimentation and mathematical analysis. Except when paradigms fail this questioning is done within a particular paradigm. For a Bahá’í, questioning takes the form of study of the revealed writings of Bahá’u’lláh, the Báb and ‘Abdu’l-Bahá, the three Central Figures of the Faith; of the Guardian, the appointed and authorized interpreter of the writings of Bahá’u’lláh; and the Universal House of Justice, upon which has been conferred the authority to “elucidate” the truths contained in Bahá’í scripture.
3. Resolution or synthesis. This can take the form of confirmation of a paradigm, articulation of that paradigm, or, when paradigms fail, resolution of a crisis through creation of a new paradigm. In times of great crisis it can take the form of creation of a new world view. Synthesis of data into laws or theories is not trivial, is not obvious, is not linear and is not easy.<sup>8</sup> It is a difficult and demanding task, and requires the full range of human abilities, including imagination and creativity as well as reasoning ability. The final product—a new formulation, a new understanding, a new theory, a new paradigm—if successful, will influence the way an entire community of scientists will think. But no particular resolution or synthesis is unique. There is no way of knowing the full range of possible systems which explain any given set of observations and experiments. The scientific community invariably settles on one particular system, which becomes the dominant paradigm.

## II. The Seven Valleys

### The 0<sup>th</sup> Valley

The scientific method begins with an act of faith: faith that the universe is rational; faith on the part of the scientist that he can, indeed, make sense out of the universe; faith that the truths of the universe can be investigated by the technological means at hand, can be grasped by the mind of man and brought into order within the systems—mathematical and other—which human logic has created. In talking about the role of faith in the scientific enterprise, Alfred North Whitehead writes,

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

[T]here seems but one source for its origin. It must come from the medieval insistence on the rationality of God, conceived as with the personal energy of Jehovah and with the rationality of a Greek philosopher. Every detail was supervised and ordered: the search into nature could only result in the vindication of the faith in rationality. . . . I am not talking of the explicit beliefs of a few individuals . . . [but] the impress on the European mind arising from the unquestioned faith of centuries.<sup>9</sup>

Bahá’u’lláh justifies this faith in a number of passages which are highly significant for their implications for the scientific enterprise. In the Hidden Words He writes,

Out of the wastes of nothingness, with the clay of My command I made thee to appear, and have ordained for thy training every atom in existence and the essence of all created things.<sup>10</sup>

and in the Lawh-i-Hikmat,

Look at the world and ponder a while upon it. It unveileth the book of its own self before thine eyes and revealeth that which the Pen of thy Lord, the Fashioner, the All-Informed, hath inscribed therein. It will acquaint thee with that which is within it and upon it . . .<sup>11</sup>

Thus, in the Bahá’í view, the universe can be understood because *it was created to be understood*. Science is worth pursuing because in uncovering the truths of nature we uncover our own reality, which means we come to know God, which is the purpose of our creation.

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This mystical role of nature, which physicists of this century have often referred to as the “beauty” of nature, was expressed by the French mathematician Henri Poincaré:

If nature were not beautiful, it would not be worth knowing, and if nature were not worth knowing, life would not be worth living.<sup>12</sup>

At the very core of modern science is the belief that “nature is the sole arbiter of truth.” If nature conflicts with human reason or with tradition or authority, then tradition and authority are wrong, and what is called “human reason” is flawed. If nature conflicts with mathematics, then we must create a new mathematics. This belief, accepted on faith, lies at the core of modern science. Along with this belief comes a world view, the world view expressed above, that nature is in some sense rational and amenable to human investigation. And again, this is accepted on faith. And finally, modern science proceeds by working within paradigms. Thomas Kuhn in *The Structure of Scientific Revolutions*<sup>13</sup> has pointed out that the acceptance of a particular paradigm, or the search for and creation of a new paradigm if the old is seen to be flawed, is essential to the scientific method. It is under the umbrella of paradigms, motivated by problem solving and paradigm articulation, that the great body of scientific work is carried out, work which at times can lead to progress so rapid that it astonishes even the scientist himself. But the acceptance of a paradigm, paradigm articulation, and paradigm revolution are part of the scientific enterprise. All are carried out under a dominant world view or what one might call a “grand paradigm.”

