

Research Article

Miraculous Nature of the Qur'an: Science and Technology as a Model

Muhammad Maga Sule¹, Salihi Ashiru Musa²

¹Department of Islamic Studies, Usmanu Danfodiyo University, Sokoto, Nigeria.

²Department of Arts and Humanities, School of Continuing Education, Bayero University, Kano, Nigeria.

*Corresponding Author
 Salihi Ashiru Musa

Abstract: Science is knowledge related to a person's understanding of the natural world, whereas technology is knowledge related to how knowledge of science is utilized for overall development. The science of revelation is a knowledge revealed by Almighty Allah to Prophets and Apostles to be conveyed to mankind as a guide to develop the human civilization. Throughout the history of human civilization, knowledge of science is very crucial for the development of all human civilization. There will be no civilization without Science and Technology. But in a civilization developed by the West, revealed knowledge has no role. According to Islam, the presence of revealed knowledge is considered to be interfering with the smooth development of Science itself. Thus, for Western scholars, revealed knowledge needs to be ignored and ruled out. Consequently, today's development becomes lame so as to cause environmental and global warming issues without viable solutions; issues of exploitation and manipulation of natural resources so as to adversely affect the world's economic system; and social issues which are very disgraceful, like giving birth to one who does not know how to respect his own parents. This paper expresses the position of Science in the revealed Book of guidance (al-Qur'an). However, this issue needs to be addressed, simply because Islam demands that scientific development without religion is tantamount to ignorance, to the point that the goal of development to produce a happy and prosperous human being will not be achieved. While religion without science is equally lame, because religious demands cannot be implemented without appropriate Science and Technology. Meanwhile, this paper adopted a desk review where the analytical method was used in order to critically examine and study the Glorious Qur'an as the basis for modern Science and Technology.

Keywords: Position- Modern – Science – Technology – Glorious – Qur'an.

INTRODUCTION

Science and Technology development is frequently concomitant with development of nature by man. No one may deny that man needs Science and Technology to develop and prosper in this world. Without Science and Technology, the world would not be as developed as we see it today. Only mankind, and no other creatures, has the potential to develop Science and Technology, because mankind has the capacity to understand nature in a limited way. Mankind's ability to systematically, logically and objectively understand nature, and then develop science and nature themselves, enables them to properly administer and manage nature. Science is not knowledge which can explain everything. At least everyone knows that it cannot explain the happiness aspect in man's life. Science is also unable to explain the aspects of emotional and spiritual satisfaction.

Unfortunately, the over - adulation for Science has caused it to dominate every aspect of human life – all knowledge including social sciences and literature are required to be explained scientifically for it to be universally accepted. Likewise with knowledge related to psychology and humanities – all are using a scientific approach, even though scholars understand very well that knowledge concerning humanities is very subjective, not objective as science. Even religious and cultural knowledge are required to be justified scientifically to gain universal acceptance.

This reality is causing society to neglect religious teachings, culture, tradition and ethics (subjective knowledge) in their daily life, which ultimately produces 'scientific mind' people – making science as their ideology (which may be called as scientism), such as to bring forth humans who are blind to religion, and unclear about life's objectives, thus

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undermining the family institution, lack of etiquette in social manners and destruction of the natural environment, and also chaos and disorder in the economic system. All these are the consequences of science being developed without religion, without the pristine values of humanity, which causes people to be blind. The consequence is that a system is born which separates between affairs related to understanding nature, that is science; and a system which enables man to understand Allah, that is, religious knowledge as well as knowledge which enables man to properly understand his social responsibilities. Some alternative suggestions have been submitted by Gardner⁽¹⁾ who discusses the Concept of Multiple Intelligence, Daniel Goleman⁽²⁾ in submitting the Concept of Emotional Intelligence, and Donah Zohar⁽³⁾ in submitting the Concept of Spiritual Intelligence. But as for the writer, the concept of human intelligence which they propose is still out of the scope of revealed knowledge as taught in Islam.

