ISLĀMIYYĀT 44(Isu Khas) 2022: 123 - 132
(https://doi.org/10.17576/islamiyyat-2022-44IK-12)

The Intellect of Abū Hāmid Al-Ghazālī in Dealing with the Qur'anic Scientific Exegesis

Intelek Abū Hāmid Al-Ghazālī dalam Berurusan dengan Tafsir Al-Quran Saintifik

Ahmad Yunus Mohd Noor
Zetty Nurzuliana Rashed
Asmilyia Mohd Mokhtar

ABSTRACT

Abū Hāmid al-Ghazālī is considered one of the prominent Muslim thinkers and scholars in the traditional Muslim world. He has produced numerous intellectual sources comprehensively. This paper aims to analyze Abū Hāmid al-Ghazālī's views on dealing with the scientific exegesis. This was investigated from his thoughtful and broad understanding of its principle and underlying purpose. The essential understanding of the principle of scientific exegesis was analytically discussed in his magnum opus; Jewels of the Qur'ān. To reach a representative conclusion, this study undertakes an analysis of the al-Ghazālī view, promotes intellectual discourse, and venerated exegesis as the main sources of reference by adopting the document analysis method. The finding shows that Abū Hāmid al-Ghazālī's discussion on scientific exegesis emphasized on relevance to contemporary practice and the modern context of Islam. It set forth an important framework and methodology for the integration of the Quran and science. This leads to the collaboration between two branches of knowledge and has come to be known as 'scientific exegesis' that the Qur'ān contains verses that point to scientific discoveries such as the roundness of the earth; the orbit of the earth around the sun; and the uniqueness of human fingerprints. It will provide students, educators, researchers, and scholars with a resource for understanding and responding to faithful Islamic sciences issues that are of concern to contemporary Islam and to society.

Keywords: Intellect; Al-Ghazālī; scientific; exegesis; Qur'ān

ABSTRAK

Abū Hāmid al-Ghazālī dianggap sebagai salah seorang pemikir dan cendekiawan Islam terkemuka dalam tradisi dunia Islam. Beliau telah menghasilkan banyak sumber intelektual secara menyeluruh. Kertas kerja ini bertujuan untuk menganalisis pandangan Abū Hāmid al-Ghazālī dalam berurusan dengan tafsiran saintifik. Ia dilihat daripada pemahaman beliau yang jitu dan luas tentang prinsip dan tujuan asasnya. Pemahaman penting tentang prinsip penafsiran saintifik telah dibincangkan secara analitikal dalam karyanya; Jawahir Al-Quran. Untuk mencapai kesimpulan, kajian ini menjalankan analisis terhadap pandangan al-Ghazālī, mempromosikan wacana intelektual, dan tafsiran beliau sebagai sumber rujukan utama dengan menggunakan kaedah analisis dokumen. Dapatan kajian menunjukkan bahawa perbincangan terhadap Abū Hāmid al-Ghazālī mengenai tafsiran saintifik banyak menekankan kepada perkaitan terhadap amalan kontemporari dan konteks moden Islam. Ia menetapkan rangka kerja dan metodologi penting untuk penyepaduan al-Quran dan sains. Ini membawa kepada kolaborasi antara dua cabang ilmu dan dikenali sebagai 'tafsiran saintifik' bahawa al-Quran mengandungi ayat-ayat yang menunjukkan kepada penemuan saintifik seperti bulatan bumi; orbit bumi mengelilingi matahari; dan keunikan cap jari manusia. Ia akan memberi ruang kepada pelajar, pendidik, penyelidik, dan cendekiawan dengan sumber untuk memahami dan bertindak balas terhadap isu-isu sains Islam yang bersifat kontemporari dan kemasyarakatan.

Kata kunci: Intelek; Al-Ghazālī; saintifik; tafsīr; Qur'ān

INTRODUCTION

Muslims of the yesteryears faced arduous challenges especially in the modern civilization. Indeed, new academic scientific findings encouraged the scholars and to give great importance in interpreting the Qur'ān with scientific exegesis as a symbol of religious unity that stressed on the role of all Muslims as vicegerents on earth. In addition, the appearance of the scientific exegesis of the Qur'ān at a time when most of the Muslim world was under colonial rule. Its linkage with the agenda of

the reformers with their insistent demands for the acquisition of modern science and technology as well as the historical absence of a differentiated field of scientific exegesis cast suspicion on the genre.

Besides that, the birth of the modern scientific exegesis is part of a great debate that took place in the Muslim world since the beginning of the influence of science and technology in the Arab world. This debate revolves around whether the study of non-Islamic science and non-Arabs to be accepted among the Muslims or not. Indeed, scientific exegesis is considered very important in critical Middle Eastern studies due to the fact that it is facing a new challenge in contemporary Muslims world.

Therefore, Muslims supposed to take up this challenge in handling the problems on the environment, events and its impact in Muslims way of life. It can be predicted as an essential study and need to be highlighted because there are many possibilities, challenges of new ideas and framework discoveries which appear to be manifold in a variety to look at life and thought as a whole. Hence, it is vital to understand the meaning and key concept of Islamic scientific exegesis before taking up it challenges in critical Middle Eastern studies.