In the beginning, then, one must articulate one’s world view and prepare oneself for investigation and discovery. And this is how the Seven Valleys begins. It articulates a world view essential for the true seeker and inspires the seeker—the scientist—with confidence in his own inner potential; with confidence that he does, in fact, have within himself the means to embark on the search and reach the goal.

The Seven Valleys begins,

Praise be to God Who hath made being to come forth from nothingness . . .<sup>14</sup>

There is a Supreme reality, and the universe is a *creation*—as distinct from an entity which simply “exists” or has “just happened.” Thus, the foundation for the scientific enterprise is laid. That the universe is *created* implies it is an infinite mystery, which in turn implies that science will be an eternal enterprise.

. . . graven upon the tablet of man the mysteries of pre-existence . . .<sup>15</sup>

By simple logic, no existence can encompass its own pre-existence. Upon man, however, the “mysteries of pre-existence” have been engraved. Hence, man transcends the material creation. If it is science through which we come to understand the creation, then science will not only be an eternal enterprise but, this passage implies, science will be a *fruitful* enterprise.

And finally we read, in this powerful opening paragraph which sets the tone for the entire work, that every man may thereby win his way to the summit of realities, until none shall contemplate anything whatsoever but that he shall see God therein.<sup>16</sup>

The scientific imperative, like the religious imperative, has been built into the very spirit of man. This passage, so evocative of the second Arabic Hidden Word, that man should “see with his own eyes” and “know of his own knowledge,” gives us the divine mandate to pursue science and religion and gives to the individual the sovereign authority to investigate, discover and apprehend reality.

In the second paragraph Bahá’u’lláh establishes the authority of the Manifestation of God:

And I praise and glorify the first sea which hath branched from the ocean of the Divine Essence, the first morn which hath glowed from the Horizon of Oneness . . .<sup>17</sup>

The Seven Valleys was written to a Muslim before Bahá’u’lláh’s declaration of His own Mission, and hence this paragraph is explicitly in praise of Muhammad. It is clear, however, in light of the body of Bahá’í teachings, that these words apply not exclusively to Muhammad, but to the Manifestation of God. It was mentioned above that the first step in the scientific method is acceptance of a source of reality. For Bahá’ís this source is the Manifestation of God. Bahá’ís accept this on faith, in the same way that the physical scientist accepts on faith that nature is a source of reality rational in its underpinnings.

Finally, the scientist needs confidence in himself and in his own abilities, and encouragement in his search for truth. When paradigms fail—and they fail often—Thomas Kuhn has talked about the “silent revolutions” of science—scientists need inspiration and confidence. Scientific work centred around a paradigm in crisis is extremely difficult, requiring as it does not only the ability but the courage to look at data and scientific problems in a very different way, and the courage to propose a new way of thinking to a community which contains conservative elements which will inevitably oppose the new paradigm. Even if new paradigms are not found, however, there is the challenging task of paradigm articulation, in which the crisis is resolved through modification of the existing paradigm.

Towards the end of the opening section the would-be seeker is assured,

I therefore reveal unto thee sacred and resplendent tokens from the planes of glory, to attract thee into the court of holiness and nearness and beauty . . .<sup>18</sup>

And he is encouraged,

wert thou to taste of these fruits . . . yearning would seize the reins of patience and reserve from out thy hand . . . and draw thee from the earthy homeland to the . . . Center of realities.<sup>19</sup>

This, of course, is the great aspiration of the inspired scientist: to reach the “center of realities” of the field of his enquiry.

### The Valley of Search

The second step in the scientific method is to question reality. For the physicist this questioning takes several accepted forms: selected observations, controlled experiments, and mathematical analysis. In the case of what Thomas Kuhn calls “normal science” this questioning takes place in the context of a paradigm. The paradigm determines which questions are worth asking and, generally, what answers should be obtained. The vital role of the paradigm in science can hardly be overstated. Nature, taken as a whole, is too complex and the multiplicity of possible experiments and the great mass of possible data obtainable from these experiments is too overwhelming to allow any sense or anything like progress to be made. The paradigm, by creating a “picture” of what nature is and what it should be, tells the scientist what questions are worth asking, what data is extraneous and what is essential; it helps create order out of what otherwise would be bewildering confusion.

