SIGNIFICANCE OF SCIENCE AND SCIENTIFIC THOUGHT FROM THE ISLAMIC PERSPECTIVE

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INTRODUCTION

The Qur'an is a book of signs. We can derive great benefit as the signs in the Qur'an can bring us closer to Allah (SWT) provided that we employ our thinking ability. A Muslim scientist on the path to finding the truth who refers to the Qur'an when embarking on this quest would always remember that everything in this world is created by Allah (SWT). This realisation would increase his *taqwa* towards Allah (SWT) and consequently, he would ensure that his scientific research would only bring benefit to mankind and this world, and would not bring forth destruction and problems.

Scientific thought, in actual effect, is not just about conducting experiments. Anyone in any field can employ scientific thought in their respective fields of knowledge. Even in the area of *fiqh*, scientific thought has been utilised to derive guidelines and *fatwa* on a particular issue. The process of scientific thought in this instance are based on the two primary sources of Islam, namely the Qur'an and the Sunnah. As such, scientific thought should be employed by Muslims in tackling the challenges of today's world, and it should not be viewed solely to be in the domain of science and technology.

It is also important that the Qur'an be made as one of the literature reviewed before conducting an experiment. This is important for two reasons. Firstly, as will be highlighted in this paper, scientists who refer to the Qur'an could be inspired by certain verses in the Qur'an to partake in a particular research. Such inspirations could spur scientific research in particular among the Muslim community. Secondly, more often than not, we only refer to what the religion says after a problem has occurred. In other words, we are often react towards something after it has happened rather than proactively preparing ourselves before it happens. If a scientist refers to the Qur'an before embarking on a particular research, he would be aware of the warnings in the Qur'an regarding the responsibility of mankind not to cause harm or destruction. Scientific thought based on Qur'anic teaching is essential in that scientists would always be wary of the dos and don'ts in conducting research. Research should not be done just for the sake of research. Research should be conducted ethically, and the ethical considerations should always

be based on Islamic teaching for the benefit of all mankind. This matter is best summed up by Osman Bakar, in which he wrote:

> *The scientific spirit of Muslim scientists and scholars flows, in fact, from their consciousness of tawhid. There is no doubt that, religiously and historically speaking, the origin and development of the scientific spirit in Islam differs from that in the West. Nothing better illustrates the religious origin of the scientific spirit in Islam that the fact that this spirit was first demonstrated in the religious sciences.*[1]

The discussion that follows looks at the significance of science and scientific thought in Islam, as well as lessons from the Qur'an and the Islamic Civilisation that modern Muslims can learn in order to improve their conditions today.

SIGNIFICANCE OF SCIENCE

Some people regard science and its many branches as nothing to do with Islam. This perception gives the impression that science is a branch of knowledge that is separate from other aspects of human life. As a consequence, whether deliberate or otherwise, this has resulted in the separation of science from religion. Looking at this perception in the context of the Muslim *ummah*, the separation of science from Islam has given rise to some Muslims thinking that science is not a religious collective obligation. On this matter, Mohd Nakhaie Ahmad wrote by citing the views of renowned thinkers of Islam, namely Ismail Raji al-Faruqi dan Osman Bakar, that:

> *...(they) range from those who saw in modern science something characteristically European and fundamentally opposed to the spirit of Muslim science to those who viewed it as the work of the devil, and from those who attempted to deny its accomplishments, to those who identified the works of science as heralding the end of the world.* [2]

At the school level, the perception is such that science is merely regarded as a 'school subject' which ends with examinations. This thinking has led to

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1 Osman Bakar. (1991). *Tawhid and Science: Essays on the History and Philosophy of Islamic Science*. Penang: Science University of Malaysia, p. 2.