Literature Review

The issue on the relation between the Qur'an and Modern Science and Technology was initially, according to certain account promoted the scientific legitimating to the Qur'an, goes back to the early sixties. In fact, one of the earliest pamphlets came out of Cairo: On Cosmic Verses in the Qur'an by Muhammad Jamaluddin El-Fandy⁽⁴⁾. El-Fandy has a sense of religious superiority that manifests itself in his attempts to prove that every astronomical discovery and scientific theory (that is in the 1950s) has already been mentioned in the Qur'an. He considers the Qur'an as the best example of scientific expression (an unsuitable claim as the ideal form of scientific expression is a mathematical equation; and there certainly are no equations in the Qur'an). Thus, from almost any Qur'anic verse referring to any astronomical phenomenon, El-Fandy can draw modern astronomical parallels and comparisons. For example, from the verse, all is He who raised the heavens without any pillars that you can see, and neither can the night outstrip the day, and each revolve in an orbit, al-Fandy draws the following inference⁽⁵⁾.

¹H. Gardner, *Frames of Mind: Theories of Multiple Intelligences*. London, Heinemann.1984, p.46.

²D. Goleman, *Emotional Intelligence: Why It Can Matter More Than IQ*. London, Bloomsbury. 1996. P.24.

³Donah Zohar and Matshall I., *Spiritual Intelligence – The Ultimate Intelligence*. London, Bloomsbury. 2000. P.39

⁴Ziauddin Sardar, *Between Two Masters: Qur'an or Science?* 2011

<http://ziauddinsardar.com/2011/02/Qur'an-science/>

⁵Ibid.

Sayyid Qutb related the three verses (verses 77, 78 and 79) and the succeeding verse (81). He opined there is interrelation among the verses; all describe the will of Allah in creating everything of unrealistic to man⁽⁶⁾. Sayyid Qutb said, the verse is scientific miracle. He mentioned term "energy" "for light energy in active inside the green wood derived from solar energy absorbed. The result of the process is an element of component forming green tree as timber. However, he did not explain the process of solar energy absorption⁽⁷⁾. Ultimately, he was frankly not a competent for revealing (him secret of scientific miracle in al-Qur'an. He said, if I were able to know, I would be the pious and would live just for worshipping the Almighty Allah.

Abdul Malik Karim Amrullah (Hamka) explained and said something related with charcoal (organic fossil). Out of the charcoal man light the fire. The genesis of charcoal is begun with the buried wood a long time ago under the massive of the earth⁽⁸⁾.

Muhammad Qureish Shihab said of botanical term of chlorophyll, and Allah created energy out of the chlorophyll the green pigment contained in leaf or green tree (wood) or every of plant organ that green in colour. That is why, the verse used the word *syajar* (tree) instead of *waraq* (leaf), *subhanallah*, scientific secret is now revealed clearly. Quresh Shihab also said the process of photosynthesis and solar radiation and respiration process and chemical energy. As a modern scholar, he can relate verse interpretation knowledge with the progress of science⁽⁹⁾.

Even non-Muslim writers like Bucaille⁽¹⁰⁾, the French surgeon who wrote the book *The Bible, the Qur'an and Modern Science*. Bucaille (2002) was the first Western writer who indulged in this issue, although other earlier Muslim writers have written books on the issue well before Bucaille. Muslim writers such as Sardar dubbed the act of proving the truth of the Qur'an by comparing the verses of the Qur'an with science as Bucaillism because it was assumed that Bucaille was the first person to indulge in using science to prove the truth of the Qur'an. However Bucaille was not the first person to deal with the Qur'an and science. The 12th century Qur'an commentator, for example Fakhr al-Din al-Razi used the scientific knowledge at his time

⁶ Shihab, M. Q. *Tafsir Al-Mishbah*. Perpustakaan Nasional, Jakarta. 2007.

⁷ Ibid.

⁸ Abdul Malik Karim Amrullah (Hamka). *Tafsir Al-Azhar*. Pustaka Panjimas - Jakarta.2004.

