

ISLAM AND INTELLECTUAL SCIENCES

By:
Rahim Kaviani*

Abstract

Islam mendapati sains merupakan cara terbaik bagi mencapai kesempurnaan. Dalam mencapai maksud ini, Islam telah mendedahkan intipati alam dan dunia kepada manusia melalui ayat-ayat di dalam al-Qur'an agar manusia mampu untuk melihat perubahan dunia dan hubungannya dengan kekuasaan Tuhan serta dapat memahami diri sendiri dan sebab kewujudan mereka. Hakikatnya, Islam telah mengurniakan orang-orang Islam kebijaksanaan untuk bergerak menuju ke jalan yang benar. Bahkan, Islam mengajak manusia kepada cara pemikiran baru yang lebih sempurna daripada pemikiran dan kepercayaan lalu. Artikel ini akan membincangkan sains dari pandangan al-Quran dan Hadith, Islam agama pemikiran dan hikmah, pandangan sarjana barat tentang sejarah sains Islam dan perkembangan sains di zaman awal Islam.

Introduction

The true essence of Islam religious revolution, presented from the very beginning to the mankind, was a special ideology and was different from the previous ones. Islam was a religion of monotheism and uniqueness. Other Divine religions, before Islam usually had been distorted. Rome and Greece Christianity were not pure

* Rahim Kaviani, is a Ph.D candidate at the Department of Islamic History And Civilization, Academy of Islamic Studies, University of Malaya, Kuala Lumpur.

monotheism anymore. Some of them covertly and some others overtly had forgotten their Divine basis. In fact, in the seventh century the very essence of monotheism had been vanished from the religious society and its followers.

Hence, Islam invitation to pure Monotheism was a novel thought and a new invitation and ideology. In that era, the true instructions of prophets Mūsā and 'Isā were not available for the Jews and the Christians anymore. In fact, there was no trace of Qur'anic monotheism among various philosophical schools. Some traits such as God uniqueness, the power of will and destiny, all presented by Qur'ān, did not exist in that schools.

In such a religious and scientific situation, Islam appeared. Gustave Le Bon states, "Among all of the religions throughout the world, Islam has achieved a glorious position and has preached the true concept of uniqueness."¹ By taking the advantage of such monotheism and uniqueness, Islam has found science the best means for achieving perfection. Islam has attempted greatly to make the true essence of nature and world known to the mankind. In this way human being was able to perceive the changing world and its relation to Divine power and perhaps he could understand himself and the very reason of his existence.² In fact, Islam bestowed the Moslems a true wisdom to move in a right path.

It is clear that Islam has invited mankind to a new way of thinking, more perfect than the previous thoughts and beliefs. Islam warned mankind about the blind imitation of the others' thoughts and beliefs. Islam always invites people to reason and meditation. This invitation is more than a mere motto, it is an invitation to meditation

¹ Gustave Le Bon, *the Islamic and Arab Civilization*. Fakhr Daee Gillani Mohammad Taghi (1334) (Trans.). Tehran: Islamic Cultural Press, p. 143.

² Mohammad Reza Hakimi (1358), *Moslems' Wisdom*. Tehran: Islamic Culture, p. 4.

accompanied with action, a kind of seeking and revolutionary thought leading to the establishment of a world order.

Scientific Background

Although here we do not mean to verify Islam and Moslems' scientific willingness, it is necessary to mention that Islam, especially Qur'ān, considers science and education, the two important priorities of the Islamic society. We cannot find any other religion like Islam valuing and appreciating greatly sciences and scholars. As a matter of fact by the advent of a new way of thinking, the cons and pros come to scene and encourage people to think creatively. Although prophet's divine invitation was a call to faith, it was always accompanied with meditation and wisdom. It was not a blind and foolish invitation. An invitation to meditation can be seen in many Qur'anic verses.

Sciences from Traditions and Qur'anic verses points of view

Undoubtedly, Islam values sciences and scholars a great deal. By paying close attention to the very first verses descended on our Holy Prophet, it can be understood that the main objectives of Islam are to stimulate and to encourage mankind to meditate about the process of creation. Qur'ān says:

أَقْرِأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ ﴿١﴾ خَلَقَ الْإِنْسَانَ مِنْ عَلَقٍ ﴿٢﴾
وَرَبُّكَ الْأَكْرَمُ ﴿٣﴾ الَّذِي عَلِمَ بِالْقَلْمَنِ ﴿٤﴾ عَلِمَ الْإِنْسَانَ مَا لَمْ
يَعْلَمْ

"Read! In the name of your Lord who has created, He has created man from a clot. Read! Your Lord is the

*Most Bounteous, Who has taught by the pen, He has taught man that which he knew not."*³

In another Chapter Qur'ān mentions,

هُوَ الَّذِي بَعَثَ فِي الْأُمَمِينَ رَسُولًا مِّنْهُمْ يَتَلَوَّ عَلَيْهِمْ إِيمَانَهُ
وَيُرِكِّبُهُمْ وَيُعَلِّمُهُمُ الْكِتَابَ وَالْحِكْمَةَ وَإِنْ كَانُوا مِنْ قَبْلِ لِفِي
ضَلَالٍ مُّبِينٍ

"He it is who sent among the unlettered ones a messenger of their own, to recite unto them His revelations and to make them grow, and to teach them the Scripture and wisdom, though heretofore they were indeed in error manifest."⁴

And also declares,

يُؤْتِي الْحِكْمَةَ مَنْ يَشَاءُ وَمَنْ يُؤْتَ الْحِكْمَةَ فَقَدْ أُوتِيَ خَيْرًا
كَثِيرًا وَمَا يَدْكُرُ إِلَّا أُوتُوا الْأَلْبَابُ

"He grants wisdom unto whom He will, and he unto whom wisdom is given, he truly hath received abundant good. But none remember except men of understanding."⁵

God has appointed the prophet and addressed him to read and to purify the mankind's spirit from contaminations and opacities so as

³ Qur'ān, Sūrah al- 'Alaq (96): 1 - 5.

⁴ Qur'ān, Sūrah al-Jumu'ah (62): 2.

