

Islamizing the Teaching of Science: A Model in Challenge and Response

Zaghlul R. al-Najjar

Introduction

Contrary to all anthropological claims, man was created as a human being, knowing and believing. The Holy Qur'an clearly states this in the verses below:

And He taught 'Adam the names of all things. (Qur'an 2:31)

Which commentators take to mean the names of both animate and inanimate beings as well as the inner nature and qualities of such beings and things, including feelings involved in such innate nature:

Then 'Adam learned from his Lord words (of inspiration or of revelation) and his Lord turned towards him; for He is Oft-Returning, Most Merciful. (Qur'an 2:37)

Words here mean inspiration or spiritual knowledge. Again, the verb *talaqqā* “تَلَقَّى” , which has been translated as *learned*, implies some effort on 'Adam's part, to which Allah's Grace responded.

These Qur'anic verses clearly testify to the fact that on his creation, 'Adam was immediately taught both the knowledge he needed for his worldly existence and that which he needed for his spiritual development. 'Adam (AS), undoubtedly, did teach his children, and did ask them to pass the message to younger generations. Not only this, but belief has been deeply implanted by the Creator into the inner nature of every single being, as clearly indicated by the Holy Qur'an where it reads:

When thy Lord drew forth from the children of 'Adam—from their loins—their descendants, and made them testify concerning themselves, (saying): “Am I not your Lord (Who cherishes and sus-

tains you)?" 'They said "Yea! We do testify" (This) lest ye should say on the Day of Judgment: Of this we were never mindful. (Qur'ān 7:172).

The verse clearly means that each individual in the posterity of 'Ādam (AS) had a separate existence from the time of 'Ādam (AS), and that a Covenant was taken from all of them which is binding accordingly on each individual. The words of the verse refer to the descendants of the children of 'Ādam (AS) i.e., to all humanity (born or unborn), without any limit of time. 'Ādam's seed carries on the existence of 'Ādam (AS) and succeeds to his spiritual heritage. Recent advances in the science of heredity testify to this, and thus Humanity must have a corporate aspect and in addition to this innate Covenant. He has also been given by Allah, certain powers and faculties whose possession necessitates special spiritual obligations which man must faithfully discharge.

These obligations can be considered as arising from implied Covenants. The Covenant could be completed in this way: *"We acknowledge that Allah is our Creator, Cherisher and Sustainer; therefore, we acknowledge our duty to Him; when we so testify concerning ourselves, the obligation is assumed by us, for it follows from our very nature when it is pure and uncorrupted. The latent faculties in man are enough to teach him the distinction between good and evil, to warn him of the dangers that beset his life. But to awaken and stimulate them, a personal appeal is made to each individual through the "still small voice" within him. This, in its uncorrupted state, acknowledges the truth and swears its Covenant with Allah."*

It follows from this, that without both knowledge and faith, man can never live up to the honor Allah has bestowed upon him when He said: "We have honored the children of 'Ādam." (Qur'ān 17:70)

Consequently, the rise and fall of human communities at all places and in all times can be directly related to their adherence to or detachment from both useful knowledge and true faith. Knowledge is retained by the human intellect while faith settles in the heart and is proved by the deeds. True faith and useful knowledge have to go side by side for the successful achievement of the human mission on earth. The only true faith is **al Islām**, and the useful knowledge covers all sorts of knowledge that can illuminate the human intellect and help man to achieve his mission on earth as a servant of Allah entrusted with this life.

What is Islam?

Islam is the eternal message from Allah, the Creator of the universe, revealed to humanity through a chain of messengers that extended from 'Ādam (A.S.)

to the last Prophet Muhammad (SAAS) in whose message all the previous revelations have been finally integrated and preserved, and hence that message addresses humanity at large in all places and at all times. The belief was implanted by Allah within the inner structure of every human being, and the details of the religion were revealed by Allah to 'Ādam (AS) on the very moment of his creation. 'Ādam (AS) passed that religion to his descendants and whoever conformed with it became a Muslim, while deviators realized that they were transgressing the limits ordered by their Creator. Through repeated human failings, man kept on deviating from the Divine message until it became distorted or completely lost. Consequently one had either to live according to man-made ideologies, or have no ideology at all. Both courses led man astray and drove his communities to corruption, violence, injustice and complete degeneration. Then life becomes impossible without the divine guidance, and whoever was ordained for this guidance was sent with "Islam". This went on, and the struggle between the Divine system of life (Islam) and the man-made systems alternately ruled human beings and their communities in ups and downs, necessitating a lengthy chain of messengers from Allah to different peoples at different places and times with invariably the same message, "Islam". Finally, this was integrated in the message of Muḥammad (SAAS) to which the whole world has since been invited. Being the last of the Divine messages, Allah has taken the responsibility of preserving the Qur'an. It reads:

"We have without doubt sent down the message and We will assuredly guard it (from distortion)." (Qur'an 15:9)