⁹ Shihab, M. Q. op cit

¹⁰ M. Bucaille, *The Bible, the Qur'an and Science: The Holy Scriptures Examined in the Light of Modern Knowledge*. Islamic Books Publisher. 2002, p.29.

to illuminate his exegesis of the Qur'an (¹¹). Muhammad Abduh, the nineteenth century Muslim scholar from Egypt, who wrote the Qur'anic exegesis *al-Manar* interpreted various verses of the Qur'an through the eye of Science. For example he defended the theory of evolution in which he said natural selection was a devise used by Allah (¹²).

Since there are more than 750 verses of the Qur'an which describe the universe and the nature of the universes any commentary of the Qur'an cannot get away from commenting the verses of the Qur'an without commenting them from the scientific point of views. In the field of embryology, in which the Qur'an in many verses talks about, Moore, *et al.*, (¹³) emphasized the strong relation between the Qur'an and embryology. Moore who is currently an emeritus professor at the faculty of surgery at the University of Toronto, wrote several books highlighting the strong relation between the Qur'an and embryology. The work of Bucaille, the *Bible, the Qur'an and Modern Science* in 2002, and *what is the Origin of Man* in 2005 were translated in the Malay language. The information on the relation between the Qur'an and science shaped the general opinion of the people toward the Qur'an and Science and Technology.

Many exegesis of the Qur'an discuss the verses of the Qur'an in the light of science have been written before. Since there were no accurate scientific knowledge during the time when the popular exegesis of the Qur'an at that time, it was the practice to interpret the verses according to the Arabic grammar. Some of the exegesis of the Qur'an, especially the exegesis of the verses which dealt with the nature of the universe, incorporated non-Islamic myths which made their way into the exegesis of the Qur'an when the non-Muslims embraced Islam (¹⁴).

The Muslim during that time often asked the newly converted people especially about the creation of man and the universe which were wrong scientifically, because myth was based on stories while science is based on research. One example of the verse of the Qur'an, chapter 71 verse 19 "*And Allah has made the earth for you as abed spreading*". The verse was

interpreted to be flat (¹⁵). The interpretation of the verse which says the earth was flat is found in the exegesis of the Qur'an. The exegesis of the Qur'an says that the earth was flat because it was the prevalent idea at the time Naik & Fahim (¹⁶), Beside the flat earth concept, which made its way into the exegesis of the Qur'an, another Qur'anic verse which many people like to refer and some even claimed that this verse showed that the Qur'an is not compatible with science is the chapter 36, verse 38 "*And the sun run on it course on appointed time*". Although this verse does not refer to the sun rotating around the sun, some people believe that the verse is about the sun rotates around the earth.

As Science and Technology advance, observations can be made accurately and the universe and the nature of the universe can be more accurately explained, for example by using the WMAPs telescope, researchers could understand the structure of the universe better than before (¹⁷). By using the Hubble telescope, researchers could explain the origin of the universe which started from the instant which is called the Big Bang (¹⁸). By using the deep sea probe and submarines, researchers could explain the deep sea phenomena including the internal waves (¹⁹). The halocline phenomena of the sea (²⁰), by using the MRI researchers could scan the frontal lobe of the brain (²¹). With the new discoveries, the verses of the Qur'an which relate the nature of the universe or part of the universe can be better understood. The new discoveries affirmed the verses of the Qur'an which describe part of the universe. One such verse is about the origin of the universe and the aquatic origin of living organism (Chapter 21, verse 30). There are however opposing

¹¹ N. Guessoum, *Islam's Quantum Question: Reconciling Muslim Tradition and Modern Science*. London: I.B. Tauris. 2010, p.60.

¹² M. Sedgwick, Muhammad Abduh. London: One World Publication. 2014, p.52.

¹³ K. L. Moore, et al. *Qur'an and Modern Science: Correlation Studies*. Bridgeview, USA: Islamic Academy for Scientific Research. 1991, p.54.