2 Mohd Nakhaie Ahmad. (2006). The attitude of Muslims towards science. In Azizan Baharuddin (ed.). *Science and Religion: An Islamic Perspective*. Kuala Lumpur: Centre for Civilisational Dialogue, University of Malaya, p. 24.

students, parents and school teachers to regard science as important only to achieve academic excellence and nothing more than that. The down side to this is that the examination-oriented approach "forced" students to simply memorise facts, figures and formulae without really understanding the basic concepts which make up science. This matter was commented by a science education professor at the Western Michigan University, William W. Cobern, in which he wrote:

> *Science is a 'school' subject – not an important part of everyday life. Some may believe that science conflicts with important personal beliefs they hold about other areas of life such as religion and art.*[3]

This study by Cobern looked at the implication of the separation of science from other aspects of human life (including religious beliefs) among teachers and how this separation influence the students. This separation causes some members of society to have the view that science is forever in conflict with other aspects of life especially religion and culture. On this matter, Distinguished Professor Mohd Kamal Hassan commented that there should be a balance between "professional education" (which includes science and technology) and "character education" (which is a component of religious studies).[4]

Professor Kamal Hassan went on to write:

> *...(schools and universities) need to develop pedagogical approaches that lead to holistic and balanced growth of individuals in which the physical, the mental, the spiritual, the emotional and social needs of the students are harmoniously blended to produce rounded personalities. The integration of professional knowledge including science and technology with moral-ethical values, or of reason, revelation and ICT should become the hallmark of the new educational endeavour in the 21st century. The Muslim religious teacher needs to understand and embrace science and technology as "signs of God" in the universe just as the teacher of worldly sciences need*

3 Cobern, W.W. (2000). The *Thinking about Science* Survey Instrument (TSSI) – SLCSP 151. Kalamazoo, MI: Scientific Literacy and Cultural Studies Project; p. 2. Internet source: http://www.wmich.edu/slcsp/SLCSP151/tssi-v2.pdf. Accessed on 22 September 2006.

4 M. Kamal Hassan. (2003). Setting the Muslim mind set in Malaysia: Facing the challenges of globalisation. In Ajmain Safar (ed.). *Proceeding International Seminar: Islam and the Challenges of Science and Technology in the 21st Century*. Johor Bahru: Masjid Sultan Ismail, Universiti Teknologi Malaysia, p. 14.

> *to incorporate an ethical and metaphysical perspective in teaching and learning. The method of teaching Islamic religion has to be changed to ensure the relevancy and applicability of spiritual and moral perspectives, values and norms to contemporary life, to the new economy, to ICT, to S&T, to R&D, to new environmental issues, to human rights discourse, the problems of plural societies, the necessity of dialogue of cultures, religions and civilizations and international issues involving futuristic issues, scarcity of food, water, energy, intellectual property issues and complex management issues.*[5]

SIGNIFICANCE OF SCIENTIFIC THOUGHT

Khalijah Mohd Salleh is of the opinion that today's Muslims must make science and technology as part of their lives in order to form a more scientific, systematic and logical thinking culture.[6] From the Islamic point of view, "scientific thought" requires a person to have characteristics such as curiosity in finding the truth, appreciating all creations of Allah SWT, rational and logical thinking, analytical and critical thinking, and having the ability to solve problems systematically.[7],[8]

Sharifah Norhaidah Syed Idros quoted the view of a professor of science education at the Arizona State University, Anton E. Lawson, that there are three levels to scientific thought, namely, (i) empirical-inductive thinking; (ii) hypothetical-deductive thinking; and, (iii) creative thinking.[9] Empirical-inductive thinking is the most basic form of scientific thought in which a person can explain objects, situations and incidents that are observed using the five senses. Hypothetical-deductive thinking allows a person to make assumptions to create a thought process regarding objects, situations and incidents that are observed. Creative thinking, meanwhile, is the highest level of scientific thought that allows for a person to produce new, original and novel ideas and innovations.[10]

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5 *Ibid.*, p. 21.

6 Khalijah Mohd Salleh. (1995). *Masyarakat Saintifik dalam Binaan: Renungan dan Pemikiran*. Kuala Lumpur: Institut Kajian Dasar, p. 15.

7 *Ibid.*, p. 46.

8 Spangenburg, R. dan Moser, D.K. (1999). *The History of Science in the Eighteenth Century*. Hyderabad: Universities Press (India) Ltd., p. 131.