It follows that Qur'an is the only revelation within the hands of human beings that has been perfectly preserved in the same language in which it was revealed in the minutest detail, while previous revelations have been either distorted or completely lost. Improvised systems on the basis of whatsoever human memory could recollect from the distorted or lost previous scriptures (e.g., contemporary Christianity, Judaism, etc.) cannot therefore be considered religions, because of the human influence in them. This is why the Qur'an clearly states that the only religion acceptable to Allah is "*al-Islām*." (Qur'an 3:85)

The word *Islam* in Arabic means the peaceful surrender, joyful submission, willful yielding, cheerful acceptance of bondage and volitional consigning of oneself. Consequently, the religion of *Islam* means the cheerful submission to the Will of God and the volitional obedience of His Orders, the rational renouncing of one's own independence and the devoted surrender to

136 Islam: Source and Purpose of Knowledge

the Creator, holding fast to the teachings and guidance toward which Allah has invited men with knowledge and commitment. Islam cannot be based on ignorance, and faith cannot be without commitment.

This is why the believer in Islam is constantly asked to seek knowledge. We need only to mention that the first verse revealed from the Qur'an came down with the order to read and write:

“Read in the Name of thy Lord and Cherisher, Who created man out of a clinging clot of congealed blood (a tiny piece of flesh surrounded with blood clinging to the inner side of the womb) – Read! And thy Lord is most bountiful, – He Who taught with (by the use of) the pen, – Taught man that which he knew not”. (Qur'an 96:1-5)

And enough to mention how Prophet Muhammad (SAAS) describes himself: “I have been sent as an educator,” he said. The Qur'an confirms this description of the Prophet (SAAS):

“It is He Who has sent amongst the illeterate *a messenger* from among themselves, to rehearse to them His signs, to sanctify them, and to instruct them in Scripture and Wisdom, – although they had been before, in manifest error.” (Qur'an 62:2)

The Qur'an honors knowledge and the knowledgeable people in numerous verses of which we select these:

“..... Are those equal, those who know and those who do not know? It is those who are endued with understanding that receive admonition.” (Qur'an 39:9)

“Allah will raise up to honorable ranks (and degrees) those of you who believe and who have been granted knowledge.....” (Qur'an 58:11)

“He granteth wisdom to whom He pleaseth; and he to whom wisdom is granted receiveth indeed a benefit overflowing; but none will grasp the Message but men of understanding.” (Qur'an 2:269)

“..... and say: O my Lord! advance me in knowledge”. (Qur'an 20:114)

Similarly, the sayings of the Prophet (SAAS) in honoring knowledge and the knowledgeable, and in making the seeking of it an incumbent duty on

every Muslim are, indeed, beyond counting.

Such emphasis on knowledge in Islam has created a great interest and a very strong zeal among Muslims to seek it, and hence their mosques were, above all other duties, great centers of learning, and remained the main centers of learning for centuries. Indeed, the ideas of the present schooling and of the modern university were established in the very early Muslim communities and in the early mosques. The first known mosque-related universities were, in historical order, the Madinah Mosque, the Makkah Mosque, al Fustāt Mosque (in old Cairo), al Zaytūnah (in Tunis), al Qarawī yīn (in Fāz), Morocco, Qurtūbah (Cordova) Mosque (in Spain) and al Azhar (in Cairo). They preceded the first known formal universities elsewhere by centuries, and most of them are still functioning today.

This pioneering educational system which became deeply rooted by the turn of the second century of *Hijrah* did not restrict itself to Arabic language and Islamic studies, but assimilated all the available knowledge of that time and all the contributions of the previous and contemporary civilizations (India, Persia, Iraq, Egypt, Greece, Rome, etc.). This stemmed from the fact that knowledge is the legacy of humanity at large, and it is the duty of every intelligent human being to critically review, cherish and preserve it. Consequently, the Islamic civilization did collect, review and criticize the available knowledge of the time, and added to it numerous original contributions. The fundamental understanding of man and the universe from the Islamic perspective also enriched the knowledge of that era. This continued for more than ten centuries, during which the Muslims remained the leaders of humanity, the promoters of knowledge, the fosterers of wisdom, and the architects of every sphere of development.

Suddenly, however, this unique civilization came to a halt. Without going into too much detail, one can easily record that in 1073 A.H. / 1662 AC the "Common Duty" slogan spread all over Europe calling on all Christians to struggle against the Muslims and the Islamic Caliphate, which were designated as the enemies of the Church. Since then the Muslim *Ummah* has been subjected to a continuous process of fragmentation, that began with the eleventh century AH / eighteenth century AC impact of the Austrian and Russian victories against the Ottoman Caliphate and the British success in India. From the middle of the twelfth century AH / nineteenth century onward came a further wave of European imperial expansion manifested by the suppression of the Indian mutiny. The disappearance of the last remnants of the Moghul monarchy in India, the consolidation of the British Empire in that Muslim realm, the rapid advance of the Russians in Central Asia and the expansion of the French into Tunisia and of the British into Egypt culminated in the break-up of the Ottoman Empire and the fall of the Islamic Caliphate (1342 AH / 1924 AC)