¹⁴ Ibn Khaldun. *The Muqaddimah: An introduction to history*. Princeton: Princeton University Press. 1969, pp. 110-111.

¹⁵ M. Q. Shihab, *Membumikan Al-Qur'an: Fungsi dan Peran Wahyu dalam Kehidupan Masyarakat* (To bring the Qur'an into the local taste: The role of revelation in the life of society). Bandung: Mizan. 2007

¹⁶ Z. Naik, & F. Fahim, *The Qur'an & Modern Science: Compatible or Incompatible?* Charleston: Create Space Independent Publishing. 2014, p.11

¹⁷ W. I. Martinez, *Data Analysis in Cosmology*. Valencia, Spain: Springer Science & Business. 2009, <http://dx.doi.org/10.1007/978-3-540-44767-2>.

¹⁸ F. Bortz, *The Big Bang Theory: Edwin Hubble and the Origins of the Universe*. New York: The Rosen Publishing Group. 2013, pp.31-32.

¹⁹ R. Hekinian, *Sea Floor Exploration: Scientific Adventures Diving into the Abyss*. New York: Springer Science & Business Media. 2014, pp. 69-71. <http://dx.doi.org/10.1007/978-3-319-03203-0>

²⁰ C. R., Nichols, & R. G. Williams, *Encyclopedia of Marine Science*. New York: InfoBase Publishing. 2009, p.114.

²¹ C. R., Reynolds, & A. M. Horton, *Detection of Malingering during Head Injury Litigation*. New York: Springer. 2012, p.86. <http://dx.doi.org/10.1007/978-1-4614-0442-2>.

idea about the relationship between the Qur'an and science⁽²²⁾. For example said that science changes along the time while the Qur'an does not change, and the Qur'an is priori true, therefore he rejected the idea of proving the truth of the Qur'an with science. Those who supported the idea of the compatibility between the Qur'an and modern science emphasized that the conformity is between the Qur'an and the established facts of science. Sardar⁽²³⁾ and Hoodbhoy⁽²⁴⁾ rejected the idea of the relationship between the Qur'an and science on the ground that science changes while the Qur'an does not change. Recent scientific truth changes all the time, but the elements of science do not; but there are further additions, but what is there now will not change (Jagger, 2010),⁽²⁵⁾. The assumption that proving the truth with science will be dangerous step because of scientific truth changes, would the Qur'an then be considered to be invalid?

Concept of the Qur'an

Generally it can be said that al-Qur'an is a book which contains a collection of revelations sent and conveyed to the Prophet Muhammad (May the peace and blessings of Allah be upon him) as guidance to the whole of mankind throughout man's life. According to Subhi Salleh (1978),⁽²⁶⁾ this book is named al-Qur'an because it has to be remembered and memorized (*al-Qiraah*) by Muslims. Generally, al-Qur'an can be summarized as follows: Al-Qur'an is a book revealed as right guidance or enlightenment (*huda*) to man to guide him throughout his life. Its contents clearly state the difference between the rights and the false as asserted by Almighty Allah in verse 185, chapter al-Baqarah says;

Ramadan is the (month) in which was sent down the Qur'an, as a guide to mankind, and also clear (Signs) for guidance and judgment (between right and wrong),⁽²⁷⁾.

Al-Qur'an is a book which needs to be fully believed as the revelations of Almighty Allah. It is one of the Pillars of Faith. A true Muslim sincerely and earnestly believes in it. Disputing Al-Qur'an may revoke one's declaration of faith (*syahadah*), even though there are statements in it which rationally and

logically do not make sense to one's or a group's thinking, such as the story of Prophet Ibrahim (Abraham) (peace and blessings of Allah be upon him) who was thrown into the fire by King Nimrod but the fire did not burn him; or the story of Prophet Isa (Jesus) (peace and blessings of Allah be upon him) who could bring the dead to life and so on. Al-Qur'an is the main basis of belief for the development of the Muslim *aqidah*⁽²⁸⁾.