9 Sharifah Norhaidah Syed Idros. (2007). Saling tindakan kepercayaan epistemologi dan kemahiran penaakulan saitifik dalam pembelajaran sains di Malaysia. In Syed Muhammad Dawilah al-Edrus. (ed.). *Wacana Sejarah dan Falsafah Sains: Pendekatan Holistik dan Agama – Cabaran Ketamadunan*, pp. 159-160.

10 *Ibid.*, halaman 159-160.

Scientific thought is important because it helps to effectively form basic concepts in human development. On this matter, Khalijah Mohd Salleh identified these basic concepts as organisational structure, orderly, unity and harmony.[11] These concepts can be readily and easily obtained from scientific observations. For instance, the hierarchy in a bee colony (organisational structure), the changing of day and night (orderly), the Periodic Table of Elements (unity), the Theorem of Pythagoras (harmony) and others. Khalijah Mohd Salleh went on to write that science has given a significant contribution in the formation of abstract conceptual framework based on something concrete whereby the more complex, yet clear, the abstract conceptual framework, the greater our intellectual ability is able to think, generate ideas and be creative.[12]

SCIENTIFIC THOUGHT IN ISLAM

The *Shari'ah* is a framework that is followed by Muslims in conducting the daily affairs of life. This framework, which is based on the Qur'an and Sunnah, provides mankind with guidelines in every aspect of life, in concordance with the fact that Islam is a complete way of life. The general principles of the *Shari'ah* are formed using a thought process called the *istislah* which focuses on the greater good of mankind. This thought process is a part of a greater field of research called *usul al-fiqh* which studies the sources of *fiqh*. The analysis on these general principles of the *Shari'ah* is done through intellectual endeavours, often referred to as the *ijtihad*, which provide a more specific guideline on specific issues taking into account many factors such as culture, place and time. According to S. Othman Kelantan, Imam Abu Hanifah had put forward a principle called *ra'yul-hasan*, that is the best line of thought based on the Qur'an and Sunnah, to solve problems of the society.[13] It is interesting to note that *ijtihad* has been equated to "scientific and rational thinking" with an extra clause added to the definition of the term, that is "based on the revelation of Allah".[14]

There are also many verses in the Qur'an that enjoin mankind to observe and think. Observation is, in actual effect, a very basic aspect of scientific thought. Mohd Yusof Othman wrote that the Qur'an not only enjoins mankind to observe, but also to interact with, the world. As such, according to Mohd Yusof Othman, the question of *adab*, *akhlaq*,

11 Khalijah Mohd Salleh. (1995). *Op. cit.*, p. 242.

12 *Ibid.*, halaman 243.

13 S. Othman Kelantan. (1994). Pintu ijtihad sentiasa terbuka. In Mahmood Zuhdi Haji Ab. Majid. (ed.). *Beberapa Pemikiran tentang Ijtihad, Islam dan Tajdid*. Kuala Lumpur: Dewan Bahasa dan Pustaka.

14 Mahmood Zuhdi Haji Ab. Majid. (1994). Ijtihad: Apa, mengapa dan bagaimana. *Ibid*.

responsibility and matters pertaining to *iman* are the main themes of the Qur'an, which are directly connected to any discussion of science and technology from the Islamic perspective.[15]

Science is a "tool" used by mankind to understand the surroundings. This is an effort undertaken by mankind to obtain the "truth", and this endeavour if coupled with *taqwa* would bring mankind closer to the Almighty Creator. A scientist, when conducting an experiment, would utilise all the five senses namely sight, hearing, smell, touch and taste in order to observe and collect data needed for analysis. In the view of one of the greatest Muslim scientist of all time, Ibn al-Haytham (965-1039 AD), there is only one truth and that differences (*khilaf*) in ascertaining the truth came about because of differences in the approach used by the experimenter.[16] The ultimate truth is of course in the domain of the knowledge of Allah SWT. While the ultimate truth belongs to Allah SWT, mankind is still encouraged to observe, think and analyse because there are signs of the Creator that can increase the level of *taqwa* towards Allah SWT. This is highlighted in the Qur'an through the following verses, which are translated thus:

> *To God belongeth the Mystery of the heavens and the earth. And the Decision of the Hour (of Judgement) is as the twingkling of an eye, or even quicker: for God hath power over all things. It is He Who brought you forth from the wombs of your mothers when ye knew nothing; and He gave you hearing and sight and intelligence and affections: that ye may give thanks (to God). Do they not look at the birds, held poised in the midst of (the air and) the sky? Nothing holds them up but (the power of) God. Verily in this are Signs for those who believe.*[17]

In discussing these verses of Surah al-Nahl, Abu Bakar Abdul Majeed wrote:

> *All knowledge belongs to Allah. Man has been brought into the world in a state of 'zero-knowledge'. However, he has been bestowed with the basic faculties of listening, seeing, thinking and feeling. With these, he should strive to investigate the mysteries of the earth and the universe.*

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15 Mohd Yusof Haji Othman. (2009). *Sains, Masyarakat dan Agama*. Kuala Lumpur: Dewan Bahasa dan Pustaka, p. 5.

16 Mahmood Zuhdi Ab. Majid. (2003). *Tokoh-tokoh Kesarjanaan Islam*. Kuala Lumpur: Dewan Bahasa dan Pustaka, p. 53.

17 Surah al-Nahl (16): 77-79.

> *For example, Muslims are urged to figure out how birds manage to fly. This is indeed the basic principle of the science of the operations and flight of objects, or what is known as aeronautics.*[18]

Mankind can certainly benefit from observing, thinking and analysing the signs of the Creator. These actions are in fact part and parcel of scientific thought that should be present and practised by modern Muslims.

LESSONS FROM THE FIRST REVELATION

From the very first revelation of the Qur'an which was revealed to Prophet Muhammad SAW about fifteen centuries ago, the motivation to master science was already present. The first revelation, which is translated thus:

> *Read! In the name of thy Lord and Cherisher, Who created – Created man out of a (mere) clot of congealed blood. Read! And thy Lord is Most Bountiful. He Who taught (the use of) the Pen, taught man that which he knew not.*[19]

There are four important points that can be picked up from this revelation. The first is the appointment of Muhammad Ibn Abdullah Ibn 'Abd al-Mutallib as the last Messenger of Allah. This revelation became the point in history that saw Islam being embraced by mankind, beginning with family members and close companions of the Prophet in Makkah al-Mukaramah before spreading to the rest of the world. The spread of Islam went hand-in-hand with the spread of knowledge and scientific thought. This has led to the zenith of the Muslim civilisation as seen during the times of the Abbasiyyah Dynasty in Baghdad as well as the Umayyah Dynasty in al-Andalus.

The second important point from the first revelation is the word *iqra'* which is a directive from Allah SWT to "read". Reading, as has been pointed out repeatedly, is the key to knowledge. In the context of science, this directive is significant because it gives the message that researchers do not begin their research work from zero. Instead, researchers build and expand on previous studies conducted by earlier researchers. For this to happen, it is imperative that researchers carry out what we know today as "literature review" – and this requires reading. This is critical so as to avoid reinventing the wheel.

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18 Abu Bakar Abdul Majeed. (2001). *Making the Best of Both Worlds, Vol. 1: Faith and Science*. Kuala Lumpur: Institut Kefahaman Islam Malaysia, p. 2.

19 Surah al-'Alaq (96): 1-5

The third important point that can be obtained from the first revelation can be found in the word *qalam* which is often translated as "the Pen" which connotes "writing". Writing is important in the effective dissemination of knowledge. If "writing" is coupled with "reading", this will increase the effectiveness and efficiency of the dissemination of knowledge. It is equally important to remember that the dependency on the oral tradition of knowledge-dissemination without being backed by the writing tradition does not help in transmission of knowledge. Without the written documentation of knowledge, facts and figures could be distorted and changed. If we look at the tradition in Islam itself, authenticity is given great attention to, and that is why the Qur'an and the Hadiths were collected, compiled and written in book form in order to ensure that the contents are authentic and not subject to changes whether intentional or otherwise.

The fourth point from the first revelation is the significant mention of the formation and development of the embryo. This scientific information was given to Muslims 1,500 years ago before it could be scientifically proven and verified. Embryology is a branch of biology. This revelation on embryology actually enjoins us all to think of the importance of science in Islam. If science is not important, why would Allah (SWT) choose embryology to be mentioned in the very first revelation to Prophet Muhammad (SAW)? It is reasonable to say that the importance placed on science by Islam could be seen from the very first revelation about fifteen centuries ago.