METHODOLOGY

Method used for this study is a qualitative method. The researcher firstly look into the observation process towards current issues of the main terms discussed, Abū Hāmid Al-Ghazālī and his approach in dealing with the Scientific Exegesis. This research also focuses on an analytical study of the corpus of Abū Hāmid al-Ghazālī and adopting the textual library research based on the Jewels of the Qur'ān.

The main method used to analyze the data consulted is content analysis. The Discursive analysis is the major method of data collection of this article since the research is mainly theoretical and discursive in nature. This method, as part of the qualitative research methodology, is used to identify specific characteristics in textual messages such as; the Intellect of Abū Hāmid Al-Ghazālī and analysis of his methodology. Owing to the fact that the article is exploring the views of al-Ghazālī, the analytical method is also used to comprehend his approach and methodology of his corpus with special reference to the scientific exegesis.

DEFINITION OF SCIENTIFIC EXEGESIS

The main purpose of interpreting the Qur'ān done by the scholars, Prophet's companions and the Successors (*tabi'in*) was to explain the holy book's which are related to the rules of Islamic jurisprudence when dealing in trading, marriage, crime and moral conduct. One of it aims is to purify the souls of mankind as vicegerents of God on earth by obeying what is lawful and neglecting what is prohibited. It also aims at knowledge and understanding concerning the Qur'ān, to explain its meanings, extracts its legal rulings, and grasps its underlying reasons.

The development of knowledge inclusive of publications of books and translations have become the factor for the birth of several fields related to the differences in jurisprudence (*fiqh*) as well as the existence of the knowledge of theology (*uṣūl al-Dīn*). These were the result of theological influence, critical thinking and the knowledge of exegesis widely expanded that went through changes. It was divided into several different streams and methodologies as approaches to understanding the Qur'ān. For example, the streams of thematic exegesis (*tafsīr mawḍū'ī*), exegesis based on indication (*tafsīr Isyārī*), exegesis based on juristic injunction (*tafsīr Ahkām*), and scientific exegesis (*tafsīr 'ilmiy*).

The connotation of *ilmiy* or science is a systematic knowledge that can be tested on its validity or a branch of knowledge based on real facts like physics, chemistry and biology (Teuku Iskandar 1996). According to a definition provided by the New Columbia Encyclopaedia, science is the organized body of knowledge concerning the physical world, both animate and inanimate; it includes the attitudes and methods through which this method of knowledge is formed. Thus science is both a particular kind of activity and the results of that activity. (Harris, W. and Judith S. Levey 1975) However, in a sophisticated technical terminology by Sulaiman Nordin (1993), science can be defined as any stimulus that is a systematic knowledge based on observations, experiments and tests. It is also a systematic phenomenal analysis by applying specific methods (terms applied) in the quest of new findings. Alparslan Acikgenc (1996) then asserts that the definition of science is considered as a body of knowledge (in the sense of discipline), which arises

as a result of the process of determining a subject matter that is investigated by scholarly developed method yielding theories. Hence, it can be said that the field of science is actually a group of organized discipline based on researches done on animate and inanimate objects with objective methods as stated earlier to prove on its validity. It might, therefore, be appropriate to quote Bertrand Russell's (1935) definition:

> Science is the attempt to discover, by means of observation and reasoning based upon it, first, particular facts about the world, and the laws connecting facts with one another and (in fortunate cases) making it possible to predict future occurrences.

However, al-Attas (1989) has comes up with the term 'environmental context' which is abstract in nature in order to make science epistemologically possible. For example, his definition of science under general process of Islamicisation of knowledge as follows:

> Islamic science is that scientific activity which takes place ultimately within the Islamic worldview (which can now be identified also as the Islamic conceptual environment); but as an extension of it directly within the Islamic scientific conceptual scheme (which can be identified also as the Islamic context of sciences).

After reviewing the meanings of science one may be able to comprehend the meaning of scientific exegesis (*tafsīr 'ilmiy*). There are several definitions of scientific exegesis that was an analysis by distinguished scholars such as al-Dhahabī, al-Muhtasab and al-Khaulī. With regard to the definition of scientific exegesis, al-Dhahabī (1999) writes;

> *Tafsīr 'ilmiy* is an exegesis which is discussed in detail the academic terminologies found in the Qur'ān and have attempted to extract knowledge and philosophy from the holy book.

Al-Muhtasab (1973) accepts this point of views and presents similar arguments in its support. He discussed at some length, however, the technical meanings of the term *tafsīr 'ilmiy*, he says:

> The *tafsīr 'ilmiy* is a process of transforming the symbolisms found in the Qur'ān to become theories and academic terminologies as well as extracting the knowledge and philosophies from it.

According to Amīn Khaulī (1984), the *tafsīr 'ilmiy* here means that the exegesis which is related to scientific terms in Qur'ānic idioms and research finding in order to come out various scientific knowledge and philosophical opinions from its.