⁵ Qur'ān, Sūrah al-Baqarah (2): 269.

to be prepared to accept wisdom and knowledge.⁶ The Holy Prophet says to Moslems, "Anyone who steps in a way to acquire wisdom, God will open one of the heaven doors toward him or her."⁷ And "A scholar who teaches others even a word is superior to seventy thousands of worshippers."⁸

All the mentioned Qur'anic verses and traditions emphasized by Islam and Holy Prophet tend to invite people to wisdom and meditation. Our Holy Prophet tells his close friend, Ali, "O'thou! Whenever you see a group of worshippers trying to approach God by means of servitude, you can overcome them by means of knowledge and wisdom."⁹ In fact, the Holy Prophet prefers knowledge and wisdom to servitude and scholars to worshippers. For respecting and honoring the scientists, Prophet says, "The death of a tribe is more tolerable than the death of a scientist."¹⁰ 'Alī considers knowledge and wisdom superior to wealth and money. He says, "O'thou! Komeyl, wisdom is better than wealth, since wisdom keeps you and you keep the wealth. Your wealth will become less by spending but wisdom will become more."¹¹ Even at the very beginning of Islam which was no room for training, our Holy Prophet states, "seeking for knowledge and wisdom is compulsory for all Moslems."¹²

"طلب العلم فريضه على كل مسلم الا ان الله يحب بقاہ العلم"

⁶ Jafar Sajadi (1358), *Hekmat-e- eslami v falsafe-e- yonani*. Tehran: Moslem Women Press, p. 2.

⁷ Ameer Ali (1943), *Spirit of Islam*. Amiri Hasan (trans.). Tehran: Islamic Cultural Press, p. 331.

⁸ Sheykh Yaghoo Koleyni Razi, , *Kafī Principles*. Mostafavi Javad (1358) (Trans.). Vol. 1, Tehran: Noor Press, p. 33.

⁹ Hafez Abū Naeem Esfahani, (1358), *Helyat Al-Oliya*. Vol.1. Tehran: Islamic Cultural Press, p. 71.

¹⁰ Imām Muhammad Al-Ghazzālī, , *Iḥyā Al-Ulūm Al-Dīn*. Kharazimi, Mohammad (1352) (trans.). Tehran: Iran Cultural Institute, p. 48.

¹¹ *Ibid.*, p. 38.

¹² Koleyni Razi, , *op.cit.*, p. 35.

In another tradition he mentions, "seek knowledge and wisdom even in China."¹³

"اطلبو العلم ولو بالصين"

Again we have, "seek knowledge and wisdom from cradle to grave."¹⁴

"اطلبو العلم من المهد الى اللحد"

In another tradition it has been stated, "Scholars are the successors of the prophets."¹⁵

"ان العلماء ورثة الانبياء"

These statements show that the concept of training does not necessarily encompass religious objectives. Since in that epoch Islam had not gone beyond the Arab borders, the Holy Prophet advises people to travel to the distant countries for acquiring knowledge and wisdom such as China and considers acquiring wisdom as an obligation for every Moslems. Hence, how it is possible to accuse Islam as being against knowledge and wisdom.

There are many verses in Qur'ān inviting people to think about the creation process, the philosophical issues, and the resurrection day and the like. In fact, it can be claimed that Qur'ān holds the best ways and solutions and Moslems can take this advantage for solving their rational and philosophical issues. However, in the scientific movement of the third and the fourth centuries, some went beyond the extremes in applying Greek philosophy and somehow forgot to implement Qur'ān rational

¹³ *Ibid.*

¹⁴ *Ibid.*

¹⁵ *Ibid.*

reasoning. Koleyni, writer of *Kafi* principles declares, “If ignorance and foolishness were allowed, the scholars did not have any duty and there would be no Book and Prophet.”¹⁶ God created wisdom as a means of attaining sublime objectives. Since wisdom is an ability to identify and to discriminate, it can serve as a preventive factor from committing sedition and corruption. Once upon a time, somebody asked Imam Sadegh, “What is wisdom?” “Wisdom is a means to worship God and to enter heaven.” He answered.¹⁷ Regarding the concept of wisdom Imam Reza states, “Wisdom is the best friend of everyone and ignorance is his worst enemy.”¹⁸ In fact, Islam, our Holy Prophet and religious leaders valued wisdom a great deal and considered it as a savior of mankind from meanness and rascality. Koleyni devoted three chapters of his books to the prophet and the religious leaders’ speeches in favour of wisdom and thought named *Ketab-Al-Aghl va Al-Jahl* and *Ketab-e- Fazl-Al-Elm* and *Ketab-Al-Tohid*.¹⁹

Islam, Religion of Thought and Wisdom

Islam has always invited people to wisdom and reasoning even when the religious debates and philosophical issues were so common in Baghdad. Greek philosophy and reasoning were widely practiced in Islamic territories and nobody was able to prevent the application of wisdom and thought. Shi'ite religious leaders were also quite active in that era and invited their followers to implement the philosophical and intellectual issues presented in Qur'an. Imam Mūsā Ibn Ja'far says to Hishām Ibn Hakam, one of the Shi'ite lecturers, “O' thou! Hishām, God in his holy book, Qur'an, has given good news to scholars.”²⁰ In a Qur'anic verse we read,

¹⁶ *Ibid.*, Vol. 1, preface.

¹⁷ Koleyni Razi, , *op.cit.*, Vol. 1, p. 35.

¹⁸ *Ibid.*, p. 12.

¹⁹ *Ibid.*, pp. 13 - 236.

²⁰ Mohammad Baqir Majlisi, *Bihar Al-Anwar*. Mosa Khosravi (1345) (trans.). Vol.1. Tehran: Islamiye Press, p. 132.

الَّذِينَ يَسْتَمِعُونَ إِلَقَوْلَ فَيَتَبَعُونَ أَحْسَنَهُرْ أُولَئِكَ الَّذِينَ هَدَنُهُم
 اللَّهُ وَأُولَئِكَ هُمُ اُولُو الْأَلْبَابِ

"Who hear advice and follow the best thereof. Such are those whom Allah has guided, and such are men of understanding.²¹

In that era, applying intellectual sciences especially Greek philosophy was so common and widely practiced by Schismatic sect in order to solve religious and philosophical issues. Whereas Qur'ān and other books of tradition were imbued with intellectual reasoning leading mankind toward honesty and perfection. In a teaching session, Imam Kazim addressed his pupil, Hishām Ibn Hakam thirty-two times²² and applied divine verses for his intellectual and philosophical debates. He encouraged people to apply wisdom and intellectual reasoning for solving the current issues, while Schismatic leaders took the advantage of Greek philosophy for justifying the truth.