Challenges of the Glorious Qur'an

Literature and poetry have been instruments of human expression and creativity, in all cultures. The world also witnessed an age when literature and poetry occupied pride of position, similar to that now enjoyed by Science and Technology. Muslims as well as non-Muslims agree that Al Qur'an is Arabic literature par excellence - that it is the best Arabic literature on the face of the earth. The Qur'an, challenges mankind in the following verses:

(He) who made for you the earth a bed (spread out) and the sky a ceiling and sent down from the sky, rain and brought forth thereby fruits as provision for you. So do not attribute to Allah equals while you know (that there is nothing similar to Him). And if you are in doubt about what We have sent down upon Our Servant [Muhammad], then produce a surah the like thereof and call upon your witnesses other than Allah, if you should be truthful⁽²⁹⁾.

The same challenge is repeated in the Qur'an several times. The challenge to produce a *Surah*, which, in beauty, eloquence, depth and meaning is at least somewhat similar to a Qur'anic *Surah* remains unmet to this day. A modern rational man, however, would never accept a religious scripture, which says, in the best possible poetic language, that the world is flat. This is because we live in an age, where human reason, logic and science are given primacy. Not many would accept the Qur'an's extraordinarily beautiful language, as proof of its Divine origin. Any scripture claiming to be a divine revelation must also be acceptable on the strength of its own reason and logic.

According to the famous physicist and Nobel Prize winner, Albert Einstein, "Science without religion is lame. Religion without science is blind." Let us therefore study the Qur'an, and analyze whether *The Qur'an and Modern Science are compatible or incompatible?* The Qur'an is not a book of science but a book of 'signs', i.e. *ayats*. There are more than six

²²Z. Sardar, *The future of Muslim civilization*. London: Cromwell. 1989.

²³Ibid.

²⁴P. Hoodbhoy, *Islam and Science: Religious Orthodoxy and the Battle for Rationality*. New York: Zed Books. 1991, p.79.

²⁵J. Jagger, *Science and the Religious Right: What Americans Should Know about Both?* Bloomington: iUniverse. 2010.

²⁶Subhi Salleh, *Kajian al-Quran*. Kuala Lumpur, Dewan Bahasa dan Pustaka. 1978.

²⁷Qur'an; Surah Al-Baqarah: Verse 185.

²⁸Sayid Sabiq, *Akidah Islam (Pola Hidup Manusia Beriman)*. Singapura; Pustaka Nasional Pte Ltd. 1991, p.63.

²⁹Qur'an; Surah Al-Baqarah: Verse 23-24.

thousand 'signs' in the Qur'an of which more than a thousand deal with science. We all know that many a times Science takes a 'U-turn'. In this paper I have considered only established scientific facts and not mere hypotheses and theories that are based on assumptions and are not backed by proof.

The Qur'an, Science and Technology

Let us try to define now Islamic Science and Technology, and try to explain how it came into being. The Qur'an made its greatest impact on Muslim minds by making them aware of the natural world. The Qur'an also referred to peoples in the past, such as the Ad and Thamud, the people of Lut (Ashab Lut), Moses, Banu Isra'el and the Pharaohs. This emphasis on antiquity appears to be deductive in purpose.

Taking these factors into account, Muhammad Iqbal came to some interesting conclusions. He thought that the Qur'an pointed to Nature and History⁽³⁰⁾ as sources of human knowledge. He also claimed that the birth of Islam heralded the birth of inductive intellect⁽³¹⁾ He therefore concluded that Islam bridges the ancient and the modern worlds. He justified such a claim by assuming that Islam belonged to the ancient world in so far as it used revelation but was essentially modern in spirit. These conclusions of Iqbal may be significant in so far as Islam has motivated its adherents to pursue vigorously both religious and secular science. Islam encouraged scholars the exploration of all kinds of knowledge. One explains the pursuit of Islamic science thus: "Islamic science came into being from a wedding between the spirit that issued from the Qur'an revelation and the existing sciences of various civilizations which Islam inherited and which it transmuted through its spiritual power into a new substance, at once different from and continuous with what had existed before it⁽³²⁾.