These three definitions are quite similar even though the scholars use slightly different theories and terminologies. It is slightly different as some articulated the theories and academic terminologies. Others on the other hand, used the cosmological (*kawniyyāt*) related to knowledge. Hence, it can be concluded that *tafsīr 'ilmiy* is that the exegesis that discussed on the words of cosmology in the Qur'ān and later analyzed based on the theories and scientific findings that are considered as firm and unwavering. It was not noted during the era when the Qur'ān was sent down as evidence that it is not the creation of Prophet Muhammad (PBWH) but from God and is one of the miracles of Qur'ān. (Muslim, Musṭafa 1999)

RELATIONSHIP BETWEEN THE QUR'ĀN AND SCIENCE

According to Mouly's (1978) point of view, science in nature is based on curiosity of physics, the natural phenomena and other facts are confirmed through experiments, observations and tests which are later accepted as information. The details are recognized as valid if other researchers unanimously arrived at the same conclusion based on the same research methods. The research process involved three concepts. Firstly, are the rules and regulations, secondly is the theory and thirdly is the hypothesis.

The rules and regulations are the facts that are outlined based on groups. They are the links attaching the groups of theories that can be proven such as Newton's law and others. (Russell, Bertrand 1946). On the other hand, theory is regarded as an academic assumption that is suitable with one another and is supported with evidences yet to be entirely proven such as the Big Bang Theory.

Meanwhile, hypothesis is the temporary statement on the connection between objects. It is organized in the form of assumptions to make justification on the said relation. It is more to a form of trial and error methods.

To qualify as 'Islamic science', Muslims believe that in the process of doing research, all these concepts must be from the Islamic approach. It is because the way of thinking and the application of science and technology are acceptable as long as they do not diverge from the text of the Qur'ān and *Sunna*. It has been claimed by A.H. Hobbs (1953) in his book entitled "*Social Problems and Scientism*" that scientific research is considered as pseudo-science or scientism due to certain phenomenon in

modern western science has been contradicted with methodology and science logic itself. The main reason is that the scientific research is not based on the belief in absolute perfection of God as a Creator of the universe as Qur'ān, 45:24 says:

> And they say: What is there but our life in this world? We shall die and we live, and nothing but time can destroy us. But of that they have no knowledge: they merely conjecture.

In fact, a modern rational human based on Naik's (2001) view, however, 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'ān's extraordinarily beautiful language, as proof of its divine origin.

Citing Albert Einstein, Naik (2001) says, "Science without religion is lame. Religion without science is blind." Therefore, Naik (2001) suggests that the study of Qur'ān, and its analysis with modern sciences are essential to determine whether they are compatible or not. It is because according to him the Qur'ān is not a book of science but a book of 'signs', i.e. *ayahs* and there are more than six thousand 'signs' in the Qur'ān of which more than of thousand deal with science.

Indeed, Muslims believe that the miracle (*mukjiza*) that can be found in the Qur'ān lasted till the end of time. This type of miracle is known as conceptual (*ma'nawī*) that can be understood by the mind touched on theology (*uṣūl al-Dīn*), Fiqh, ethic (*akhlak*), the history of the believers and the prophets as well as the world's phenomena.

Today, there exist a lot of theories relating to the origins of the world. The most popular theory accepted widely by fellow astronomers and considered valid is the Big Bang Theory. The same facts were used to come up with the conclusion from the Islamic perspective on the creation of the universe. According to the Qur'ān:

> Do not the unbelievers see that the heavens and the earth were joined together (as one unit of creation), before we clove them asunder? We made from water every Living thing. Will they not then believe?
>
> (Qur'ān, 21:30)

This verse has been revealed to prophet Muḥammad (PBWH), and it is also believed that he was granted the miracle of sense (*mukjiza ḥissī*) that can be seen and felt similar to the act of dividing the moon, providing water for the companions' ablution through his gaps in between his fingers as well as other miraculous abilities.

However, the most effective miracles after the era of Prophet Muḥammad (PBWH) is believed by some Muslims to be the miracle relating to conceptual (*mukjiza ma'nawī*) such as; the verses pertaining to the creation of the universe. Today, there are a lot of scientific findings that are considered to be related to the ones stated in the Qur'ān and *Sunna*. For example; the shapes of the bacteria from cholera and how they are transmitting and could be infected to others may arguably be inferred from the Prophetic Tradition below:

> If you heard of a cholera outbreak in one area, do not enter the infected area, and if you are from the said area, do not come out from there.
>
> (Al-'Asqalani 1998)

In fact, no one knows the shapes of the bacteria and how they were transmitted. It was only in the 19th century, a scientist named Louis Pasteur came out with the theory on how the disease can be transmitted (Sternberg 1991).

Nowadays, scientists have reached the highest degree of scientific discoveries especially in the research done on the mysteries of the world. It can be proved by the usage of high technology equipment ensured the accuracy of each needed measurement. After all the hard works spending countless hours to unveil the mystery, it is believed that those findings can actually be found in the Qur'ān.

Indeed, amongst the findings included in the Qur'ān are those related to *halal* and *haram* in dealing with the social sciences, civilization, commerce, socio culture, war and international relation. There is also information, hints or suggestions on the issues that have become the topic of scientific research such as; the creation of heaven and earth, earth is round in shape and moves in its own orbit, earth evolves based on its orbit around the sun, all creatures are created in pairs and finger prints are possible to use as humans' identification.

Thus, in the view of the researcher, the basic concept here is the principle of non-contradiction between Qur'ān and science. Both, the open book of the universe and the revealed Book are inter-related and come from the same source and they should reflect the same message. If not, it is either not science or not revelation, or the wrong interpretation of either one or both. Nevertheless, the Qur'ān motivates humanity to study the universe and the humanity is invited to go beyond the scenery world

as well as to make a spiritual link between natural phenomena and the ultimate reality.