When the scientist questions reality he almost always expects a particular answer. This creates a dilemma: if the correct answer is obtained, is it because he somehow contrived to obtain the expected answer, or is it because the paradigm actually models nature within the context of the experiment? When he doesn’t get that answer, there are several possibilities:

- 1) He did not perform the experiment or the analysis correctly (his apparatus or experimental technique was deficient; his mathematical analysis was wrong), and he has to perform it again, perhaps with new experimental or mathematical apparatus.
- 2) He asked the wrong question, and nature is trying to give an answer to a question he didn’t think he had asked.
- 3) The paradigm needs articulation.
- 4) The paradigm is wrong.

The scientist needs “objectivity.” In fact, what he needs are just those qualities and attributes described by Bahá’u’lláh in the Valley of Search.

It is incumbent on these servants that they cleanse the heart . . . from every marking, and that they turn away from imitation . . .<sup>20</sup>

This “cleansing of the heart,” what the scientist loosely calls “objectivity,” must, however, be within a context—within a paradigm. Hence a key condition of this stage of search is given in the passage,

In their search, they have stoutly girded up the loins of service . . .<sup>21</sup>

That is, the seeker must have a concept of “service,” and must be engaged in this service.

The steed of this Valley is patience . . .<sup>22</sup>

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He must be engaged in service while “*at every moment*” seeking “*to journey from the plane of heedlessness into the realm of being.*”<sup>23</sup>

When paradigms fail—and they fail first in the minds of only one or a few scientists and later the entire community—the researcher faces the extremely difficult task of replacing them. Science works only within models. No model has ever been abandoned until it has been replaced with a new one which the scientific community has come to see as being superior.

How does one discover a new paradigm?

[W]hatever he hath seen, and heard, and understood, all must he set at naught, that he may enter the realm of the spirit . . .<sup>24</sup>

Labor is needed, if we are to seek Him; ardor is needed, if we are to drink of the honey of reunion with Him . . .<sup>25</sup>

These passages can serve as an inspirational guide for the scientist in search of a new paradigm. They apply equally in the educative process. In order to succeed and become a practicing scientist the student must learn the reigning paradigm. He must learn to think in a new way; he must learn to reorder his entire thinking process. It takes labor and ardor, and a willingness to abandon the past.

### The Valley of Love

Once the scientist thinks he has found the answer, once the student thinks he has understood the existing model, he enters a new state. Both researchers and students alike describe the emotions which accompany the dawn of a new understanding: excitement, exultation, ecstasy; they “*dissolve*” in the new discovery, a state Bahá’u’lláh describes as “*unaware of himself, and of aught besides himself.*”<sup>26</sup> Having found an answer, they see all problems as having their solution in this one answer. This state is all-consuming.

The absent-mindedness and single-mindedness of students and scientists is legendary. The physicist Leo Szilard was noted for being so perpetually lost in his own thoughts that he would often wander across streets without bothering to notice the traffic. This proved highly amusing to his colleagues and highly irritating to motorists when he first went to Chicago to join Enrico Fermi as part of his team.

A story is told of Meyer, one of the three discoverers of the principle of the Conservation of Energy—what is now called the First Law of Thermodynamics—that a physicist acquaintance of his once objected to his ideas by saying that if he, Meyer, were right, then water would be heated just by being shaken. Meyer stared at his friend and bolted from the house. Two days later a strange man, unshaven, disheveled, agitated, appeared at the man’s house and shouted, “And it is!” It was Meyer, who had spent the last two days shaking a bottle of water.

This Valley, however, is a dangerous place to be for too long.

He hath bound a myriad victims in his fetters . . . Know that every redness in the world is from his anger.<sup>27</sup>

There is no one more intolerable than a scientist defending his paradigm. Time and again in the history of science, scientists, in the name of truth and objectivity, have shown an intolerance, vindictiveness, irrationality which in individuals supposedly dedicated to truth, defies description. Boltzmann committed suicide because of the treatment he received at the hands of his contemporaries. “If Meyer had not been mad,” according to one biographer, he never would have been able to persist against the scientific fraternity of his day. Today Neo-Darwinism is coming under attack from several directions: biochemistry, mathematics and a persistent, not insignificant, trickle of anomalous evidence. The stubborn refusal of some of its most ardent defenders to examine dispassionately contradictory evidence, and their irrational labeling of those who do not toe their party line, are illustrative of what happens to scientists who remain in the Valley of Love.