For many centuries, humankind was unable to study certain data contained in the verses of the Qur'an because they did not possess sufficient scientific means. It is only today that numerous verses of the Qur'an dealing with natural phenomena have become comprehensible⁽³³⁾. A reading of old commentaries on the Qur'an, however knowledgeable their authors may have been in their day, bears solemn witness to a total inability to grasp the depth of meaning in such verses. We could even go so far as to say that, in the 20th

³⁰ Sir Muhammad Iqbal, *Six Lectures on the Reconstruction of Religious Thought in Islam*. Kapur Art Printing Press, Lahore, 1930, p. 177.

³¹ Ibid, p. 177.

³² Seyyed Hossein Nasr, *Islamic Science. An Illustrated Study*, photographs by Ronald Michaud, World of Islam Festival Publishing Company Ltd., London, 1976, p. 9.

³³ A. A. Bilal Philips. (Ed.), (1995). *The Qur'an and Modern Science*. Islamic Information Center Dubai U.A.E.

century, with its compartmentalization of ever-increasing knowledge, it is still not easy for the average scientist to understand everything he reads in the Qur'an on such subjects, without having recourse to specialized research⁽³⁴⁾. This means that to understand all such verses of the Qur'an, one is nowadays required to have an absolutely encyclopedic knowledge embracing many scientific disciplines.

Man's development of knowledge is summed up in Tanṭawi's remark: scientific discoveries were consistent with the Qur'an only after scientists have reached this advancement due to their knowledge and thinking⁽³⁵⁾. Similarly, non-Muslim scholars endorsed that some scientific discoveries (embryology) were only comprehensive in the 15th century yet the Qur'an have mentioned the scientific account since 7th century. Suggesting that not only Muslim scholars but Western scholars too realizes the limitations of modern Science and Technology⁽³⁶⁾.

Sadar blamed the Western Civilization of separating Science and Technology from religion; Sadar argued that every aspect of human undertaking abide by Islam as a total system, a holistic system. According to Sadar, the Qur'an's request is that in order to understand Almighty Allah the believers should use science to understand the *ayats*, the signs, of Almighty Allah⁽³⁷⁾.

Evidence of Science and Technology in the Glorious Qur'an

What is the position of Science in revealed knowledge contained in al-Qur'an? Muslim scholars have never rejected the scientific approach such as being practiced by Western scholars as mentioned above (in fact, Muslim scientists were the first to establish the scientific method that we have today⁽³⁸⁾. In the view of Muslim scholars, Muslims are very much encouraged to observe nature. Surah Ali 'Imran Almighty Allah clearly prove this statement, as in the verses.

Indeed, in the creation of the heavens and the earth and the alternation of the night

³⁴ Ibid.

³⁵ Daneshgar Majid. "An Analytical Study On Two Modern Approaches To Science In The Qur'an: Tantawi and Bucaille." PhD, Department of Qur'an and Hadith: Academy of Islamic Studies, University of Malaya, 2013.

³⁶ Bakar Osman, *Tawhid and science: Islamic perspectives on religion and science* (2nd ed.). Selangor: Arah Pendidikan Sdn Bhd, 2008.

³⁷ Sadar, M.H. *Science and Islam: Is there a conflict? In The Touch of Midas: Science, values and environment in Islam and the West*, ed. Ziauddin Sardar, Selangor: Pelanduk Publications, 1988.

³⁸ M, Watt. *The Influence of Islam*. Edinburg, Edinburg University Press. 1972, p.67.

and the day are signs for those of understanding. Who remember Allah while standing or sitting or (lying) on their sides and give thought to the creation of the heavens and the earth, (saying), "Our Lord, You did not create this aimlessly; exalted are You (above such a thing); then protect us from the punishment of the Fire" (³⁹).