Dissection of the Muslim *Ummah* into more than 60 weak bodies (i.e., states, provinces, kingdoms, sultanates, emirates, sheikhdoms, republics, protectorates, etc.) followed. These fell easy preys to one or the other of the world powers which had subjected them to their direct or indirect domination. During such oppression, devilish plans to drive Muslims into secularism under the disguised slogans of modernization, advancement and development, have led to the adoption of ideological, political, economic, educational and administrative social systems completely alien to Islam. This has jeopardized the whole Muslim *Ummah*, dissipated its potentials, caused its backwardness in every field, and subjected most of its political systems to repeated military coups d'etat and counter-coups which further fragmented the *Ummah* and exhausted it physically, economically, spiritually and morally. It is worth noting that thirteen centuries ago illiteracy had been almost overcome among Muslims, whereas the percentage today is more than 75%.

Despite all this, the world is currently witnessing the slow but very sure return of Islam, not only in countries with Muslim majorities, but also among the non-Muslims. Such return, however is facing numerous challenges in the ideological, political, military, scientific, technological, economic, industrial, agricultural spheres, etc., but most serious of all are illiteracy and the distortion of knowledge. As the title of this lecture is "Islam and the Teaching of Science," I shall restrict my discussion to current distortions in the writing as well as the teaching of science. But, before doing so, I cannot overlook the sad fact that the population of the Muslim *Ummah* today exceeds one billion (more than one-fourth the total population of the world), but the literate among them are less than 25%. Of these not more than 5% can be considered educated, and more than half of those educated people have been plagued by the distortion of knowledge, particularly so in the area of pure and applied sciences. Consequently, in addition to the challenge of illiteracy, Muslims are currently facing another serious challenge in the field of science and technology. This is an area where Muslims have lately lagged behind, while non-Muslims have achieved astounding progress during the present century, in general, and during the last half of it, in particular. Such progress has clearly marked our time as "the age of pure and applied sciences." These are fields to which the majority of the Muslim countries did not contribute much, and then, it is only through limited individual efforts which cannot at all keep pace with world progress in such fields. This lag in the area of science and technology resulted in a wide gap separating the Muslim states (being part of the underdeveloped world), from the scientifically and technologically developed countries.

The challenge Muslims are exposed to these days is not simply represented by this gap, which is becoming wider and deeper with time. Neither is it embodied in the intellectual, economic, political and military backwardness which

accompanied the scientific gap. The true challenge lies in the clear atheistic background with which the imported scientific writings have been constantly flowing to us from both the West and East. This brought about disbelief in all that is "super-material"—a peculiar characteristic of the present age which some writers wrongly call it "the age of atheism." The problem can be further explained by the fact that amid the unanimous admiration for the achievements of science and technology, these wrong concepts penetrated into our Muslim world and are being repeated falsely and intentionally in the name of science. With the understanding that we are the bearers of the last Divine and most complete message and that our role is to guide and lead humanity, this represents the true challenge Muslims face at present. It makes it incumbent upon us to urgently start rewriting science and teaching it from the Islamic perspective.

What is Science?

In Latin "Scientia" means Knowledge so defined, science means all the knowledge man has achieved in different places and at all times, arranged according to subject-matter. This includes knowledge gained through Divine revelation, by human thinking, creative intellect, and through human legacy and tradition in these two areas. The prevailing direction, however, tends to limit the term "Science" to natural and experimental studies of all that is within reach of the senses and intellect in this universe (i.e., matter, energy, living beings and natural phenomena). This is usually carried out through observation and conclusion or through experimentation, observation and conclusion, in an attempt to discover the characteristics of matter, energy and living things, to classify all these and discover the laws governing them. As thus defined, Science also includes deductions, suppositions, hypotheses and theories which are put forward to explain prevailing phenomena.

This definition has limited science to "a branch of study which is concerned either with a connected body of demonstrated truths or with observed facts systematically classified and more or less collated by being brought under general laws, and which includes trustworthy methods for the discovery of new truth within its own domain."

Accordingly, human knowledge has been divided into scientific studies (both pure and applied), literary and art studies and religious studies. Writers, however, differ much in classifying and chaptering human knowledge, but the following classification seems appropriate:

- Islamic Studies
- Philosophy (general philosophy)
- Humanities and Social Studies
- Philosophy of Sciences

- Pure and Applied Sciences
- Cosmic Science (science of the universe).

In each of these major divisions of human knowledge, the interaction of all information available to man, whether acquired (through direct observation of the universe or through experimentation, observation and conclusion), or donated (through Divine revelations in the Qur'ān or the *Sunnah* of the Prophet (SAAS), has to take place, intelligently and truthfully, without undue forcing of conclusions. If this does not take place, human knowledge can remain partial, and such partiality can be further magnified by the current trend of over-specialization, the flood of literature, secularization and separation of gnosis from wisdom.

The placement of pure and applied sciences at the bottom of the triangle of human knowledge does not belittle the importance of such knowledge to man, but makes it the most accessible one to his senses and observation. I have preferred the name Pure and Applied Sciences (Cosmic Sciences or Sciences of the Universe) however, to the generally accepted term Natural Sciences, because the terms "nature" and "natural" have been repeatedly misused and misinterpreted.