Some will remain in this Valley forever. Others will pass beyond it:

And if, confirmed by the Creator, he escapes from the claws of the Eagle of love, he will straightway step into the Valley of Knowledge.<sup>28</sup>

### The Valley of Knowledge

To the scientist the process of escaping “*the claws of the Eagle of love*” is the maturation of his under-

standing. On one level—on the level of the student, for instance—knowledge and understanding reach the point at which the “lover” enters the fraternity, that is, the community of scientists. The student becomes a professional. One cannot become a professional scientist of caliber without having gone through the ardor of the Valley of Love, without experiencing the pain of this Valley and without experiencing the doubt that must accompany this pain. When the scientist enters the Valley of Knowledge the ardor of the Valley of Love is not lost, but it becomes tempered with knowledge. “*Doubt*” gives way to “*certitude*.”

For the scientific revolutionary the passion of discovery, the almost fanatic desire to convert the scientific community to one’s new paradigm, accompanied by doubt that perhaps the new discovery is not, after all, really correct, gives way to a more mature understanding, and certitude that the new discovery is, after all, correct. The physicist Paul Dirac, who discovered an equation which married quantum mechanics with Einstein’s Special Relativity, wrote that he initially used his new, relativistic equation to find first order corrections to the nonrelativistic Schrodinger wave equation. He did not proceed to solve for second order corrections because, he said later, he was afraid his equation might prove wrong. He accordingly published a paper giving his first order corrections. Another researcher, picking up on his work, then solved the equation to second order. The second order solution matched experimental data, and Dirac now knew he had made a great discovery—but the credit for this verification, which could have gone to him, went to someone else.

### The Valley of Unity

The Valley of Knowledge is the “last plane of limitation.” After this stage the seeker enters the Valley of Unity where

he pierceth the veils of plurality . . . and ascendeth into the heaven of singleness . . . [W]ith the eye of God he beholdeth the mysteries of divine creation.<sup>29</sup>

Beyond the state of “knowledge” the scientist reaches a state, described by this Valley and the ones above it, in which he comes to see the great unity in the laws of his discipline. Although wedded to a particular paradigm—he must be, in order to be a practicing scientist—he has also in a sense transcended this paradigm. The physicist, for instance, is willing to see physics in new ways, willing to entertain new paradigms, willing to be intrigued by new problems which strike at the very boundaries of his belief—willing, in a sense, to see those problems which *do* strike at the boundaries of his belief. By contrast, a physicist who has not reached this stage will see how all problems can be explained within the confines of his models. Since the great majority of problems which will be confronted in his working life fall into this latter category, he can have a very successful career without progressing beyond the Valley of Knowledge.

In seeing the unity behind the laws of physics, as can be seen only on the level of this Valley, the physicist also, to his way of thinking, sees the great unity of nature. He has come to see the Mind of God. His reality *is* reality.

Thomas Kuhn has pointed out that one of the great and unique features of science is the existence of a community which, sooner or later, comes to accept the same family of paradigms. The notion of progress itself, he has pointed out, is meaningful only in the context of a community of believers. Science as a collective enterprise isn’t just about discovering and knowing, it is about coming to see all nature with a single eye and a unified vision. It is this aspect of religious truth, as well, which also makes religion progressive. The great strength of the Bahá’í community, a strength which will become more and more apparent as the community grows and progresses, is its ability to acquire a unified vision and to see the world with a single eye.

In science this unified vision does not prevent new discoveries from being made and new paradigms—what scientists would unhesitatingly call greater insight into the workings and secrets of nature—from emerging. And although it provides a healthy conservative brake on change, it certainly does not stifle debate. In the same way, the unified vision of the Bahá’í Faith, guaranteed by the Covenant of Bahá’u’lláh, will not prevent new discoveries, progress and new paradigms—what Bahá’ís would unhesitatingly call new truths—from emerging within the body of truth contained in the Revelation of Bahá’u’lláh. And while giving stability to the entire system, this unified vision does not suppress the “clash of differing opinions” which is so healthy and so necessary for a progressing community.

Science progresses through a community conducting ever more sophisticated experiments and analysis

within a paradigm. The Bahá'í community will progress in a number of ways, but one of the chief agents of its progress is consultation. It is through consultation that problems will be solved, new problems appear, and community transformation—what an historian of science might call paradigm articulation or, more rarely, paradigm shift—will take place.