Likewise with verses 27 and 28 in Suratul Faatir (35) which means:

Do you not see that Allah sends down rain from the sky, and We produce thereby fruits of varying colors? And in the mountains are tracts, white and red of varying shades and [some] extremely black. And among people and moving creatures and grazing livestock are various colors similarly. Only those fear Allah, from among His servants, who have knowledge. Indeed, Allah is Exalted in Might and Forgiving (⁴⁰).

And in surah Al-Mulk (67), verse 3, Almighty Allah says as in the following meaning:

...No want of proportion wilt thou see in the creation of (Allah) Most Gracious... (⁴¹).

Further in Al-Qamar (54), verse 49, Almighty Allah also says in the following meaning:

Verily, all things have We created in proportion and measure (with predestination), (⁴²).

The verses above clearly tell the Muslims to observe, and study the occurrences and phenomena of the creations, the earth and the heavens. They are told to use their intellect, a potential to give reasons and causes on the phenomena of nature's creation which is balanced and follow the rules or measures prescribed by Almighty Allah. Study of the celestial phenomena is included in the field of astronomy as is now known. In Suratul Faatir (35), Almighty Allah tells Muslims to observe and reflect on the phenomenon of rain formation which comes down from the sky, then nourishes a variety of vegetation to grow. Likewise with the mountains, structure of rocks and minerals are useful for man. Other than nature, Almighty Allah also

urges Muslims to study humans, variety of wild and domestic animals of various behavior from which human being may draw lessons and benefit.

In the above verse (3: 190 & 191), Almighty Allah refers to people who observe nature with the sentence, "*Men who celebrate the praises of Allah, standing, sitting, and lying down on their sides, and contemplate the (wonders of) creation in the heavens and the earth, (With the thought): Our Lord! Not for naught hast Thou created (all) this! Glory to Thee! Give us salvation from the penalty of the Fire!*" It means that in Islam, knowledge related to understanding of nature, now known as science, is very important to study, but science must not make us forget our responsibilities to the Creator of nature, Almighty Allah. In other words, Islam enjoins Muslims to master Science and Technology, but not at the cost of neglecting our responsibilities to Almighty Allah.

Those who remember Almighty Allah, wherever and whenever they are, at the same time they understand nature as created by Almighty Allah, are given by Him the title, *ulul al-bab* or possessors of wisdom. In Suratul Faatir (35: 27 & 28) above, Almighty Allah names this group as people who have knowledge (*al-Ulama*) scholars. *Al-Ulama* are people who understand nature or creation; the phenomenon of rain which falls from the sky, which nourishes various species of vegetation, who can understand the creation of mountains and all types of rocks, understand the atmosphere, the diversity of human, wild and domestic animals and their behavior. In other words, they are scientists of nature and social scientists, at the same time they are most in awe (*taqwa*) Almighty Allah, fear his sanction and punishment, do not transgress limitations, who are bold but humble in spite of their understanding of nature and human behavior because they know that Almighty Allah Knows More and is the Most Powerful, and they also promptly seek forgiveness from Him if they have acted in an unrestrained manner in attempting to understand nature.

In other words, Muslim scholars realize that nature has properties which may be understood and predicted, but these properties are not absolute, and not determined by nature itself (whether vegetation, animals, matter or human), but the properties of nature are determined absolutely by Almighty Allah. That is why Muslim scientists or Scientists with *Tawhid* believe in the property of fire which is hot when it burns, but the burning of the object on fire does not lie with the fire but with the permission of Almighty Allah for it to burn. Thus, a scientist with *Tawhid* believes in the story of Prophet Ibrahim (Abraham) (peace blessings of Allah be him) stated in al-Qur'an, who did not burn when thrown in the flaming fire because Almighty Allah did not give permission to the fire to burn him. Likewise, with the story in al-Qur'an about Prophet Ismail (Ishmael) (peace blessings of Allah be

³⁹Qur'an; Surah Aal 'Imran: Verses 190-191.

⁴⁰Qur'an; SuratulFaatir: Verses 27-28.

⁴¹Qur'an; Surah Al-Mulk: Verse3.