The Scientific Procedure and the Limitations of Science

Science, necessitates a mass of organized objective observations which are gradually recorded with time, and repeatedly examined by trained minds to put forward the necessary theories for the explanation of such observations and to arrive at the laws that govern them. This can be fulfilled by repeated experiments until their truth is "confirmed". This is what is called the scientific method. It is a research procedure which necessitates the use of the principles of logic in explaining observations gathered directly from the universe or through experiments designed to reach a number of conclusions. This necessitates the proposition of hypotheses and the formulation of theories as part of a logical reasoning process deducing knowledge. Despite the fact that the scientific method puts man directly in contact with the universe which evinces the Divine laws, unequaled knowledge, order and regulation. And despite the "accepted" precision of the scientific-procedure, its own limitations are evident. The limitation of experimental science can be demonstrated by the following points:

- 1.) However direct the observation or the experiment and observation might be, it is no more than an outward appearance of the actual truth and not the truth itself. There is of course, a great difference between being aware of things and knowing their actual truth. The former is limited to sensible events only, while the latter is beyond the capacity of our senses. It is no more than a

facade behind which truth exists.

The object to be studied may be fully or partly observed, or not observed, but sensed through some effects perceived through repeatable experiments. The conclusions derived from partial or complete observation are classified under what is known as the "exact readings, data or information". These are mainly manifested through human senses, which are proved by experimental science itself to be very much limited. Because of this, the human mind often tries to support its senses through various technical appliances devised on the basis of what man has known about the laws of matter and the characteristics of living creatures. With the help of such devices, we can detect things in the universe which our naked senses cannot. But these instruments, however complicated they may be, remain merely devices that help the human senses to perceive at a distance. Their readings are remote sensing of the truth and not the truth itself.

2.) There are things in the universe which cannot be felt by human senses either directly or indirectly. These can be detected, however, by the existence of evidence of a logical presumption which is sufficient to prove the claim of its existence. This is known as scientific deduction or priori reasoning and is an acceptable means in reaching logical scientific conclusions. Not only this, but deduction may sometimes be nearer to the truth than sensual observation because truth is holistic, while observation is partial. Hence, major conclusions normally start where limited information derived from sensual observation or experimentation and observation ends. Here emerge other limitations for experimental science, represented by the limitation of the human mind and logical faculties.

3.) Science comprises both sensual and non-sensual information, the latter is known as "scientific abstraction" or "higher truth" which is a common ground for science, philosophy and religion. Here, the different branches of human knowledge should interact to understand the universe and its governing laws. Each, via its own means, should look for judgements through which it can fully explore the universe and exploit its resources, understand its creation in general, and the creation of man in particular, his message in this world, and his destiny after it, etc. Such questions are reiterated in every human mind whatever his culture and his specialization may be, and in the largest majority of cases, man cannot arrive at conclusive answers to such questions through his individual effort. This is simply because of the fact that man's observations and measurements are limited to the outer appearances of things in this universe, masked by the limitation of his senses and the relativity of his space and time.

Whether his measurements might be defined as exact readings or

deductions—all that is proved by them is liable to be true or false. To accept a measure as correct does not necessitate that we should accept what it yields. Accordingly many higher truths cannot be reached through human thinking alone or via the limited methods of scientific research. We have no means for knowing such higher truths except through Divine revelation. Here man shifts from the orbit of science and philosophy to that of religion, which if correct is the highest level of human knowledge.

4.) By nature of man's limited existence in space (on that tiny planet Earth and for a very limited period of time represented by his average age) and the limitations of his senses in both space and time, all his conclusions are considered "relative". This makes the results of pure and experimental sciences nothing more than the outward appearance of truth as man can see it from his position in the universe and in the very limited time allocated to him, and not the truth itself. It also makes scientific theories only working hypotheses, even the ones based on direct observation and experimentation.

5.) Man's ability to know a number of universal laws in spite of the limitations of his senses and abilities and the relativity of his place and time points to the perfect structure of this universe and the perpetuality of its laws. In their study of the universe through close observation, testing and following up, then treating such observations and tests with intellectual powers, scientists take the universe with all its components of matter, energy, phenomena, laws and creatures as their instructor.

6.) Due to the continuously expanding range of science, it has become impossible for an individual to grasp all branches of knowledge, nor even to have a full grasp of one branch. Hence man is obliged to specialize in small sectors of the spheres of knowledge which have become almost countless. Even in the very narrow specialization, it has become difficult for any individual to have a comprehensive grasp of everything, and the current trend is generally toward increasing the narrowness and depth of specialization. This has made the results of experimental science very partial, and, because it is partial, information cannot answer man's comprehensive inquiries. His need for a greater and more comprehensive knowledge than his own is confirmed.

7.) Science bears the stamp of its intellectual and social milieu. In every sphere of knowledge man's grasp and output vary according to his background, upbringing and mental as well as psychological conditions. Thus major scientific conclusions are sometimes defined as mental and psychological states through which man sees the world around him. These states are ever-changing throughout one's life; thus man's grasp and creativity will differ accordingly.