ABŪ HĀMID AL-GHAZĀLĪ (D.505H): A PIONEER OF SCIENTIFIC EXEGESIS

Abū Hāmid al-Ghazālī was born in Ṭūs, Persia in 1058/450H. He was well known for his contribution in the history of the Muslim thinkers. He travelled widely for seeking knowledge purposes as far as Georgia and ended in Nishapur, northeastern Iran with al-Juwaynī as his teacher better known as Imām Haramayn. He was later called for by *Niẓām al-Mulk*, a diplomat of Sulṭān Seljuk, Turkish who reigned over Abbasid Caliphate in Baghdad to be appointed as a Professor of the University of Niẓāmiya, Baghdad. He returned to Ṭūs and died on a Monday, 14th Jamādil *Ākhīr* 505H. It was told that he had written a total of 400 books but what was salvaged were equivalent to a handful of 50 books only. (Al-Ghazzālī 1967)

Ghazāli was a great scholar and had studied the exact philosophical sciences such as; mathematics, logic, natural sciences, theology, politics, and ethics. Besides that, in the world of Islam, Ghazāli is believed to be a pioneer of scientific exegesis theoretically. According to W. Montgomery Watt (1953), Ghazāli had stated concerning the natural sciences that;

> This is the investigation of the sphere of the heavens together with the heavenly bodies, and of what is beneath the heavens, both simple bodies like water, air, earth, fire, and composite bodies like animals, plants, and minerals, and also of the causes of their changes, transformations and combinations. This is similar to the investigation by medicine of the human body with its principal and subordinate organs, and of the causes of the changes of temperament.

Furthermore, Ghazālī had mentioned in his magnum opus, *Revival of Religious Sciences* (*Ihyā' 'Ulūm al-Dīn*) in the fourth chapter comprising of the ethics in reading and understanding the Qur'ān as well as interpreting it by using his own intellectual and opinion. He proceeds to explain that even signs showed that the Qur'ān contained many meanings for those who are able to understand and after discussing the inimitability of the Qur'ān, Ghazālī then goes on to assert that;

> The entire knowledge included in attribute of God and His characteristics; the content of the Qur'ān is endless. It is a sign of God's greatness requiring in depth analysis not just via on-the-surface usage of exegesis with the mind alone albeit all the contradicting motions on different theories. There exist the evidential signs that are only visible to the knowledgeable persons.

Ghazālī (2000) also emphasizes his views on the religious science and ways of applying them. He says:

> Most of you probably thought that other knowledge apart from religious science such as medicine, astronomy, geography, veterinary and surgical operations on parts of the body do not go astray from the Qur'ān but were extracted from it with no boundaries. If the entire sea becomes ink to be used to document all of Allah's knowledge, it will run out even before everything is finished.

However, pertaining to the signs of nature which are related to the universe, the sun, the moon and eclipse were highlighted when he interprets numerous Qur'ānic verses as Qur'ān, 10:5 says:

> It is He Who made the sun to be a shining glory and the moon to be a light (of beauty), and measured out stages for it: that you might know the number of years and the count (of time).

Qur'ān, 75:7-10 also says:

> At length, when the sight is dazed, and the moon is buried in darkness, and the sun and moon are joined together – that day will man say: "Where is the refuge?"

Again, Qur'ān, 35:13 says:

> He merges night into day, and He merges day into night, and He has subjected the sun and the moon (to His law): each one runs its course for a term appointed.

And Qur'ān, 36:38 says:

> The sun runs its course for a period determined for it: that is the decree of (Him), the Exalted in Might, the All-Knowing.

Based on his commentary on the above Qur'ānic verses, Ghazzālī (2000) goes on to say:

> The real meaning of the movements of the sun and the moon according to a fixed reckoning and of the eclipse of both, of the merging of the night into the day and the manner of the wrapping of one of them about the other, can only be known by him who knows the manner of the composition of the heavens and the earth, and this itself is a science [i.e. astronomy].

Another example of scientific approach occurs in the context of his interpretation on the Qur'ān, 82:6-8:

> O man! What has seduced you from your Lord Most Beneficent? Him Who created you. Fashioned you in due proportion, and gave you a just bias; in whatever form He wills, does He put you together.

Ghazālī does relate the verses to those who study the anatomy of man's limbs, internal organs of the human body as well as its functions as he later added that the Qur'ān has outlined various aspects including the knowledge of the ancients (*'ilm awwalīn*) and knowledge of the moderns (*'ilm ākhirīn*). Based on Ghazālī's (2000) point of views on the Qur'ānic exegesis, it can be concluded as the following:

1. He believed that the Qur'ān is like an ocean which is pearls remains hidden in the bottom of the ocean. This is a metaphor to hidden the wonderful meanings behind the Qur'ānic verses.
2. It is made necessary for the specialists in the field of medicine, astronomy, geography, veterinary and others to study the verses of the Qur'ān and understand it meanings in relation to their respective subjects. This is because the Qur'ān is considered as guidance that revealed on the miraculous creation of the heaven and earth, the sun and the moon which are the evidence of God's greatest power.
3. The academic interpretation made by the religious scholars together with those who are familiar to the same content would be a tool for one to understand Qur'ān in more detailed. This is analogous to the comprehending of perfection of shape (*al-taswiya*), breath (*al-nafkḥ*) and soul (*al-rūh*) in the concept of the creation of mankind.