LESSONS FROM THE ISLAMIC CIVILISATION

Through the Qur'an, Islam suggests several approaches for mankind to utilise his intellect. We can see from terms used in the Qur'an that enjoins mankind to think, consider, remember, observe and take heed.[20] This then implies that scientific thought must employ these approaches as mentioned in the Qur'an. Scientific thought involves the study of a certain phenomenon, the process of obtaining new knowledge, the process of correcting previous knowledge and the effort to integrate previous knowledge with new knowledge. A scientific research must be based on the collection of evidence which are observable, empirical and measurable. This is critical in ensuring that the knowledge obtained could be trusted.[21] In short, a scientific research involves the processes of observation and experimentation as well as the formulation and testing of a hyphothesis.

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[20] Ab. Gani Jalil. (2003). Pemikiran lateral dalam penyelesaian masalah ummah. In Ajmain Safar (ed.). *Op. cit.*, p. 39.

[21] Azizan Haji Baharuddin. (1993). *Science and Belief: Discourse on New Perspectives.* Kuala Lumpur: Institut Kajian Dasar, p. 223.

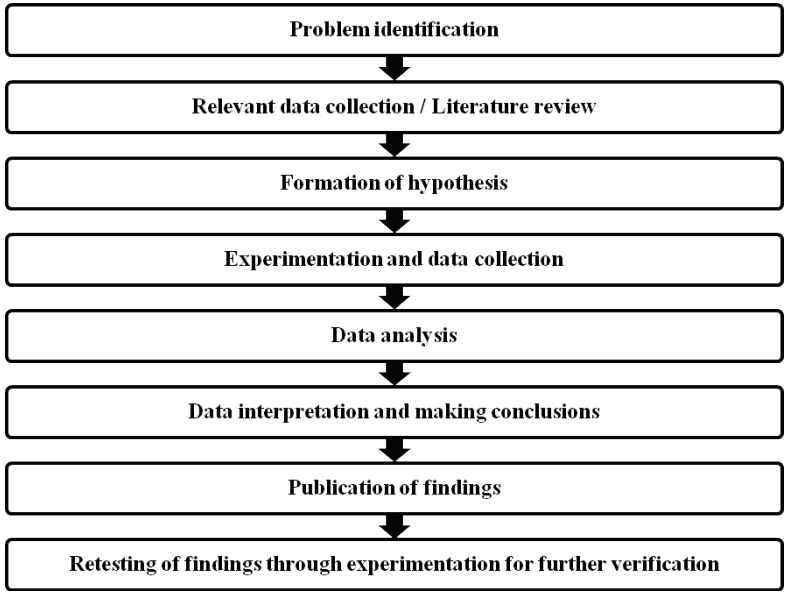
There are numerous Islamic scholars who have contributed towards the foundations of scientific thought. However, the person at the forefront of the world's first systematic scientific research was Ibn al-Haytham. He introduced scientific methods which are extremely accurate.[22] The scientific method introduced by Ibn al-Haytham was based on his lenghty study of the phenomenon of light. Commenting on this, Ehsanul Karim wrote:

> *In al-Haytham's writings, one finds a clear explanation of the development of scientific methods as developed and applied by Muslims, the systematic observation of physical phenomena and their relationship to scientific theory. This was a major breakthrough in scientific methodology, as distinct from guess work, and placed scientific study on a sound foundation comprising systematic relationship between observation, hypothesis and verification.*[23]

The scientific method as introduced by Ibn al-Haytham could be simplified using the following figure:

Figure 1

Linear Model Of Scientific Method



22 Zainul Rashid Zainuddin, Wan Hazmy Che Hon, Mohamad Hussaini Razali and Syamsul Rizal Abu Amin. (eds.). (2004). *Biografie Cendekiawan dan Saintis Muslim*. Seremban: Persatuan Perubatan Islam Negeri Sembilan, p. 57.