Unlike Christianity and Judaism, Islam was not a mere supporter of wisdom and knowledge, instead, it emphasized a great deal on exploring and expanding the mankind beneficial sciences. Our Holy Prophet says, "Truly, wisdom is the lost part of a Moslem, so acquire it even from hypocrites."²³ Imām 'Alī says, "Learn wisdom and knowledge even from polytheists."²⁴ These statements indicate clearly that in Islam there is no limitation for acquiring wisdom and insight.

²¹ Qur'ān, Sūrah al-Zumar (39): 18.

²² Majlisi, *op.cit.*, Vol. 1, pp. 132 - 159.

²³ *Ibid.*, vol. 2, p. 99.

²⁴ *Ibid.*, Vol. 4, p. 97.

It can be inferred that from the very beginning of Islam, Moslems were for intellectual and philosophical sciences not against them. Islam as a Divine revelation was not only the leading cause of the appearance of a religion encompassing law and morality, but it also altered some of Moslems' thoughts and believes.²⁵ Islam as the last Divine religion brought a message with itself encompassing all aspects of Moslems' lives, i.e., materialistic and spiritualistic aspects. Islam deals with some important questions; what is the true essence of human being? How human being can get nearer to his true essence. Islam is different from Western current belief which ignores the true essence of human beings. Unlike materialistic schools, Islam aims at making a Divine creature out of mankind, a true man who is the manifestation of the creator in all aspects. For attaining this elevated goal, Islam brought with itself metaphysics science along with celestial sciences hidden in Qur'anic verses, all based on monotheism and uniqueness.²⁶ There are numerous Qur'anic verses favouring the correct implementation of wisdom and thought and leading the human beings toward the reality of life. Imām Muḥammad al-Ghazzālī has a nice statement in this regard. In *Iḥyā Al-Ulūm Al-Dīn* he writes, "Wisdom has a virtue in itself that should be known. Wisdom is the key of prosperity both here and hereafter. Hence, acquiring wisdom is the best of deeds."²⁷

Since Islam values wisdom and knowledge a great deal, it does not restrict Moslems in acquiring insight and wisdom. According to our Holy Prophet and some other religious leaders, Moslems have to acquire wisdom whether it is in China or other farther distances. Moslems should ignore some issues such as race and religion in the process of learning. But the most important point

²⁵ Syed Hussein Nasr, *Science in Islam*. Ahmad Aram (1369) (trans.). Tehran: Soroush Press, p. 17.

²⁶ Syed Hussein Nasr (1987), *Science and Civilization in Islam*, 2nd ed. Cambridge: The Islamic Texts Society, pp. 337 - 340.

²⁷ Al-Ghazzālī, , *op.cit.*, p. 96.

is that wisdom and faith are twin brothers and cannot be separated by any means. Moslems believe that wisdom is meaningless in an unfaithful society. Wisdom exists in the heart of Moslems.²⁸ Wisdom and faith are complementary in Islam. The lack of presence of one leads to the weakness of the other.

In contrast to what Western and Eastern Orientalists have declared, Qur'ān and Islam Divine religion have never been separated from wisdom. Qur'ān invites people to trial and understanding. There are many oaths in Qur'ān which remind us of the tangible and natural objects such as sky, stars and the creation of Camel. It swears human beings in the life of birds, ants, honeybees, wheat clusters, fig and olive. In all cases Qur'ān invites people to reflection. These mentioned objects became the cornerstone of many sciences later in history. By the advent of Islam, close investigation of these phenomena amazed the whole world.²⁹

Western Scholars' Points of View

Islamic civilization and its own traits has been the subject of many scientific conferences in recent centuries, and many scientists and scholars have talked about its different aspects.

Discussions regarding the importance of acquiring wisdom and the way Moslems look at it have attracted the historians and researches of Western and Islamic countries during the nineteenth century. Many books have been written in this field. Some of the scholars tried to be fair and sincere in commenting about Islamic civilization, culture and thought. Some of their comments will be reviewed in the following:

²⁸ Mortaza Motahari, (1362), *Khadamat-e- Motaghabel Islam va Iran*. Qom: Islamic Press, p. 447.

²⁹ Mohammad Reza Hakimi, *op.cit.*, p. 5.

Voltur in his work has compared the two Divine religions namely, Islam and Christianity and has numerated some privileges of Islam. He declares, "In pre-civilized and ignorance era, after the decline of Roman Empire, Christians learnt astronomy, chemistry, medicine and mathematics from Moslems. Islam owes its existence to the sincerity and bravery of its founders, while Christians imposed their religion by means of war and sword. Undoubtedly, Mohammad's religion was superior to Christianity. It was rational, solemn, and pure. It was a great supporter of human beings.³⁰

Bertrand Russell says, "Mohammad's religion was a simple unity and was different from '*Trinity*'. Moslems had to extend their territories in order to preach Islam but tormenting the Christians, the Jews and the Zoroastrians was not allowed. Islam elevated culture sprouted in Syria and blossomed in Western and Eastern borders such as Iran and Spain. Muḥammad Ibn Mūsā Al-Khwārazmi in 830 A.D. (196 A.H.), translator of astrological and mathematical books from Sanskrit language, published a book entitled 'Algortmi De numero Indorum'. It was translated into Latin language in the twelfth century (A.D.). He wrote another book about Algebra, which was the West reference textbook till the sixteenth century (A.D.).

Russell also refers to the elevated position of two Moslem philosophers; one was Ibn Sīnā (Avicenna) from Iran and the other one was Ibn Rushd from Spain. Ibn Sīnā was so popular among Moslems and Ibn Rushd was well-known among Christians. Their works in medicine and philosophy have been taught in the sixteenth century universities.³¹ Russell believes that Ibn Rushd is a professional in Christian philosophy rather than Islamic philosophy. He continues that those writers writing their works in Arabic introduced some novel ideas in mathematics and chemistry. Islamic

³⁰ Javad Hadidi, (1357), *Islam Az Nazar-e- Voltur*. Tehran: Tous Press, p. 87 and pp. 193 - 244.