With regards to Ghazālī's method, he does not discuss in details on scientific exegesis. This is due to the fact that Ghazālī (2000) was using the term 'science' in his works as a loose sense; which referred to knowledge and producing many supporting theories.

THE SOURCES OF QUR'ANIC SCIENTIFIC EXEGESIS

Basically, the explanation of the Qur'ān by the Qur'ān itself and the explanation of the Qur'ān by the Prophet (PBWH) are considered as the two highest sources for Islamic scientific exegesis. Next to these ranks is that the explanations by the companions of the Prophet –those who-, were educated and well trained by the Prophet himself and were witnesses to the revelations. Of course all reports of explanations by the companions must be followed by the reports of the Successors (*Tābi'īn*) and the books of sciences become the final source of the Islamic Scientific exegesis.

1. The Qur'ān

The first source of the Islamic scientific exegesis is the Qur'ān itself. Accordingly, it happens very often that a certain point which is brief and requires explanation is invariably clarified by some other verses of the Qur'ān itself. For example, there appears that sentence of four footed animals in the verse 5:1

> Lawful to you (for food) are all beasts of cattle with the exceptions named;

Now it is not clear here as to whom are those exceptional named in that particular verse? But the explanation on the exceptions named is mentioned very clearly where it is said:

> Forbidden to you (for food) are: dead meat, blood, the flesh of swine, and that on which has been invoked the name of other than Allah. (Qur'ān, 5:3)

The above verses show that the Qur'ān itself is self-explanatory in many respects. Therefore, all honest attempts at scientific exegesis must begin with the exegesis of the Qur'ān by Qur'ān itself. At this point, Ahmad Von Denffer (1995) elaborates:

> The interpretation of the Qur'ān by the Qur'ān is the highest source of *tafsīr*. Many of the questions which may arise out of a certain passage of the Qur'ān have their explanation in other parts of the very same book, and often there is no need to turn to any sources other than the word of Allah, which in itself contains *tafsīr*. To seek to explain an *aya* from the Qur'ān by referring to another *aya* from the Qur'ān is the first and foremost duty of the *mufassir*. Only if this does not suffice, he will refer to other sources of *tafsīr*.

Concerning these issues, what is given in a general form in one place is discussed in detail in some other places in the Qur'ān and what is dealt with briefly at one place is expanded in some other places.

2. The Hadīth

Muslims believe that God had sent the Qur'ān to the Prophet (PBWH) solely for the purpose that he should explain to people explicitly about the correct meaning of the Qur'ān as the Qur'ān, 62:2 says:

> He it is Who sent among the unlettered ones a messenger (Muḥammad) from among themselves, reciting to them his verses, purifying them (from the filth of disbelief and polytheism), and teaching them the Book (this Qur'ān, Islamic Laws and Islamic jurisprudence) and *al-Ḥikma* (*al-Sunna*: legal

ways, orders, acts of worship, etc. of prophet Muḥammad) and verily, they had been before in manifest error.

According to al-Shāfi'ī (1980) the term *al-Ḥikma* in the verse refers to Prophet *Hadīth*. It has laid the greatest emphasis on *Hadīth* as the second source of knowledge, after the Qur'ān. However, because of some sorts of narrations such as; sound, weak, and fabricated are included in *Hadīth*; therefore, research-oriented commentators do not accept a narration as trustworthy until it withstands the principles used in the scrutiny of *Hadīth* narrations. Hence, finding a *hadīth* report somewhere, looking at it, and then employing it to determine a certain *tafsīr* is not correct, because that report might be weak, even contrary to other stronger reports.

As far as the Hadīth is concerned, the Prophet (PBWH) was the foremost expounder of the Qur'ān for he has been spiritually appointed to illuminate the revelation to humanity. For example, the Qur'ān, 2:187 says:

…And eat and drink until the white thread of dawn appears to you distinct from its black thread.

Quoting *hadīth* of al-Bukhārī, al-Jaṣṣāṣ (1986) goes to say:

Whenever this verse was revealed, '*Ādī* ibn Ḥatim took two ropes; one white and another one black and looked them, but failed to distinguish one from another. After that, he went to the Prophet (PBWH) in the morning and narrated to him about what had happened. Then the Prophet (PBWH) explained that it was the darkness of the night and the whiteness of the day.

Indeed, when the Prophet (PBWH) was asked about some verses of the Qur'ān, the answers he gave became authoritative explanations of those verses.

3. The Reports from the Companions

Third source of the Islamic Scientific exegesis remains here for discussion, which is also considered to be reliable and acceptable, for the noble companions lived with the Prophet (PBWH) and received their education directly from the Prophet. Furthermore, they were personally present on the scene when revelation was coming down, and they had themselves witnessed all circumstances and backgrounds of the revelation. They are therefore seen as being highly qualified to give a correct understanding of the Qur'ān.