‘Abdu’l-Bahá has said that one of the wisdoms of consultation is that sometimes one wise person will have a solution which a thousand others might not see. It is consultation which will allow the one correct view to rise to the fore and become accepted by the thousand. Is this not evocative of the scientific process, in which the discovery of a lone scientist, a discovery which at first glance may appear completely wrong, eventually achieves acceptance by the community as a whole?

The Bahá'í writings create a vision of progress. Shoghi Effendi wrote that the people of the future would be far more spiritual, far more advanced than people of today and that the Bahá'í institutions, now in their infancy, would mature. Bahá'ís see their individual, collective and institutional lives as progressing to the point at which they will eventually realize the divine Purpose and express divine Truth to an unprecedented degree. Is this not similar to the self image of the scientific community? Science also, scientiste believe, will continue to progress. Its paradigms will increasingly reflect the reality of nature; its evolving systems will become an ever-advancing expression of Truth.

### The Valleys of Contentment, Wonderment and True Poverty

Bahá'u'lláh describes valleys beyond the Valley of Unity: the Valley of Contentment, the Valley of Wonderment and the Valley of True Poverty and Absolute Nothingness. “*The tongue faileth in describing these three Valleys, and speech falleth short.*”<sup>30</sup> These Valleys contain much that would be useful to a practising scientist working at the forefront of knowledge, striving to advance from what is known and understood towards the infinite heights of reality; that would be useful, as well, to one striving to integrate material and spiritual knowledge; striving to integrate natural philosophy and what ‘Abdu’l-Bahá has called “*divine philosophy.*”<sup>31</sup>

What has been explored in this paper seems to unveil a remarkable similarity between, on the one hand, the method used by the scientific community, and on the other hand, the method used by the Bahá'í community in its operation and development. There is a remarkable similarity between the method employed by the individual scientist or the student and the method employed by the individual Bahá'í in his striving to progress in personal, family, community and institutional life and service. Keys to this method are contained in the Seven Valleys. It can serve as a guide, a sourcebook, for the scientist and the religious believer alike.

### III. Conclusion

One of the questions which has intrigued Western historians is why Europe and its descendent cultures achieved such overwhelming economic, scientific and military dominance in the past four centuries. It is the European system, these historians point out, which today has come to dominate the world's economic, educational, intellectual and scientific life. Answers have been offered by McNeil in *Rise of the West*,<sup>32</sup> Trevor-Roper in *The Rise of Christian Europe*,<sup>33</sup> Landes in *The Wealth and Poverty of Nations*,<sup>34</sup> and Phillips in *The Cousins' Wars*.<sup>35</sup> Kuhn in *The Structure of Scientific Revolutions* points out:

But only the civilizations which have descended from Hellenic Greece have possessed more than the most rudimentary science. The bulk of scientific knowledge is a product of Europe in the last four centuries. No other place and time has supported the very special communities from which scientific productivity comes.<sup>36</sup>

Inherent in this concern is the further question, born out of anxiety, “how can this achievement of Europe, and the promise it holds for future progress, become lasting?” What is not to ensure, as the West loses its economic and intellectual dominance, as Western-born systems continue to become global and merge with systems and philosophies foreign to European culture and to Christianity, that the gains made by Western civilization will endure? What is to prevent a slide back into a more primitive approach to apprehending the universe?

To Bahá'ís, operating from a different paradigm—to borrow this phrase from the contemporary historian—the question is different. To Bahá'ís the economic and scientific advancement which took place in Europe from the Renaissance up to the Age of Imperialism was an inevitable consequence of the Revelation of Muhammad.

Just why it was Europe and not the Muslim world itself, or India, or China, which took up the torch of Muslim civilization and carried it to its preordained heights, is another question, but it is not the crucial question which it is to someone not sharing the Bahá’í world view.