⁴²Qur'an; SurahAl-Qamar: Verse 49

him) who did not die when slaughtered with a sharp knife. And the story of Prophet Musa (Moses) (peace blessings of Allah be him) who crossed the Red Sea after he threw his staff into it and the waters parted for him and his people to escape from the Pharaoh, and other stories in al-Qur'an which could not be accepted by the scientific mind, but are acceptable to scientists with *Tawhid* who believe in al-Qur'an without any doubt.

Scientists with *Tawhid* also believe in their ability to understand nature systematically and logically but within limits because they have been entrusted by Almighty Allah to be the administrator and governor of this world, as vicegerent or *khalifah* of Almighty Allah. They would not be able to properly carry out their task as *Khalifah* if Almighty Allah did not provide them with the potential to understand nature. At the same time they (as *k Khalifah* of Almighty Allah) are required to develop their talents and personal skills in understanding nature. So their obligation to develop science is considered as a shared responsibility (*fardh kifaya*) which they do on behalf of the whole Muslim community.

For Scientists with *Tawhid*, knowledge is not limited to what may be observed by the human intellect. Knowledge perceived by the human intellect is called *aqli*, whereas knowledge given by Almighty Allah to a person, whether through reading of Allah's knowledge contained in al-Qur'an and the Prophet's (May the peace and blessings of Allah be upon him) Sunnah or through inspiration or intuition is called *naqli*. Both forms of knowledge or sciences are very necessary in the life of a Scientist with *Tawhid*. *Aqli* science is knowledge obtained based on the strength of the thinking mind whereas *naqli* science is knowledge is given by Almighty Allah based on Divine guidance. The strength of *naqli* is based on to what extent a person's belief develops his *Tawhid* aspect – belief system asserting Oneness of Almighty Allah and based on rituals and worship (*Ibadah*) practice of a person.

Thus, for scientists with *Tawhid*, knowledge has a certain hierarchy (*marhalah*). The highest in the hierarchy is the knowledge of knowing his Lord. This science does not only enable one to know his Lord but also makes all his deeds and practices for the sake of Allah that he knows. There are levels of *naqli* knowledge discussed in detail in a book by Imam al-Ghazali,⁴³ *Guidance for Righteous Muslims* and by Ibn-Khaldun in his famous book, *Mukaddimah* (Introduction or *Prolegomena*),⁽⁴⁴⁾.

⁴³ Imam Ghazali, *Maw'izatul Muminin Min Ihya' Ulumiddin*. Syed Ahmad Semati, (ed.) Singapura, Pustaka Nasional Pte. Ltd. 1990.

⁴⁴ Ibn Khaldun. *The Muqaddimah: An introduction to history*. Princeton: Princeton University Press. 1969.

CONCLUSION

The globe is in great need of Science and Technology development. It will create economic development and expectantly prosperity to the country. Regrettably, the development of Science and Technology which neglects culture and religion blinds the people as to which direction development will take. The well-being and wealth obtained are just mirage or shadow of the sculpture in the middle of the barren desert, not real well-being which brings peace of mind to the heart and soul. Accordingly, we see before us how a highly science literate society is unable to handle issues of global warming, speculation and currency manipulation and social moral decay of religion and culture. In fact, white collar crime in front of us is destroying the world economic system of today, as stated by Francis Fukuyama. The lesson in this article teaches us how harmful is a system developed based on scientific achievement but neglects responsibility to God. That is why we will be blinded if we develop Science and Technology without religion.

Equally, religious development needs Science and Technology development. There is no point of man being the vicegerent or caliph of Almighty Allah entrusted with governing and administering this world if man fails to understand it properly. How would man properly govern and administer the world if he is ignorant about it. Is it possible to make clothing to cover our privacy as demanded by religion if we do not know how to make appropriate clothing? Is it possible to fulfill our responsibility of putting into practice the tenets of Islam if we do not master Science and Technology? That is the reason religion will be lame without Science and Technology.

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