Among the Companions those who are considered as the most knowledgeable persons in exegesis such as; *Ābū* Bakr, 'Umar, 'Uthmān, 'Alī, Ibn 'Abbās, Ibn Mas'ūd, 'Ubay b. Ka'ab, Zaid b. Thābit, *Ābū* Mūsa al-Ash'arī, and 'Abdullah b. Zubair. (al-Sawwaf, Mujahid Muhammad. 1979)

As an example of exegesis from a companion, Ahmad Von Denffer elaborates on the verse;

When comes the help of God and victory and you do see the people enter God's religion in crowds, celebrate the praises of your Lord, and pray for His forgiveness: for He is Oft-Returning (in grace and mercy).

(Qur'ān, 110:3)

Von Denffer (1989) says that, with reference to the above verse, some Companions said:

We are ordered to praise God and ask for His forgiveness, when God's help and the conquest (of Mecca) come to us. Some others kept quiet and did not say anything. On that 'Umar asked me: 'Do you say the same, O Ibn 'Abbās? I replied: 'No'. He said: 'What do you say then?' I replied: 'That is the sign of the death of God's apostle which God informed him of as Qur'ān says in verses 110: 1-3. On that 'Umar said: 'I do not know anything about it other than what you have said'.

Hence, in the case of verses the explanation of which is not found in the Qur'ān or Prophet *Hadīth*, statements recorded from the Companions are given the highest priority. However, if the statements of Companions differ in the interpretation of a certain verse, then the commentators who come later examine them in the light of arguments and determine as to which interpretation can be given preference.

4. The Reports from the Successors (*Tābi'īn*)

The Reports from the Successors (*Tābi'īn*) are considered as one of important sources of Islamic Scientific exegesis. It refers to statements of Successors who have learnt the exegesis of Qur'ān from the Companions themselves. In fact, their statements too have great importance in the science of exegesis, although there exists a difference among scholars whether or not the statements of the Successors are decisive in exegesis but their importance something which cannot be denied. (Al-Suyuti, Jalal al-Din 1995).

There are three well-known groups of Qur'ānic exegetes among the Successors; the Meccan Group such as; Mujāhid (d.104/722), 'Ikrima (d.107/727), and 'Aṭā' (d.114/732). While, the Madinan Group such as; *Ābū*-l 'Alliya al-Riyāḥī (d.90/708), Zaid b. Aslam (d.130/747), and Muḥammad b. Ka'b al-Qarzī (d.117/735). The Iraq Group such as; Masrūq b. al-

'Ajda' (d.63/682), Ibrāhīm al-Nakha'ī (d.95/713), and al-Ḥasan al-Baṣrī (d.121/738). Muhammad Husain al-Dhahabi 1961). All these groups have their prominent Successors who have contributed for setting-up the group as well as enhancing their quantity of followers.

5. The books of Islamic Sciences

There are a lot of Islamic Science references which is essential in dealing with the Islamic Scientific exegesis due to its' scientific approach and methodology. Indeed, a number of Muslim scientists who devoted themselves and responded by attempting to synthesize Islam with the scientific point of views on aspects beyond material reality such as; al-Farabī (d.339/950), Ibn Sīnā/Avicenna (d.428/1037), and Ibn Rushd/Averroes (d.593/1198). They have produced many sciences books which are containing scientific facts and values such as; medicine, mathematics, physics, biology, chemistry, astronomy and geography.

Furthermore, one of prominent Muslim scholars and the most influential figure in the field of philosophy of science was *Ābū* Hāmid al-Ghazālī (d.520/1121) via his famous work, the Incoherence of the Philosophers (*Tahāfut al-Falāsifa*) which he stated within the Muslim community supposed to be mastering the natural sciences. In fact, he distinguished metaphysics from natural sciences which he considered not to be in conflict with religion. (Al-Ghazali 1966).

Simultaneously, al-Ghazālī (2000) produced couple of books in order to advocate the use of science in expanding the meaning of the Qur'ān. For example, the Jewels of Qur'ān (*Jawāhir al-Qur'ān*) where he cited a number of verses in clarification of his point of views on sun and moon and the Revival of the Religion Sciences (*Iḥyā' 'Ulūm al-Dīn*) where he wrote that 'all ideas and theories that thinkers found ambiguous, and that people disagree on are implied in signs and indications in the noble Qur'ān that only specialized, knowledgeable people can apprehend'.

The book of Islamic Sciences as a source of Islamic Scientific exegesis can be understood further in the next chapter when a discussion on it takes place under the Islamic Scientific exegesis endeavor.

CONCLUSION

In sum, the Qur'ān proclaims, but it also offers arguments. It does not merely command faith, but commands the kind of thinking that can lead to the discovery of ultimate truth. When asking its audience to believe, or to adopt a virtue, the Qur'ān invariably presents arguments based on premises that it takes to be universally accessible, since it addresses unbelievers as well as those who have accepted it as the word of God. It thus provides an original model for those who would like to know further about its inimitability and scientific approach which has been explored by traditional as well as contemporary scholars.

It has been shown throughout this article that the birth of scientific exegesis is the attempt of Muslim scholars to prove that several things in the universe can be seen from the concept of inimitability verses of Qur'ān. Indeed, Muslim scholars attempt to develop a support to the foundation of all modern sciences in the Qur'ān. This is because the origins of contemporary sciences might be able to find in the Qur'ān and it is tolerated by wish to draw our attention that the Qur'ān is compatible with the modern Western science.