³¹ Bertrand Russell, *A History of Western Philosophy*. Darya Bandari, Najaf (1351) (trans.). Tehran: Habibi Press, p. 213.

civilization in its heyday was appreciable in the field of art and technology. Islamic civilization was a means of transition. It was something between European ancient and new civilization. Moslems were so considerate regarding the necessary means of creating a civilization namely, education, book, research and study.³² Russell stresses that Moslems as well as Byzantines were effective in motivating west to quit Barbarism and accept a new civilization.³³

George Sarton is one of the leading scholars in history of science and philosophy in the West. He is well-aware of Moslems' scientific activities and is somehow fair in representing the glorious position of Islam, Islamic education and Islamic sciences in his works. In one of his books entitled '*An Introduction to the History of Science*', he emphasizes the scientific, cultural and artistic importance of the Islamic civilization. He refers briefly to the advent of Islam and the Holy Prophet's lifestyle and says, "The most interesting aspect of Islamic victories, especially the very first ones, was that these conquests were decisive. Of course it was the first time that a religion, especially a glorious one, was a real motive of an empire ship. The worldly leaders are subject to change but a religion will be stable."³⁴

Regarding the very beginning of the Islamic science Sartan declares, "A kind of thought stagnation was dominant in the late seventh and the early eighth centuries (A.D.) in Europe and Near East. The new era brought with itself a kind of renewal which owes it to Moslem pioneers. Hence, it is worthwhile to choose an Arabic name for this era, which is actually the beginning of the Islamic sciences. Close investigation of Jābir's works in Arabic or Latin is one of the most essential and promising part of research."³⁵

³² *Ibid.*, p. 215.

³³ *Ibid.*, p. 224.

³⁴ George Sarton, *An Introduction to the History of Science*. Sadri Afshar (1353) (trans.), Vol. 1. Tehran: Ministry of Education Press, pp. 524 - 530.

³⁵ *Ibid.*, p. 574.

Sartan values the history of Islamic science a great deal and chooses the names of seven Moslem scientists for this era of science history:

1- Jābir Ibn Ḥayyān era:	134 – 184 (A.H.)
2- Khwārazmī era:	185 – 236 (A.H.)
3- Rāzī era:	237 – 288 (A.H.)
4- Mas'ūdi era:	289 – 339 (A.H.)
5- Abū al- Wafā' era:	340 – 391 (A.H.)
6- Bīrūnī era:	392 – 442 (A.H.)
7- Omar Khayyam era:	443 – 494 (A.H.) ³⁶

Sartan pays more attention in comparison with others to the Moslems' scientific willingness and says, "In the second and the third centuries (A.H.) Islamic civilization and Moslems were seeking sciences more than any other nations, since Jews, Christians and other nations were not successful in this regard. Although they had some advancements"³⁷, Sartan considers Islam as the best religion in the way of seeking knowledge and wisdom and writes, Jews and Greeks were mingled in Alexandria, although the Jews learnt Greek language but they were not successful regarding scientific issues. Christians who were the supporter of religious issues were not successful in scientific matters as well. Then it happened for the first time in the world history that Arabs' religious principles became close to Greek scientific grounds by the help of Islamic civilization. This relationship expanded from Baghdad to India, Turkistan and even farther in west.³⁸

If a researcher is willing to know more about the advancements and activities of mankind in Middle Ages, he would

³⁶ George Sarton, *op.cit.*, pp. 721 - 722.

³⁷ *Ibid.*, p. 198.

³⁸ *Ibid.*, p. 198.

better study Islam closely since Islam scientific and cultural advancements affected Europe of Middle Ages a great deal.³⁹

Will Durant in his work entitled '*The Story of Civilization*' refers to the glory of Islamic civilization and says, "As we infer from prophets' sayings, Mohammad encouraged all people to acquire wisdom and knowledge and valued this task. He was different from other religious reformists in this regard. Mohammad has said that anyone who stepped in a way to acquire wisdom, God would open one of the heaven doors toward him or her."⁴⁰ In close contact with Greek culture, Arabs were stimulated to compete with Greeks in scientific matters and after a short while Islam attained an elevated position. According to Moslems, a perfect man was a person who knew writing, swimming and archery. The first paper factory⁴¹ throughout the Islamic territory was founded by Faḍl Ibn Yahyā, Hārūn's minister, at 78 (A.H.) in Baghdad. As Ya'qūbī stated in his epoch (278 A.H) there were more than one hundred bookshops in Baghdad. They copied the books as well. There were some libraries in most of the mosques opened to scholars all the time.⁴²

The most important Greek books in mathematics, astronomy and medicine have been translated into Arabic by 236 (A.H.) Ptolemy's book translated into Arabic and named *Almagest*. Chapters five, six and seven of Apollonius's books named *Conics* as well as Hiravi Eskandari's book and Rumi's book have been survived by the mercy of their Arabic translations.

Will Durant holds, "Our understanding about the three centuries in which Islamic thought blossomed is so superficial. There

³⁹ *Ibid.*, p. 639.

⁴⁰ Will Durant, *The Story of Civilization*. Payandeh, Abul-Ghasem (1368) (trans.). Tehran: Islamic Education Press, pp. 303 - 311.

⁴¹ Saalebi in *Lataef Al-Maaref* says that paper manufacture appeared for the first time in Syria by Chinese captives.

⁴² Ahmad Ya'qūbī, (1955-1956), *Tārīkh*. Beirut: Dār Al- Fikr, p. 75.

are many Arabic manuscripts in the field of science, philosophy and literature remained unused in the libraries of Islamic world.⁴³

Anne Fremantle in her book entitled '*Age of Belief: The Medieval Philosophers*' has some invaluable theories regarding Moslems' advancements in the scientific movement of the third century. She states, "The Middle Ages had been divided into two parts. The first half belonged to Moslems and was bigger to some extent. The second half belonged to the Christians and it was rather smaller. Translation of Aristotle's works was started from the beginning of the 'Abbasid era by Arab Moslems. It was almost contemporary with Charlemagne Coronation in 800 (A.D.) in West and undoubtedly even after 300 years, Cairo and Baghdad had affected all European countries such as Rome and Constantinople by their scientific advancements. As a matter of fact, these two countries Cairo and Baghdad, as the biggest centres of science and philosophy were competing with each other. Cordova in Spain, as the third centre was not behind so much."⁴⁴

John Bernal, an Irish scholar, who has some researches regarding the history of science, has appreciated Islam glorious position and Moslems' advancements a great deal. Bernal like other fair scholars writes, "There was a promising breeze of wisdom and insight which acquired a glorious shape under the shadow of Islam and in this way science and technology transferred to Europe of Middle Ages. Some books which had been translated into Arabic during three centuries were translated once more into Latin such as *Almagest* by Gerard de Cremona in 1175 (A.D.) and they were frequently used by Western scholars."⁴⁵

⁴³ Will Durant, *op.cit.*, p. 303 - 311.