23 Ehsanul Karim. (2008). *Muslim History and Civilization: Modern Day View of Its Histories and Mysteries*. Kuala Lumpur: A.S. Noordeen, pp. 98-99.

After Ibn al-Haytham, the next important figure from the Islamic Civilisation in the field of scientific thought was al-Biruni (973-1048 AD). His vast contributions in his lifetime led to what is called "The Age of al-Biruni" as highlighted by Ehsanul Karim:

> *His contributions were so vast, that some historians have labeled the period of his activity as "The Age of al-Biruni"...His scientific work, combined with the contributions of Al-Haytham (Al-Hazen) and other Muslim scientists, laid down the early foundation of modern science.*[24]

Al-Biruni, who is considered to be one of the greatest scientists of all time[25] had introduced scientific thought and method into many fields such as astronomy, geography, mineralogy and mechanics. He was also responsible to stress on the importance of repeating experiments in order to minimise errors. Al-Biruni also stressed that earlier discoveries should not be accepted blindly without verification through experimentation.[26],[27] From the point of view of Islam, this is very much encouraged in the Qur'an.[28]

Repeating experiments help scientists to correct errors made by earlier scientists. This was done by Ibn al-Haytham in correcting earlier theories of vision which were suggested by Aristotle dan Euclid.[29] Critiques and corrections could be seen throughout the history of the Islamic Civilisation when scholars such as Jabir Ibn Aflah (1100-1150 AD) criticised the Ptolemaic planetary model, while Nasir ad-Deen at-Tusi (1201-1274 AD) criticised the Ptolemaic theory of astronomy.[30]

Various other figures from the Islamic Civilisation who introduced scientific thought and method into their fields are summarised in the following table.

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24 *Ibid.*, p. 95.

25 Shaharir Mohamad Zain. (2000). *Pengenalan Sejarah dan Falsafah Sains*. Bangi: Penerbit Universiti Kebangsaan Malaysia, p. 181.

26 Ramli Awang and Mohd Nasir Ripin. (2003). Sains dan agama: Ke arah kesedaran dan keharmonian semula. In Ajmain Safar (ed.). *Op. cit.*, p. 518.

27 Muhammad Saud. (1979). Substitution of free investigation for authoritarianism by Muslims. In Hakim Mohammed Said (ed.). *History and Philosophy of Science*. Karachi: Hamdard Foundation Press, p. 63.

28 *Ibid.*, p. 62.

29 *Ibid.*, p. 62.

30 *Ibid.*, p. 63.

Table 1:
Islamic Scholars Who Introduced Scientific Thought In Various Fields

NAME	FIELD
Jabir Ibn Hayyan	Chemistry
Al-Bukhari	History Study of Hadith
Al-Kindi	Geology
Ibn Sina	Medicine
Ibn Zuhr	Surgery
Ibn Khaldun	Social science

Another crucial aspect of scientific thought and methodology is peer review. This approach was introduced by a Persian doctor in the 9th century, Ishaq Ibn Ali al-Rahwi (854-931 AD).[31] Al-Rahwi stressed the need for a doctor attending to a patient to make noted on the condition of his patient. When the patient is healed or if the patient dies, these notes must be made available to a medical panel or council for assessment and comment. The purpose is to ensure that the doctor's performance meets the standard of medical care. This also highlights accountability and responsibility that are mentioned in various places in the Qur'an, which are two virtues espoused by Islam.

What is clear is that the tradition of scientific thought is rich during the peak of the Islamic Civilisation. Toby E. Huff, in his famous book *The Rise of Early Modern Science*, writes:

> *...those who suggest that the failure of Arabic science to yield modern science was due to a failure to develop and use the experimental method are confronted with the fact that the Arabic scientific tradition was richer in experimental techniques than any other, whether European or Asian.*[32]

[31] Spier, R. (2002). The history of peer-review process. *Trends in Biotechnology*, **20**(8), 357-358.

[32] Huff, T.E. (1999). *The Rise of Early Modern Science: Islam, China and the West*. Cambridge: Cambridge University Press, p. 209.