There were traditional scholars who use the scientific exegesis which led by al-Ghazālī as their main approach in dealing with the modern science. In subsequent periods, the emergence of scientific exegesis is to reconcile the various alien sciences and simultaneously seeking the legitimacy of scientific findings from internal and external sources of Islamic literature. This article has pointed out that during the Abbasid era; the scientific exegesis has become the most powerful scientific tradition anywhere in the world.

Indeed, most of the Qur'ān commentaries are considered free of direct references to science. However, the role of Muslim scientists and exegetes has not been merely to hand over to Europe what they have acquired from the ancients and predecessors, but they were able to enrich it by their own methods and new techniques. The history of scientific exegesis and its expansion shows that it reached its highest stage of development between the ninth and eleventh centuries, and subsequently experienced a number of major revivals during the twelfth and thirteenth centuries.

In addition, the translation from Arabic into Latin of the major Islamic works revived the spirit of learning in Western Europe during the late middle Ages. It would be proved when the works of the prominent Muslim scholars like al-Ghazālī were widely read and frequently cited by Western writers. The scientific exegesis is continuously relevant until contemporary era and many Muslim scholars contributed to this field of studies.

ACKNOWLEDGEMENT

This research was financially supported by the Geran Cabaran Perdana [Grant No.: DCP2018-001/3] and [Grant No.: DCP-2018-001/1] from the National University of Malaysia, UKM Bangi, Selangor.

REFERENCES

Acikgenc, Alparslan. 1996. *Islamic Science: Towards a definition*, Kuala Lumpur: International Institute of Islamic Thought and Civilisation.

'Ā'ishah 'Abd al-Raḥmān. 1982. *al-Qur'ān wa-qaḍāya al-insān,* Bayrūt: Dār al-'Ilm lil-Malāyīn.

Al-'Asqalani, Ahmad b. 'Ali b. Hajar. 1998. *Fatḥ al-Bārī bi Sharḥ Ṣaḥīḥ al-Bukhārī*, Egypt: Dār al-Fikr li al-Ṭibā'a wa al-Nashr wa al-Tawzī', vol.10, p.179, *Kitāb* (k) *al-Ṭib*.

Al-Attas, Syed Muhammad Naquib. 1989. *Islam and the Philosophy of Science*. A keynote address delivered on 30 May 1989 to the International Seminar on Islamic Philosophy and Science held under the auspices of the University of Science (USM), Penang, Malaysia. Kuala Lumpur: International Institute of Islamic Thought and Civilization (ISTAC).

Al-Dhahabī, Muhammad Hussein. 1999. al-*Tafsīr wa al-Mufassirūn,* vol.2, Beirut: Dār Ihya' al-Turath al-'Arabī.

Al-Ghazālī, Abū Hāmid. 1967. *Ihyā 'Ulūm al-Dīn*, Egypt: *Muassasa al-Halabī wa Sharīkahu li al-Nashr wa al-Tawzī'*, vol.1.

Al-Ghazālī. Abū Hāmid. 2000. *Jawahīr al-Qur'ān*, Beirut: Dār Ihya' al-Turath al-'Arabī.

Al-Ghazali, Abu Hamid. 1966. *Tahāfut al-Falāsifa*, ed. Sulayman Dana, Cairo: Dār al-Ma'ārif.

Al-Jaṣṣāṣ, Aḥmad ibn 'Alī al-Rāzī. 1986. *Aḥkām al-Qur'ān*, Istanbul, Vol.1, Beirut: Dār Ihya' al-Turath al-'Arabī.

Al-Khauli, Amīn. 1984. *al-Tafsīr-Nashātuhu-Tadarrajuhu-Taṭawwaruhu*, Beirut: Dār al-Kitāb al-Lubnānī, 1st edition.

Al-Muhtasab, Abd al-Majīd Abd. 1393/1973. *Ittijāhāt al-Tafsīr fī al-'Asr al-Rāhin,* Beirut: Dār al-Fikr.

Al-Rāzī, Fakhr al-Dīn. n.d. *Mafātīḥ al-Ghayb*. Vol. 11, Cairo: Maṭba'ah al-Bāhiyah al-Miṣriyah.

Al-Sadr, Martyr Muhammad Baqir. 1979. *Muqaddimat fī al-Tafsīr al-Mawdu'ī al-madrasat al-Qur'āniyyah*, translated by: Mujahid Husayn, Beirut: Dār al-Ta'āruf wa al-Maṭbū'āt.

Al-Sawwaf, Mujahid Muhammad. (1979). '*Early Tafsīr – A Survey of Qur'ānic Commentary up to 150 A.H.* in the book Islamic Perspectives edited by: Kurshīd Aḥmad and Zafar Ishāq Anṣārī, Leicester: The Islamic Foundation.

Al-Suyūṭī, Jalāl al-Dīn. 1995. *al-Itqān fī 'Ulūm al-Qur'ān*, Beirut: Dār Ihya' al-Turāth al-'Arabī.

Al-Shafi'i, Muhammad ibn Idris. 1980. *Aḥkām al-Qur'ān*, vol. 1, Beirut: Dār al-Fikr.

Blackwell, Kenneth, and Harry Ruja. 1994. *A Bibliography of Bertrand Russell*, 3Vols, London: Routledge.