⁴⁴ Anne Fremantle, *Age of Belief: The Medieval Philosophers*. Karimi, Ahmad (1345) (trans.). Tehran: Amir Kabir Press, pp. 126 - 127.

⁴⁵ John Bernal, *Science in History*. Hossein Asadpur (1354) (trans.). Tehran: Amir Kabir Press, pp. 233 - 293.

Hull states that it had just passed 100 years after the death of the Holy Prophet that a great scientific movement happened. The people headed toward acquiring some sciences such as science and philosophy of Greek, Jewish medicine and Indian mathematics. This movement expanded from Sand River to Pine Mountains.⁴⁶ Despite of reminding Moslems' scientific advancements, Hull refers to Moslems' hostility with science at the very beginning and declares, "At the very beginning Arab Empire was against worldly sciences just like Byzantine Empire." Hull refers to Moslems' Book Burning legend, although strongly rejected by some scholars and states, "Alexandria was conquered at second caliphate's era and the caliph ordered to demolish whatever had been remained from Alexandria library."⁴⁷ When Alexandria was conquered, there was not any trace of the previous brilliant wisdom and those intellectual and philosophical movements in that city. Alexandria did not have any library after burning the library twice by Christian Byzantine, to be burnt for the third time by the Arab conquerors.⁴⁸

Hana Al-Fakhori declares, "Islam has put an end to the wizards and fortune-tellers' deeds. Although most of the physicians were not Moslems such as Nasr Ibn Haress, Islam has appreciated them and stated that science was divided to two parts, namely, religion and medicine. Moslems started learning medicine and advanced so rapidly that they were ahead of European in the seventeenth century. Moslem physicians dealt with not only medicine but also with geometry, astronomy, alchemy, philosophy and music. Moslems paid attention to other Greek, Syriac, Iranian and Indian physicians other than Hippocrates and Galen and took the advantage of their own experiences as well. Moslems advanced in alchemy to a degree that Bertlu, the writer of '*Alchemy in Middle*

⁴⁶ L. W. H. Hull (1724), *History and Philosophy of Science*, Longman, p. 140.

⁴⁷ *Ibid.*, p. 138.

⁴⁸ Abdul Hossein Zarrin Kub, (1369), *Bamdad-e- Islam*. Tehran: Amir Kabir Press, p. 86.

Ages" considers Jābir Ibn Ḥayyān in alchemy the same as Aristotle in logic."⁴⁹

Regarding the superiority of Moslems over other sects, Hana Al-Fakhori states, Moslems' superiority in distributing knowledge and wisdom became known to all. If all the books written by Moslem scholars could be gathered in one place, it would become clear that the services Islamic scholars have done to help the mankind are superior to that of other people's even Greeks who were benefiting a precious historical background and had the necessary facilities. Unfortunately, not enough attention has been paid to Moslems' works. Some of their masterpieces have been demolished and some others remained unused in Eastern and Western libraries. If these works had not been translated into Latin, European scientific movement leaders would not have based their works on them, and the scientific movement would have been postponed for centuries. Western scholars owe their insights to their Moslem apprentices. Alas, they elevated the students and forgot the grand scholars."⁵⁰ This kind of thinking from a Christian scholar regarding Moslems' wisdom is remarkable.

Herman in a part of his speech has referred to the glorious aspect of the Moslems' deeds and has written that Moslems learnt something that even Aristotle who was a brilliant person was not aware of it, i.e., mathematics and mechanics.

Moslems took the leadership of mathematics and Greek medicine, the two things disdained by Romans and set aside by Christians. They patiently worked on these two sciences and brought them into practicality, while Greeks were not interested in these stuffs at all.

⁴⁹ Al-Fakhori, Hana, *History of Philosophy in Islamic World*. Abdul Hamid Ayati (1358) (trans.). Tehran: Zaman Press, pp. 337 - 429.

⁵⁰ Al-Fakhori, *op.cit.*

In what we have mentioned before we became familiar with some of Western scholars' theories and beliefs who were mostly Christian. Some of these mentioned scholars were almost fair in representing Islam and Moslems' scientific history.

Truth Denial

In the previous part some of the western scholars' ideas regarding the scientific movement were mentioned, now it is worthwhile to talk about those who wittingly or unwittingly tried to deny some realities.

The transfer of science from an old and eroded civilization to a newborn civilization has always been existed throughout the history of mankind. The scientific transfer cycle has continued from Phoenicians, and even before them in Mesopotamia, to Egypt, Greece, Iran and Europe. This cycle has undergone some changes both qualitatively and quantitatively and this was the case for some scholars' ideas and their interpretations from this kind of transfer. Some of them have tried to deny and somehow distort special historical events. Those observing the Moslems' present position can hardly imagine that once Moslems took the advantage of foreign languages and cultures. But the truth is that in the scientific movement of the third and fourth centuries (A.H.), Moslems translated all the world scientific achievements into Arabic. If there were not their attempts, Greece, Egypt, Iran, India, and Babel scientific resources would have been demolished long ago⁵¹, as some of the scientific works in Alexandria and Athena had been burnt down by Rome Caesar.⁵²

⁵¹. Shebli, *Collection of Articles*. Fakhr Daee Gillani Mohammad Taghi (1342) (trans.). Tehran: Sepehr Press, p. 1.

⁵² Zarrin Kub (1369), *op.cit.*, p. 86.

Arnold Toynbee is one of the few western scholars who denies these evident facts in the history of civilization and assumes Western race and civilization superior to other previous civilizations. He disdains the influence of Islam in Iran and writes, "Arab conquerors in the seventh century (A.D.) were not as successful as Alexander was in the fourth century (A.D.)."⁵³ It is likely that Toynbee has been unaware of Iran scientific advancements after Islam. The influence that Islam and Moslems had in the region and in other parts of the world in scientific, cultural and artistic aspects are not concealed. But it seems Toynbee just considers west as the cradle of civilization and introduces Alexander as the representative of the conquests in East.