This confirms the limitation of human writings in general and the scientific ones in particular, especially where generalized.

8.) The ever-increasing knowledge about the universe, and our obvious need to revise it continuously in the light of new discoveries, and to amend, develop or drop some parts of it, is clear evidence about the incompleteness of science and the limitation of its methods.

9.) One working in the scientific field usually inherits a large load of ready-made thoughts which cannot be thoroughly scrutinized by him. Consequently, his contribution cannot represent but a small portion of an ever-increasing amount of knowledge, based fundamentally on imitation. Science, despite its preoccupation with the present and the future, does not neglect scientific achievements of the past. To do so would fail to fulfill the requirement of progress. That is why reviewing the scientific literature, criticizing and developing it is a fundamental part of science. A scientist cannot contribute in any field without prior knowledge of previous contributions. This stresses the role of the Islamic civilization in cherishing, preserving and developing human knowledge in general, and the scientific ones, in particular, for over ten centuries to become the basis of the current scientific and technological advances. It can also portray the amount of illusion and mis-guidance contemporary scientific writings can lead to since they have been snatched from the hands of Muslims and written from a secularist point of view. Such allegations are all non-scientific and untrue. They are a natural outcome of the fact that modern science (when moved from Islamic Andalusia to Europe) has developed in an atmosphere of outraged hostility toward Christianity, in particular, and religion, in general.

In this process modern science has acquired a negative attitude toward belief and has limited its course and style to that direction. This has been supported by the anti-religion stand in the communist world and the retreat of contemporary Muslims from their leading position, particularly in the area of science and technology.

Added to these, one cannot overlook the activities of the varied evil forces, interests and affiliations which tried their best to strengthen such approach by numerous material philosophies, campaigns, extremist racial and political movements, destructive social associations, obvious and underground military and semi-military actions which all aim at annihilating religion and establishing the sovereignty of secular thinking over all aspects of life.

Science itself cannot correct its path because it is continually expanding and its fields of specialization continuously narrowing, making it difficult for the specialist to form the comprehensive view necessary for such a correcting process. Consequently science is still written from a secularist position despite

its huge achievements. This has caused great harm to both science and humanity, because keeping scientific writing to the material side has only resulted in confining it within the cycle of human senses. This is the smallest circle of knowledge in our universe. Our senses can only feel and understand the outer appearance of things as seen within the limits of our time, place, abilities and the nature of our bodies. When scientific thinking imprisoned itself within the purely material framework it could not enter wider and more comprehensive areas.

Consequently, scientific contributions have fallen short of many objectives which they could have reached if they had not limited themselves by the material frame. In its essence, science is a method of knowing the truth, while matter is only a small portion of that truth. Scientists have thus been put on a closed path, deciding to keep their conclusions within the limits of matter, thus leading to many erroneous conclusions such as:

1. The false claim of the eternity of matter and energy (that both matter and energy can neither be annihilated nor created from nothing), and hence the alleged eternity of the universe and negation of creation.

2. The wrong reference of everything in this universe to nature and its laws (without a logical definition of nature) and the consequential refusal to relate anything in it to a supernatural power, accounts for the unfounded refusal to believe in the Creator.

- (3) The erroneous explanation of the graduality of life on earth with time as a material proof for spontaneous evolution without the need of a Creator (the evolution of elements, chemical evolution, organic evolution, mental evolution etc.). This was wrongly taken as basis for the false allegation that creation took place randomly by mere coincidence. Thus wisdom, design, aim and objectivity could be negated. Such mistaken conclusions have been used as basis for numerous materialistic philosophies which ignored religion and rejected its bases (the belief in God, His angels, His books, His apostles, and the life Hereafter) as well as all the moral bindings and ethics it teaches.

These have changed our time (which is characterized by scientific and technological achievements with no parallel in human history and by a real explosion of knowledge) into an age of anxiety and unrest, moral decay, loss of identity, psychological and mental disturbances. It is the age of the build-up of the most sophisticated of armaments (e.g., biological, chemical, nuclear, etc.) and of their different carrying and launching devices. It is the age of hunger and drought, the age of irrational depletion of the earth's resources, pollution of its environments and degeneration of its inhabitants (as individuals, families and societies). In brief, it has become the age of material, psychological

and spiritual crises which has alienated man from both his integrity and destined mission in this world and transformed him into an egoistic being who cares little about anything beyond his limited needs in this worldly life.

We, in the Muslim world could not in all cases keep away from this turmoil, because, in an attempt to catch up, we have been eagerly sending our students abroad where they are severely subjected to endless challenges. We have also been copying the alien scientific writings with all its good and bad, and all its materialistic agnostic background. In the contemporary Muslim world, the number of Muslim students abroad has exceeded hundreds of thousands. The majority of sciences are still being taught and published in foreign (non-Arabic) languages, as was the imported writings. Even what is published in Arabic or in local languages of other Muslim countries, is, in the majority of cases, a direct or an indirect translation of the alien thoughts, and often contain clear contradictions with Islamic basic beliefs. This can create confusion in an age of great fascination with science and technology.