THE GLORIOUS QUR'AN: AN INSPIRATION FOR MUSLIM SCIENTISTS

There have been a number of examples of Muslim scientists who are inspired by the Qur'an in carrying out a particular research. One very good example is the research conducted by Mohd Fauzi Ismail on membrane technology. Mohd Fauzi Ismail is currently professor at the Faculty of Chemical and Natural Resources Engineering of Universiti Teknologi Malaysia. He mentioned that he was inspired by verses 19 to 21 of Surah al-Rahman and verse 53 of Surah al-Furqan which mention that water with different viscousity do not mix even when they are next to each other. This became the basis for his research in developing a state-of-the-art membrane technology which has been patented. The translation of the verses are as follows:

> *He has let free the two bodies of flowing water, meeting together. Between them is a barrier which they do not transgress. Then which of the favours of your Lord will ye deny?*[33]
>
> *It is He Who let free two bodies of flowing water: one palatable and sweet, and the other salt and bitter; yet has He made a barrier between them, a partition that is forbidden to be passed.*[34]

In a working paper presented at a conference organised by the Institute of Islamic Understanding Malaysia, Mohd Fauzi Ismail explained that he saw these Qur'anic verses as a source for scientific information, albeit indirectly, that elucidate the concept and characteristic of a membrane. He also mentioned that these verses are the inspiration for him to conduct research on membrane technology. He went further to say that with the Qur'an as inspiration, we can explore knowledge so that Muslims could advance and develop technologies mentioned in the Qur'anic verses.[35] In order to do this, Muslims could not run away from mastering science and acquiring scientific thought.

Another Muslim scientist, Mohd Khazani Abdullah, referred to verse 35 of Surah al-Nur.[36] To Mohd Khazani Abdullah, whose research is in the field of photonic technology, this verse implicitly explains the two characteristics

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33 Surah al-Rahman (55): 19-21.

34 Surah al-Furqan (25): 53.

35 Mohd Fauzi Ismail. (2002). Penggunaan teknologi membrane untuk penulenan air minuman. Unpublished paper presented at Seminar Air Anugerah Tuhan. Kuala Lumpur: Institute of Islamic Understanding Malaysia.

36 Mohd Khazani Abdullah. (2003, 21 January). Teknologi fotonik. [Radio interview]. Kuala Lumpur: Radio IKIM.fm.

of light, namely light exists both as a particle (which can bounce on surfaces) and wave (which can penetrate surfaces). The verse is translated thus:

> *God is the Light of the heavens and the earth. The Parable of His Light is as if there were a Niche and within it a Lamp: the Lamp enclosed in Glass: the glass as it were a brilliant star: Lit from a blessed Tree, an Olive, neither of the East nor of the West, whose oil is well-nigh luminous, though fire scarced through it: Light upon Light! God doth guide whom He will to His Light: God doth set forth Parables for men: and God doth know all things.*[37]

There are of course many other examples that could be highlighted. Nonetheless, the important message here is that if scientists, especially Muslim scientists, turn to the Glorious Qur'an, they will be able to derive inspiration and ideas from the Holy Book.

CONCLUSION

While the Qur'an contains many verses that can be regarded as "scientific", it is imperative that we do not regard the Qur'an as a "book of science", rather the Qur'an is a "Book of Signs". As such, we should not waste our energy by counting how many "scientific" verses there are in the Qur'an, as some of these verses may be explicit while many others may be implicit which requires the expertise of people in the right field of knowledge to understand.

What Muslims should focus on, instead, is understanding the role and importance of science in Islam, drawing inspiration from the Glorious Qur'an and carrying out research and development that are beneficial to the *ummah*. We should not just be nostalgic of the vast contributions of scholars such as Ibn al-Haytham, al-Bayruni, Jabir Ibn Hayyan and others. Instead we should learn and strive to be like them, if not better. We should mould the modern day version of Ibn al-Haytham, al-Bayruni and Jabir Ibn Hayyan. This paper has highlighted examples of Muslim scientists who have been inspired and motivated by the Glorious Qur'an for them to embark on scientific research and innovation. As there are many signs in the Qur'an which can be grasped by "men of understanding". Muslim scientists can certainly benefit from the Quran vis-à-vis developing science and scientific thought.

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[37] Surah al-Nur (24): 35.

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