Some other scholars find some faults with Islamic civilization relating to Arabs such as Umayyad and declare, "In the heyday of civilization and advancements, Arabs were not involved in scientific matters. In fact other non-Arab nations who were under the Arabs' reign attempted a lot in expanding science and ideology."⁵⁴ Some scholars such as Ernest Renan sticks to this idea and believes that unlike Arabs, Romans and Greeks distributed science and literature. This Western scholar was unaware of the fact that he has made a wrong comparison between Arab and Rome or Greece empire ship, since Arab empire ship just belonged to those races speaking Arabic. In fact our Holy Prophet founded a government which did not restrict the race, nationality and religion.⁵⁵ If Iranians contributed more than other nations in translation movement and played an important role in the scientific achievements of the third and fourth centuries, it was because of the fact that first of all they considered themselves Moslems and they did not feel nostalgic. Some scholars such as Ibn Sīnā, Bīrūnī and Khwārizmi considered *Merv*, *Balkh* and *Baghdad*

⁵³ Arnold Toynbee, *A Study of History*. Yaqub Azhand (1366) (trans.). Tehran: Mula Press, p. 448.

⁵⁴ Jorji Zaydan, *Al-Tārikh Al- Hadārah Al-Islāmiyyah*. Ali Javaher Kalam (1369) (trans.). Tehran: Amir Kabir Press, p. 445.

⁵⁵ *Ibid.*, p. 445.

their motherland. In their opinions, thought and belief were superior to race and nationality. We are talking about Islamic civilization while Toynbee considers Jewish and Greek civilizations as the cornerstone of West civilization and does not leave any room for Islamic civilization. In fact he ignores Islamic civilization's role in scientific advancements and even he refuses to mention its name. He declares, "Investigation of the history of the transfer of Judaism and Greek civilization to Western world in 1897 (A.D.) is easy to some extent."⁵⁶

Ernest Renan is one of the French scholars who have biting remarks regarding science in Islam. In a conference on the subject of science in Sorbonne, Paris, he refers to some parts of the history and says, "Nearly from 715 (A.D.) to the early thirteenth century (A.D.), i.e., 500 years, Moslems had remarkable scholars. It can be claimed that Islam world has been superior to Christian world from cultural and spiritual aspects in this era."⁵⁷ Then he refers to an issue, not compatible with the reality both from Islam and Moslems' point of view. Renan states, "In the first Islamic century nothing had been more nostalgic than science and philosophy. Islam and science were in two separate poles."⁵⁸

If this statement is declared by Renan, he vividly has introduced Islam as being against science and wisdom. Of course there should not be any confusion regarding such issues between Islam and Islamic civilization. However, some parts of Renan's statements are acceptable for the Islamic society like the fact that at the very first century Islamic civilization was so preoccupied with preaching the religion and doing some campaigns and in fact it did not pay much attention to the foreign sciences and philosophy. In fact there was not a suitable ground for scientific advancements.

⁵⁶ Arnold Toynbee, *op.cit.*, pp. 19 - 20.

⁵⁷ Karim Mojtabaei (1363), *Seyyed Jamal Al-Din and the New Thought*. Tehran: Islamic Press, p. 76.

⁵⁸ *Ibid.*

At the time of Umayyad, less attention has been paid to scientific and philosophical growth. In fact consolidating the jurisdiction and political, religious and economical objectives had the great priorities and this process continued till Umayyad decline in 132 (A.H). Renan's statements regarding Moslems' ignorance in this era seem true to some extent, but the idea that he considers Islam far from science and wisdom looks irrational. In fact he has contributed Umayyad's lack of attention to the philosophy to Islam as a whole entity. As stated before there are numerous Qur'anic verses and traditions regarding the important position of science in Islam, all rejecting Renan statements.

In a letter Seyyed Jamāl Al-Dīn Asad Abadi answers Renan's statements as follows, "Every religion is somehow impatient and monopolist. It fears a great deal about whatever trembling novice Moslems' faith, but it is not admitted that a society which has adopted a special religion does not have the right to take the advantage of some sciences and ideologies for satisfying its own needs while sticking to its own faith."⁵⁹ So there would be no room for Islam animosity with science and philosophy. Of course Umayyad's dominant spirit was quite different from Islam religious spirit in the era of our Holy Prophet and these differences had created a gap between Islamic civilization and Muhammadian Islam.

Hence, there would be no religion like Islam encouraging its followers to acquire and preach wisdom and knowledge. In fact the cornerstone of scientific and materialistic advancements in the third and fourth centuries was Islam scientific spirit which was encouraging Moslems to acquire knowledge and insight even from an alien or distant area such as China. It means Islam had replaced ancient prejudices with cooperation spirit. It was unlike what had happened in Christian Byzantine and church's monastic life in

⁵⁹ *Ibid.*

Middle Ages that was advising its Christian followers to renounce the world and to choose isolation.⁶⁰ It was unlike Pollus, a Christian bishop, who was against any kind of science and philosophy.⁶¹ In the eighth and ninth centuries (A.D.), second and third centuries (A.H.), Moslems attempted a lot to collect the scientific books and translate them into Arabic without any racial or religious prejudices.

At this era, Christianity of Middle Ages in West had discarded science, scientific books and scholars and had kept Greek scientific works in iron reservoirs.⁶² The Holy Prophet impelled and advised Moslems to acquire wisdom and knowledge from the distant areas like China and Qur'ān invited mankind to thinking. The two great forces of that time were Byzantine and Rome Caesar. Byzantine decreased gradually its interest in science and philosophy out of its religious prejudices and Rome Caesar, put an end to philosophers and scientists' activities. What had been remained out of Alexandria book burning in 48 (A.H.) was demolished once more in 349 (A.D.) by Theodosios's command.⁶³ In fact Rome cut its relationship with science and wisdom. On the other hand, Khosro Anu Shiravan, Sasanid Empire, was temporarily interested in science and wisdom.

In such a spiritless world, Islam entered the challenge of science, civilization and literature.⁶⁴ Arab nations who believed in Qur'ān turned toward wisdom from ignorance, insight from blindness and urbanity from savagery by Qur'ān and the Holy Prophet's order.⁶⁵ Of course the mentioned attempt once initiated by

⁶⁰ Abdul Hossein Zarrin Kub, (1348), *Karname Islam*. Tehran: Amir Kabir Press, p. 13.