Bowering, Gerhard. 1985. *Ghazālī: Islamic Biography in Encyclopaedia Iranica*, 10, no.4.

B. Russell. 1935. *Religion and Science*, Oxford: Oxford University Press.

_____. 1946. *History of Western Philosophy*, London: George Allen and Unwin Ltd.

Bucaille, Maurice. 2003. *The Bible, The Qur'ān and Science*, Alastair D. Pannel. & Maurice Bucaille Translation). Selangor: Thinker's Library Sdn. Bhd.

Harris, W. and Judith S. Levey. 1975. *The New Colombia Encyclopedia*, London: Colombia University Press.

Hartmann, Martin. 1899. *The Arabic Press in Egypt*, London, cited in Ziadat, Adel A. 1986. *Western Science in the Arab World: The Impact of Darwinism, 1860-1930*, London: Macmillan and Houndmills.

Hobbs, Albert H. 1953. *Social Problems and Scientism*, Harrisburg, Pennsylvania: Stackpole.

Iqbāl, M. 2002. *Islam and Science*. Burlington, VT, Ashgate.

Jansen, J.J.G. 1974. *The interpretation of the Qur'ān in the Modern Egypt*, Leiden: E.J. Brill.

Moore, Keith L. 1982. *The Developing Human: With Islamic Additions*, Commission for Scientific Miracles of Qur'an and Sunna.

Mouly, George J. 1978. *Educational Research: The Art and Science of Investigation*, USA: Pearson Allyn and Bacon.

M. Saeed Sheikh. 1995. *al-Ghazzālī: A History of Muslim Philosophy*, 2 volumes, ed. M.M. Sharif, Delhi: Low Price Publications.

Muslim, Musṭafa. 1999. *Mabāhith fī I'jāz al-Qur'ān*, Damascus: Dār al-Qalam.

Naik, Zakir 'Abdul Karīm. 2001. *Qur'ān and Modern Science: Compatible or incompatible?* Kuala Lumpur: Saba Islamic Media

Mohd Noor, A.Y., Abdul Wahab, N.A., Mokhtar, A.M. (2017). Haze Phenomenon Between Quran and Modern Science Perspectives | [Fenomena Jerebu Antara Perspektif Quran Dan Sains Moden] – *Sains Malaysiana.*

Noor, A.Y.M., Al-Halbusi, S.J., Mokhtar, A.M. (2017). Methods of preventives to keep birth control in the Quran. *Global Journal Al-Thaqafah*

Noor, A.Y.M. 2016. Challenges in the teaching and learning of Braille al Quran at the Malaysian Association for the Blind (MAB), *ISLAMIYYAT: The International Journal of Islamic Studies,* 38(1) 2016: 15-24.

Noor, A.Y.M., Zahidah Zainal Abidin. 2018. lsrailiyyat debate according to Sheikh Husayn Al-Dhahabi and Sheikh Abu Shahbah, *ISLAMIYYAT: The International Journal of Islamic Studies,* 40(1) 2018: 23-30.

Sternberg, George M. 1991. *A Textbook of Bacteriology*. New York: William Wood and Company.

Sulaiman Noordin. 1993. *Sains, Falsafah dan Islam,*, Centre for General Studies, Bangi: National University of Malaysia.

Teuku Iskandar. 1996. *Kamus Dewan*, Kuala Lumpur: Dewan Bahasa dan Pustaka.

The Oxford Encyclopedia of the Modern Islamic World. 2001. Oxford: Oxford University Press.

Umit Sayin and Aykut Kence. 1999. *Islamic Scientific Creationism: A New Challenge in Turkey*, in *Reports of the National Center for Science Education*, vol. 19, no. 6.

Ushama, Thameem. 1995. *Methodologies of the Qur'ānic Exegesis*, Kuala Lumpur: A.S. Nordeen.

Von Denffer, Ahmad. 1995. *'Ulūm al-Qur'ān: An Introduction to the Sciences of the Qur'ān*, London: George Allen and Unwin**.**

Wan Mohd Nor Wan Daud. 1998. *The Educational Philosophy and Practice of Syed Muhammad Naquib al-Attas: An Exposition of the Original Concept of Islamisation*, Kuala Lumpur: International Institute of Islamic Thought and Civilization (ISTAC).

W. Montgomery Watt. 1953. *The Faith and Practice of al-Ghazālī,* London: George Allen and Unwin**.**

AUTHORS

Dr. Ahmad Yunus Mohd Noor (Corresponding author)
Research Center for Theology & Philosophy
Faculty of Islamic Studies
and
Associate Research Fellow
Institute of Islam Hadhari
Universiti Kebangsaan Malaysia
43600 UKM Bangi
Selangor, Malaysia
a_yunus@ukm.edu.my

Dr. Zetty Nurzuliana Rashed
Faculty of Education
Kolej Universiti Islam Antarabangsa Selangor (KUIS)
Bandar Seri Putra, 43000 Kajang,
Selangor, Malaysia
zetty@kuis.edu.my

Asmilyia Mohd Mokhtar
Faculty of Major Languages Studies
Islamic Science University of Malaysia
Bandar Baru Nilai 71800 Nilai
Negeri Sembilan, Malaysia
asmilyia24@gmail.com