As to why it was *not* the Muslim world itself which continued to carry the torch, the Bahá’í historian Mírzá Abu’l Fadl offers an answer, or at least the seed of an answer: at a crucial stage in the development of Muslim civilization the learned of that society turned away from science and turned instead towards a theology which became increasingly indulgent and fruitless. Trevor-Roper in *The Rise of the Christian West* points out that it was Europe’s failure in its response to the rise of Islam, rather than the fall of Rome, which plunged Europe into the Dark Ages, and ‘Abdu’l-Bahá in *The Secret of Divine Civilization*<sup>37</sup> points out that it was exposure to the Muslim world, through the Crusades, which started Europe back on the path towards civilization. This path, blocked by the Church, was not an easy path to follow. The first stirring of Europe, what Trevor-Roper calls the mini-Renaissance, was successfully squashed by the Church. The second attempt, however—what we call the Renaissance—and the succeeding scientific revolution—succeeded despite the Church.

To Bahá’ís, the Revelation of Bahá’u’lláh will ensure that the gains made by Europe through the inspiration of the Revelation of Muhammad will not be lost. In fact, the development of civilization since the middle of the Nineteenth Century, as explained in the masterful works of Shoghi Effendi, is due to a degree unrecognized at present to the inspiration of the Revelation of Bahá’u’lláh, which will continue to exert its beneficial influence until its consummation in humanity’s first truly global civilization. This supremely optimistic view, stimulating and energizing in its effects, is shared by the entire Bahá’í community. And as that community gains strength this view will gain greater acceptance in the world at large.

Thomas Kuhn points out, with some obvious anxiety,

Just how special that community [the scientific community] must be if science is to survive and grow may be indicated by the very tenuousness of humanity’s hold on the scientific enterprise.<sup>38</sup>

To Bahá’ís the hold is not tenuous at all. It is the inevitable outgrowth of the progressive unfoldment of divine Truth and the divine Will in successive divine Revelations. The question of why it was Europe, what elements led Europe to succeed, and how we can ensure that those essential elements of success are preserved in civilization, is therefore a secondary question. The key question is how to most rapidly transform the world into the global system envisaged by Bahá’u’lláh. The diversity of the human experience, when coupled with the moral and social principles contained in divine Revelation, rather than having the potential to destroy the systems erected by modern science and through modern thought, will on the contrary enhance the economic, scientific, intellectual, social and political development of the global community.

Scientists use a method. They use a method which in the past has been highly successful. More than anything, the scientific community wishes to continue that success. It seeks a method which will, in the long run and despite any changes society may yet undergo, keep science alive; a method which will prevent stagnation and guarantee science’s continued progress. The Seven Valleys contains the core of just such a method.

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### Notes

- 1) Shoghi Effendi. 1965. *God Passes By* p. 140. Wilmette: Bahá’í Publishing Trust.
- 2) *Ibid.* p. 140
- 3) Bahá’u’lláh. 1978. *Tablets of Bahá’u’lláh* p. 24. Wilmette: Bahá’í Publishing Trust.
- 4) Bahá’u’lláh. 1992. *The Kitáb-i-Aqdas* p. 20. Bahá’í World Centre, Haifa.
- 5) Bahá’u’lláh. 1978. *Tablets of Bahá’u’lláh* p. 35. Wilmette: Bahá’í Publishing Trust.
- 6) Richard Feynman. 1965. *The Character of Physical Law*. Cambridge: M.I.T. Press.
- 7) Shoghi Effendi. *The World Order of Bahá’u’lláh*. “The Dispensation of Bahá’u’lláh” pp. 97-157. Wilmette: Bahá’í Publishing Trust.
- 8) A few years ago George Duvall, of the Department of Physics at Washington State University, spoke about the vital importance, and difficulty, of engaging in scholarship in the physical sciences:  
Physics has become a very difficult subject. The expansion of the field in both depth and breadth during the last forty year is almost incomprehensible. The coherence which has characterized physics in the past is slipping away, and too lit-

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the effort is being made to prevent it. There are three legitimate activities for the academic: research, teaching, and scholarship. The last of these is not properly recognized by university administrators, yet it plays a key role in science. It is the scholar who keeps up with progress on a broad front, who digests new results, synthesizes and simplifies them, integrates them with existing knowledge, and makes them available to his fellows and comprehensible to his students. To accomplish this is an intellectual feat of the greatest magnitude, and it is a natural companion to teaching. Unfortunately, scholarship of this kind does not mature quickly, it does not lead to large numbers of publications, and its merit is not easily evaluated. By failing to recognize the value of scholarship and to learn how to evaluate it, universities are doing a great disservice to students, the faculty, the professions, and the nation.

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