⁶¹ L. W. H Hull, *op.cit.*, p. 142.

⁶² Jorjis Ayad (1369), *Khazaen Al- Kotob Al- Ghadima fi Al-Iraq*. Tehran: Keyhan Andishe Press, p. 107.

⁶³ Zarrin Kub, (1369), *op.cit.*, p. 86.

⁶⁴ *Ibid.*,p. 13.

⁶⁵ Mojtahedi ,Karim, *op.cit.*, p. 26.

Islam influenced other nations as well. Iranians, who had great scholars and glorious civilization before Islam, witnessed the growth of sciences and scholars by the advent of Islam. It is necessary to mention that they had the necessary ground for accepting the coming changes. At the very beginning of the advent of Islam, Iran enjoyed the presence of elevated scholars and various sciences.

Regarding the important position of science in Islam, Arnold Thomas states, "Whatever West has achieved, from these plentiful resource, owes actually to those nations accepted Islam religion not necessarily the inhabitants of Arabian Peninsula. Islam religion and the great Islamic Empire ship mingled the different sciences and industries and presented them in a glorious way to the science and industry world."⁶⁶

Baron Karl considers Islamic civilization scientific growth very important and declares, "Those interested in scientific and spiritual issues in the twelfth century would turn toward East or Arabic nations and translate Arabic works into Latin."⁶⁷

Kalin Renan in his book entitled *The History of Cambridge Science* considers an important role for Islamic civilization in the process of scientific advancements and states, "Islamic science has two aspects, on one side is the scientific thoughts entering from outside and on the other side is what Arabs added to the scientific treasure. Most of the time this second aspect namely, Moslems' share has been ignored or affected by the advancements occurred in the sixteenth century (A.D.) and afterwards in Western Europe. Mostly science in Islam was believed to be a proctor and container of the previously discovered scientific findings transferred unchanged to West later. This is actually in sharp contrast with the existing reality.

⁶⁶ Arnold Thomas (n.d.), *Islam Heritage*, Zamani Mustafa (trans.), Ibn Cina Press, p. 27.

⁶⁷ *Ibid.*, p. 293.

Arabs translated and interpreted what had been inherited to them and added some invaluable analysis to it. In this way Islamic civilization trained great talents.⁶⁸ Hence, Islamic civilization role in the process of scientific advancements can not be ignored by any means.

Rumour of Book Burning Down

One of the legends spread for a while and attracted a great deal of discussions in scientific centres was book burning down legend believed to be committed by Moslems.⁶⁹ Not much attention should be paid to it since it has been rejected by many Western and Islamic scholars. They believe that this legend has been fabricated by some bigot Christians after crusades.⁷⁰ As mentioned before because of Islam and Moslems' interests in science, and the important position of science in Qur'ān and traditions there would be no room for contributing this task to Moslems. The only thing done by Arabs in their fights both in Iran and Egypt was that they were not so considerate regarding the collecting of the scientific books and publishing them and their behaviour can be justified very well.

The book burning down issue was presented in the seventh century (A.H.), the thirteenth century (A.D.) to the world. It was followed by the crusades and Christians' deeds in Moslems' developed countries from one hand and Mongol's attack and destroying the scientific works on the other hand. This important issue did not exist in any historical documents compiled after the second century (A.H.). In fact there is no trace of book burning down issue. There is no trace of book burning down in Moslems' writings, and even in Christians, Egyptians, Syrians and Iran Christian physicians' works in the second century (A.H.), while a lot of

⁶⁸ Kalin Renan, *The History of Cambridge Science*. Hassan Afshar (1366) (trans.). Tehran: Central Press, pp. 283 - 284.

⁶⁹ Zarrin Kub, (1369), *op.cit.*, p. 86.

⁷⁰ *Ibid.*, p. 80.

documents can be found about Crusaders and Mongol's book burning down in the seventh century (A.H.) and afterwards.⁷¹

For the first time in the seventh century (A.D.) in Syria, three people, namely Ibn Al-'Abri, Abdul Latif Baghdadi and Al- Ghifti contributed the book burning down issue to Amr Ibn Al-'As. These three people were the narrators of this legend and did not refer to any documents and proofs prior to their own era. While Ibn Nadim in Baghdad, Ibn Joljol in Spain, both living in the fourth century (A.H.), and Abi Osaybe who have reported the Moslems' scientific activities in their works did not mention even a word regarding the book burning down issue.

Tabatabae states, "Mongol's attacks were followed by Crusaders movement from West to East. This legend came into existence to reduce the hatred caused by Christians and Mongol's affairs. Unfortunately some of the scholars have been affected by this false legend."⁷²

If Islam like Christianity had condemned its prior intellectual works, science and philosophy in Islamic countries would have had the same fate as that of Christians in Middle Ages. They demolished what had been remained from previous scientific and philosophical works. When Moslem conquerors entered Alexandria, brilliant light of science had been extinguished; there were no trace of the scientific and philosophical works once presented by Ptolemy and Galen. There was no library in Alexandria. Ptolemy library had been burnt down in Caesar epoch and what had been compiled after that had been demolished as a result of Christian's bigotry in 349 (A.D.) by Theodosius's command. The saying that Alexandria library and Iranian libraries had been burnt down by Egypt and Iran conquerors

⁷¹ Muhammed Mohit Tabatabae, (n.d.), *Kitāb Suzani Dar Sadr-e- Islām*. Vol. 109. T.T.P: Vahid Magazine, p. 33.

⁷² *Ibid.*,p. 34.

or had been burnt as a result of 'Umar's order, the second caliph, and that the stuffs had been used as bath fuels for six months is a groundless legend and has just been stated in the following centuries in the works of Ibn Al-'Abri and the others. In fact no proof could be found in the previous resources.⁷³

Science at the Very Beginning of Islam

Islam religion from the very beginning was for intellectual sciences and emphasized a great deal on their applications as Motahari states, "Moslems' intellectual life has been contemporary with the advent of Islam; Qur'ān has stressed on intellectual life and applied some intellectual and rational reasoning as well."⁷⁴

When our Holy Prophet was appointed in Mecca, Islam extended its roots in Arab Peninsula in a short while. Islamic society engaged in training those who had spent all their lives in ignorance. In prophetic mission era there was not enough opportunity for paying close attention to what could lead to the intellectual scientific growth. The 23 years mission actually was too short for a newly established Islamic society to train great number of scholars. However, Qur'anic verses and prophet's sayings were great motivation for people to move toward an intellectual life. Newly Moslem Arab society avoided every kind of suspicious task which they thought it would shake the roots of their faith.