Some individual efforts to write science from a true believing perspective have emerged, however, like the writings of the following Muslim scholars: Ibrahim Farag, Muhammad Ahmad El-Ghamrawi, Muhammad Mahmoud Ibrahim, Khattab Muhammad, Malek bin Nabi, Waheed-uddin Khan, Muhammad said Kira, Ahmad Abdis-slam El-Kerdani, Muhammad Jamaluddin, El Fandi, Abder Razzak Nawfal, Ahmad Zaki, Hanafi Ahmad, Mustafa Mahmood, Khales Konjo, Hasan Zeino, Afeef Tabbarah, Qais Al Qirttas, M. Ferdouse Khan, M.M.M. Qadri, A. Q. Chowdhury, M. Akbar Ali, Maurice Buccaille, etc. Among foreign writers the list includes Sir. James Geans, A. Cressy Morrison, Alexis Carel, Graham Cannon and Albert Einstein and others such as the forty American specialists whose writings appear in Dr. John Clover Monsma's book, "*The Evidence of God in an Expanding Universe*," that has been translated into Arabic by Dr. Ab-Dimirdash Abdel-Majeed Sarhan, and revised by Dr. M.J. El Fandi.

These writings are mostly general scientific or philosophical writings, or quite distinct scientific teaching or research work. In the field of "Earth Sciences," Dr. Ibrahim Farag's works, like that of Dr. Khales Kanjo in medicine (the former being a university textbook and the latter a Ph.D. thesis) are pioneering works on the path of rewriting science from the Islamic point of view. The present writer has also written a book on historical geology entitle *Images from Pre-historic life*. Beyond these, informational material on science, whether textbooks, reference books, periodicals, circulars, films etc., are all given from a purely materialistic outlook which denounces, or ignores all that is supernatural. Hence they are full of erroneous expressions levelled against both science and belief.

Broad Lines for Rewriting and Teaching Science from Islamic Perspective

It is clear from the above mentioned discussion that scientific writings published during the last two centuries were mostly written from a purely materialistic background. Such trend in scientific writing started as a challenge to the Church in a revolution against its attempts to constrain human thinking. However, this has gradually become the rule, to the extent that most scientists indulge in such style of erroneous writing without really contemplating the ultimate results. Accordingly, scientific victories were wrongly considered victory over religion, and were used as tools to demolish it instead of emphasizing the fact that science is one of the short-cuts for one to get acquainted with the marvels of the great Creator.

Human knowledge is the heritage of all humanity, and Muslims are the middle nation and the trustees of the last heavenly message. It becomes incumbent upon Muslims to purify all knowledge, and particularly the scientific one, from biased ideas based on erroneous historic stands, human distortions or misconceptions. The accumulated errors that had, in the past, shifted science and scientists from the domain of belief to that of disbelief are becoming obvious, even to non-Muslims. This is definitely one of many reasons currently driving a large number of non-Muslims to Islam. Muslims should take the initiative to rewrite science and teach it from the Islamic perspective. Here are some broad steps for achieving this goal:

1. Stress the value of science and of scientific investigations in Islam. Indeed the Holy Qur'an has perpetually, and in more than 750 verses, directed the human beings to observe the universe and try to understand its miraculous structure because by so doing one can get to know his Creator, understand the laws governing the universe and hence use it for bettering life on earth.

2. Point out the greatness of the universe and of everything that is in it (matter, energy, natural phenomena, plants, animals, human beings, etc.) and emphasize that such an intricate and vast universe could not possibly have made itself, but rather was created by the great Creator. It could neither have been the outcome of chance or chaos, because the mathematical probabilities for the creation of the universe by chance are almost nil. This clearly proves that our universe must have been created by the predetermined, very well-planned wisdom of a Supreme Being that has always been looking after it. Naturally, the qualities of the Supreme Being are beyond the abilities of the human brain to comprehend, and are definitely not in any way comparable to anything in His creation.

3. Emphasize the fact that the universe is actually built on the same basis from its smallest to its largest units, and that its basic elements, matter, energy,

space and time are interchangeable and interconnected. This transforms the observable components of our universe into one entity which we have not yet to comprehend, but which represents the unity of the universe. This points clearly to the Oneness of the great Creator.

4. Emphasize the fact that our universe is not eternal, as it had a beginning which scientists have been trying to estimate, and it will definitely have an end as indicated by the observable changes in it. These facts have been repeatedly proved through different scientific disciplines, but have been always overlooked and neglected.

5. Point out that science, in its restricted definition, is a human attempt to explore Allah's creation in the universe and discover the laws that govern them. By discovering cosmic phenomena and the Divine laws that govern them man can make use of it in bettering his life, and this is a major part of his message on earth.

6. Stress the fact that science is basically a human attempt for reaching the truth. In so doing, it necessitates honesty, sincerity, willingness, devotion and precision. If armed with these qualities, scientific endeavors are considered in Islam a sacred act for which a Muslim will be rewarded.

7. Emphasize the fact that experimental science only represents partial knowledge that is becoming more and more partial with over specialization. Despite its great value, such partial knowledge cannot answer the major queries of the human mind. Such major queries need more integral and encompassing knowledge. This can only be given by the Creator, and hence the need for Divine revelations.

8. Stress the fact that experimental science itself proves the existence of the unseen. Most of the recent discoveries were not known before and hence were part of the unseen for previous generations. It is the running after the unknown that helps science to develop.

9. Point out the fact that experimental science cannot recognize the essence of life. It only studies its phenomena. We currently know the detailed chemical composition of the living cell, but we can not make it.

10. Emphasize the fact that science itself proves both the possibility and the necessity of revelation, the possibility of destruction of this world, and of man's accountability and his resurrection.

11. Point out the Qur'anic verses of scientific nature which have been counted to be more than 750, with the clear understanding that the Qur'an is basically a book of guidance, not a book of science. Yet, the precedence of the Qur'an, fourteen centuries ago, with scientific notions and facts that were only discovered a few years ago is, in itself, a clear proof that it is a Divine revelation. Such verses must be thoroughly studied, understood in the light of the most recent scientific contributions, commented upon and used wherever adequate in our scientific writings, without undue emphasis. These could be land-

marks for future discoveries because they are signs from Allah, the Creator of everything, and would be clear evidences for guidance in a world fascinated by the contributions of science.

12. Stress the fact that the human brain, senses and other faculties represent one of the greatest donations of Allah to man. To express our appreciation for such donation, we should make maximum use of all our faculties. The Qur'ān states that one is accountable for his senses.

13. Point out the contributions of Muslims to the fields of science and technology in particular, and to human knowledge in general. Muslims played a major role in the advancement of the different branches of knowledge. This is often overlooked.

14. Stress the fact that Islam is the system of thought and conduct of the whole life of all human beings of all ages. This system was taught to the message of 'Adam by Allah on the very day 'Adam was created. Thereafter, whoever was ordained for the guidance of man in different parts of the world, and at different periods, was invariably the same. Prophet Mohammad (SAAS) invited the whole world to this reality. It is the only acceptable religion with Allah, and hence human deviations in the name of religion cannot be considered religion. Consequently, the onslaught directed toward religion in non-Muslim countries cannot be applied to Islam.

15. Emphasize *Imān* by pointing out the signs of Allah in everything in this universe wherever possible and whenever necessary.

16. Refrain from the use of ambiguous omnibus and meaningless terms such as "nature" and "natural." Such terms were intentionally introduced in scientific writings out of disbelief. A Muslim writer could use the word Cosmos or universe instead of nature. Terms such as natural laws and natural selection should be replaced by Divine laws (or cosmic laws) and Divine selection. By such a minor change, numerous misconceptions could be rectified. Similarly, a Muslim scientist should refrain from using terms such as "chance", and "random" when he knows definitely that it is plan and order. He should also refrain from using such wrong expressions as "life appeared or disappeared, developed or evolved"; when he deeply knows that it was created and was made to evolve, develop or become extinct by its Creator. Similarly, such misguided slogans as "survival for the fittest", "struggle for existence", "Struggle against nature", "invasion of space", etc., should be totally abandoned. These are not only wrong from the scientific point of view, but are direct expression of human arrogance and conceit.

Consequently, any word or expression that could contradict with or cast doubt on a clearly expressed Islamic fact should be deleted. This however, should be carried out in a way that can never interfere with the scientific procedure, or limit the human endeavor to explore the universe.

17. Emphasize the fact that in directing man to scientific research, Islam

defies ignorance, fanaticism, wrong inheritance and maljudgement through imagination or personal desires. It always asks for the proof and commands the founding of one's judgement on non-refutable logical deductions. In this, Islam has indeed founded the scientific method and its ethics. Experimental science is described to be Qur'anic in its approach.

Summary and Recommendations

Modern science developed in Europe within an atmosphere of outraged hostility against Christianity, and hence has been written from a purely materialistic point of view. This limitation of science to the material substances alone has alienated it from wisdom and has been used to allege that science and its contributions contradict religion and refute its teachings. Such allegations have, sadly enough, been widely accepted in the wave of fascination with recent scientific and technological achievements. Consequently, the advances in the area of science and technology were paralleled by repulsion against religion, rejection of faith and revolt over its edits. This trend crystallized in a number of materialistic ideologies that emerged as a product of the processes of secularization, and, in the absence of the right belief dominated the scholarly community. Muslims also abetted this trend by neglecting the areas of science and technology.

Going back to the roots of the problem, one can easily find out that science did clash with Christianity for three basic reasons that can be summarized as follows:

- (a). The deviation of Christianity from the basic teachings of Christ (AS), which took it out of its original Divine Framework (Islam).
- (b). The infiltration of numerous man-made ideas into both the Old and New Testaments. These have been disproved by recent scientific findings (cf. Bucaille, 1399 / 1979), and
- (c) The wrong stand of the Church, pitting religion against science, and in the early days of scientific advances in Europe.