Abī Osaybe, the sixth century (A.H.) physician, writes, "At the very beginning of Islam, Arab people were just concerned about their own language, Islamic laws and the medicine science, all required by the public and nothing else."⁷⁵

⁷³ Zarrin Kub, (1369), *op.cit.*, p. 86.

⁷⁴ , Mortaza Motahari (1360), *Seyr-e- Falsafeh Dar Islam*. Tehran: Islam Press, p. 67.

⁷⁵ Abī Osaybe (1956), *'Uyūn Al- Abna fi Tabaghat Al- Atba*. Beirut: Asdar, p. 16.

Haji khalifah in '*Kashf Al-Dhunun*' believes that not paying enough attention to science does not necessarily mean an opposition to science. This lack of attention originated from Moslems' concern for maintaining Islamic laws and the roots of their faith.⁷⁶ Medicine was a required field by the society; even special attention has been paid to it at the time of the Holy Prophet. Nasr Ibn Haress was the first Arab physician graduated from Jundi Shahpur. He was curing the patients in Mecca. His father Haress Ibn Kalde, Zeynab, a mid-wife, known as Bani Oud and Ibn Abi Rame Al-Tamimi, a famous surgeon, were the well-known physicians at the very beginning of Islam.⁷⁷

In 'Umar era, some people were known as physicians in Arab society. Ibn Al-'Abri who has contributed the book burning down issue to 'Umar writes, "One of the most famous physicians in 'Umar era was Bolus Aja Niti. He was a professional regarding womanly problem. Other mid-wives would come to him to ask their questions. Hunayn Ibn Ishaq has written that Bolus had compiled a medical book concerning womanly problems."⁷⁸ Presence of such physicians at 'Umar epoch contradicts Ibn Al-'Abri's statement which was introducing 'Umar against science and wisdom. Ibn Ishaq declares in *Sirah*, "In Khandak combat when Sad Ibn Maaz became wounded, the Holy Prophet ordered his comrades to take him to Al-Akhal's tent for treatment."⁷⁹ Hence, in the history of the very beginning of Islam acquiring beneficial sciences and insights was supported and not considered as a threat to Islam.

In 'Umar era, Iran and Egypt were conquered by Moslems and Islam troops became familiar for the first time with the outer

⁷⁶ Zabih Allah Safa, (1365), *Tarikh-e-Olum Aghli dar Tamadun Islami*. Vol. 1. Tehran: Amir Kabir Press, p. 32.

⁷⁷ Eesa, Ahmad (1939), *History of the Hospitals in Islam*. Syria: Hashemiye, p. 7.

⁷⁸ Ibn Al-'Abri, Abū Al-Faraj Dighoriyous, *Tārīkh Mukhtaṣar Al-Duwal*. Tajpur & Riyazi (1364) (trans.). Tehran: Etelaat Press, p. 163.

⁷⁹ Eesa, Ahmad (1939), *op.cit.*, p. 9.

world of Hejaz, Iran and Egypt were among the famous scientific centres of that time. Although Alexandria scientific centre had been demolished by Romans long ago in 349 (A.D.)⁸⁰, the presence of Arabs in Iran and Egypt was a pretext for Moslems to become familiar with the foreign scientific and cultural advancements. This kind of familiarity motivated Moslems to acquire foreign science and culture eagerly in the following eras.

Ibn Al-'Abri contributes a story in Egypt conquest to Amr Ibn Al-'As.⁸¹ He considers Yahyā Nahvi, who was living 100 years before Egypt conquest, as being contemporary with Amr Ibn Al-'As and believes that book burning down issue has taken place in their era. He continues, in 'Umar era, when Amr Ibn Al-'As conquered Egypt, there was a person in Alexandria named Ghormatifus, known as Nahvi. Amr Ibn Al-'As respected his scientific and philosophical position a great deal. Amr Ibn Al-'As first heard the words of philosophy from Nahvi's mouth and they were unfamiliar for him. Amr Ibn Al-'As became interested in Nahvi. Once Yahyā told Amr Ibn Al-'As, "You are the owner of Alexandria and whatever is inside. Those stuffs you consider as futile are beneficial for us." Amr Ibn Al-'As replied, "What do you require?" Yahyā told, "The noble books of royal libraries." Amr Ibn Al-'As answered, "I have to seek Caliph 'Umar's approval." Ibn Al-'Abri mentions that Amr Ibn Al-'As wrote a letter to 'Umar, the second caliph, to ask permission. He replied, "If there are some issues in the books in contrary to Qur'ān, we do not need them, so demolish them. If the contents of these books are according to our holy book, Qur'ān suffices us and again we do not need that stuffs. Ibn Al-'Abri writes Amr Ibn Al-'As started to distribute the books among Alexandria bathes to be used as fuels of these bathes for six months. Al-Ghifti related this story from Ibn Al-'Abri without any distortion and unfortunately some

⁸⁰ Ibn Al-'Abri (t.t), *op.cit.*, p. 162.

⁸¹ Ibn Al-'Abri (t.t), *op.cit.*

historians wittingly or unwittingly have accepted the story and related it in their works. There is no trace of such event by the seventh century (A.H.). On the other hand, the narrators themselves are skeptic regarding the validity of such story. Some researchers believe that Yahyā, who was a philosopher and the interpreter of Aristotle's works, was not contemporary with Amr Ibn Al-'As and he had lived in Alexandria. At the time Alexandria was so well known for its scientific activities.

Conclusion

Islam has found science the best means for achieving perfection and has attempted greatly to make the true essence of nature and world known to the mankind. It is necessary to mention that Islam, especially Qur'ān, considers science and education, the two important priorities of the Islamic society. We cannot find any other religion like Islam valuing and appreciating greatly sciences and scholars. As a matter of fact, by the advent of a new way of thinking, the cons and pros come to scene and encourage people to think creatively. Although prophet's Divine invitation was a call to faith, it was always accompanied with meditation and wisdom. It was not a blind and foolish invitation. An invitation to meditation can be seen in many Qur'anic verses as been mentioned before.