If this has been the scientific communities stand toward Christianity, it could not be justifiably applied to Islam. Contemporary Christianity is essentially a man-made religion, while contemporary Islam is the integration of the Divine messages to man since the very early days of 'Adam. Whoever was ordained for the guidance of man in different parts of the world, and at different periods [e.g., Ibrāhīm, Mūsā, 'Īsā (AS) etc.] the message was invariably the same. As we have stated, Prophet Muḥammad's message (ṢAAS) was an invitation to the whole world. It is the only revelation within the hands of human beings that has been preserved in the same language in which it was revealed to the least detail. All the previous revelations have been either completely

lost or distorted. An agreement between Islam and science as to approach, morals, obligations and major conclusions cannot be concealed (cf. Bucaille, 1399 / 1979). This is simply because science, in its restricted definition, is no more than a human attempt to explore Allah's creation in the universe and discover the laws that govern them. As the Qur'ān is revealed from Allah the Creator, there can be no contradiction between it and the laws Allah has placed in His creation. Moreover, the precedence of the Qur'ān for over fourteen centuries with scientific facts not known to man until late in this century, is in itself a clear evidence of the Divine nature of the Qur'ānic verses (cf. Bucaille, 1399 / 1979).

Despite all this, science is still written in the Muslim world from the same materialistic attitude of the non-Muslims. As this conflicts with both Islam and the current process of Islamic revival, it has to be rectified and science has to be rewritten and taught from the Islamic perspective. In this connection, the following recommendations and suggestions are made:—

1.) Revise science text-books that are currently in use in the Muslim World, especially those at the pre-university levels and the undergraduate ones, to eradicate all undue un-Islamic or anti-Islamic expressions and/or generalizations.

2.) Re-structure curricula and syllabi for writing new science textbooks from the Islamic perspective. These are suggested to cover the following major items:

- (a) The scientific material purged of all non-Islamic anti-Islamic generalizations and/or expressions, and re-written in a humble modest way without undue presumptions.
- (b) The spiritual implications of the scientific information (i.e., the wisdom behind it) is clearly understood. These should be mentioned in various forms according to the level of instruction, and should stress laid upon reverence to Allah and upon following the example of His Prophet Muḥammad (ṢAAS), also the vastness of the universe, its intricate and orderly structure, unified pattern and miraculous expanse, the limitations of science and need of Allah's mercy to human beings throughout their existence.
- (c) All ethical and moral laws and instructions associated with such information.
- (d) Relevant Qur'ānic verses and/or sayings of the Prophet (ṢAAS) wherever applicable, and without compulsion.
- (e) Muslims' contributions to specific fields (past and present).
- (f) Undiscovered or unexplored areas of these fields and motivations for future research.

3.) Begin a long-term program for translation of the basic books in the different fields of science and technology into Arabic (or the other languages

of the different Muslim countries) with comments on any un-Islamic expression or generalization. This step should be taken in preparation for the teaching of science and technology in either Arabic or the other mother tongues of the Muslims.

4.) Check misinterpreted and mis-figured scientific information propagated in the press or other media of information (e.g., television, radio, etc.) and answering to it.

5. Prepare special science and technology programs for the TV and radio to educate the masses from an Islamic perspective.

6.) Encourage scientific and technical research in the Muslim World (in universities, institutes, industrial centers, etc.) on Islamic bases.

7.) Minimize the number of Muslim students that are being sent abroad to be educated at the hands of non-Muslims, to only the very necessary areas, and to specific ages and specializations.

8.) Establish an Islamic organization for science, technology and development to plan for the scientific and technological revival of the Muslim *Ummah*. The potentials of such *Ummah* are enormous, but these have been dissipated by its division into more than 60 countries and minority groups.

9.) Besides the World Center for "Islamic Education" in Makkah and the "Islamic Foundation for Science, Technology and Development" proposed to be in Jeddah, an "International Union for Muslim Scientists and Engineers" (with headquarters and offices in different countries) is deemed necessary for the promotion of the scientific and technical revival of the Muslim *Ummah* through various activities including statistical studies, surveys, publications, conferences, etc. This union should include "International, Specialized, Islamic Societies, in the different disciplines of science and technology, which would exercise its activities independently as well as within those of the "International Union" (e.g., publications, meetings, etc.).

10.) Added to the above mentioned organizations, the "World Center of Islamic Education" should encourage the rewriting and teaching of Science from the Islamic perspective by drafting the broad lines for both the necessary curricula and syllabi as well as the guidelines for text-book writing. The center could then invite committed specialists for writing the necessary books for the different levels of education in an open competition. The manuscripts should be critically reviewed, and the best ones adopted. This may necessitate the establishment of committees that include specialists in pure and applied sciences, philosophy and Islamic studies for proper assessment of both the curricula and syllabi and for judging the manuscripts.

11.) Promote science and technology in the Muslim World through various incentives such as the establishment of annual prizes, awards, and other honoraria.