

ISLAMIC ROLE TOWARD THE DEVELOPMENT OF SCIENCE

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ABSTRACT

This paper is about the relationship between Islam and Muslims role towards science, and the historical development of science in the Islamic world, today, it will most focus on the relation between Islam, Muslim and science as it involves scientific interpretations of the Qur'an (and sometimes the Sunnah) to show that the sources make precise statements about the nature of the universe, biological development and other phenomena later confirmed by scientific research, thus demonstrating proof of the divine origin of the Qur'an and the Sunnah. Many believe that modern science was first developed in the Muslim world rather than in Europe and Western countries, that "all the wealth of knowledge in the world has emanated from Muslim civilization," and what people call "the scientific method," is actually "the Islamic method or the Muslim method."

Keywords: Islam, Muslims, Development, Science

INTRODUCTION

Muslim scientists and scholars have developed a spectrum of viewpoints on the place of scientific learning within the context of Islam, none of which are universally accepted. However, most scholars maintain the view that acquisition of knowledge and scientific pursuit, in general, is not in disaccord with Islamic thought and religious belief.

This paper contains the following: Qur'anic as an evidence of science, Muslim based Proof of unity of Allah, creation and evolution, Muslim scholar's contribution on some science subjects, such as Geography, Mathematics, Medicine, Study of Nature then the conclusion. The Qur'anic verses will be used together with the interpretation of these verses by some prominent scholars of exegesis of the Qur'an. Historical analysis of some famous Muslim scientists will be part of the presentation of this paper. In the end, the article will shed light on the understanding of Muslim discoveries in this World.

QUR'ANIC EVIDENCE IS ON SCIENCE SUBJECT

Muslims believe that the Qur'an had prophesied scientific theories and discoveries that have become a firm and widespread belief in the contemporary Islamic world; these prophecies are often presented as evidence of the divine origin of the Qur'an.

We have neglected nothing In the Book, and then unto their Lord, they (all) shall be gathered. (Qur'an:6:38)

As for Muslim attitude toward science, many believe that "all the wealth of knowledge in the world has emanated from Muslim civilization," and what people call "the scientific method," is actually "the Islamic method." because Allah has said that:



He has taught you what you did not know. (Qur'an:4, Verse: 113)

Theoretical physicist J. Al-Khalili believes that the modern scientific method was pioneered by Ibn Al-Haytham (known in the Western world as "Alhazen"), whose contributions he likened to those of Isaac Newton. Robert Briffault, in *The Making of Humanity*, asserts that the very existence of science, as it is understood in the modern sense, is rooted in the scientific thought and knowledge that emerged in Islamic civilizations during this time. (Wikipedia, the free encyclopedia, theoretical physics as at March. 2016)

Muslims, believe that the scriptures such as the Qur'an prophesied scientific theories or discoveries (known in Islam as Ijaz al-Qur'an). Although this issue received widespread support by some, it has been criticized by certain scientists as containing logical fallacies, being unscientific, likely to be contradicted by evolving scientific theories. (Secular Web Kiosk, p.30.)

The astrophysicist Nidhal Guessoum while being highly critical of pseudoscientific claims made about the Quran has highlighted the encouragement for sciences that the Quran provides by developing "the concept of knowledge." (Wikipedia, the free encyclopedia, Islamic attitude note 16.as at 2017-03-25). Read the following Quotation of the Qur'an, Allah the Almighty says: The Qur'an draws attention to the danger of conjecturing without evidence (And follows not that of which you have not the (certain) knowledge of...):

And follow not (O man i.e., Say not, or do not or witness not, etc.) that of which you have no knowledge (e.g. one's saying: "I have seen," while in fact, He has not seen, or "I have heard," while He has not heard). Verily! The hearing, and the sight, and the heart, of each of those you will be questioned (by Allah). (Qur'an:17, Verse: 36)

And in several different verses the Qur'an asks Muslims to require proofs (Say: Bring your proof if you are truthful...):

And they say, "None shall enter Paradise unless He is a Jew or a Christian." These are their desires Say (O Muhammad Sal-Allaahu 'Alayhi Wa Sallam), "Produce Your proof if You are truthful." (Qur'an:2, Verse: 111)

Both in matters of theological belief and in natural science; the definition of "proof" according to the Quran is "clear and strong... convincing evidence or argument." Also, such a proof cannot rely on an Argument from authority, citing the verse in the Qur'an:

And when it is said to them: "Come to what Allâh has revealed and unto the Messenger (Muhammad for the verdict of that which you have made unlawful)." they say: "Enough for us is that which we found our fathers following," even though their fathers had no knowledge whatsoever and no Guidance. (Qur'an:2, Verse: 111)

Lastly, both assertions and rejections require proof, according to verse:

O mankind! Verily, there has come to you a convincing proof (Prophet Muhammad) from Your Lord, and we sent down to you a manifest light (this Qur'an). (Qur'an: 4, Verse: 174.)



Ismail al-Faruqi and Taha Jabir Al-alwani are of the view that any reawakening of the Muslim civilization must start with the Quran; however, the biggest obstacle on this route is the "centuries old heritage of Tafseer (exegesis) and other classical disciplines" which inhibit a "universal, epistemological and systematic conception" of the Quran's message. The philosopher, Muhammad Iqbal, considered the Quran's methodology and epistemology to be empirical and rational. (Free Encyclopedia, Islamic attitude note 15-16).

It's accepted that there are around 750 verses in the Quran dealing with natural phenomena. In many of these verses the study of nature is "*encouraged and highly recommended,*" and historical Islamic scientists like Al-Biruni and Al-Battani derived their inspiration from verses of the Quran. Mohammad Hashim Kamali has stated that "scientific observation, experimental knowledge, and rationality" are the primary tools with which humanity can achieve the goals laid out for it in the Quran. (Free Encyclopedia, Islamic attitude toward science: note17)

Ziauddin Sardar built a case for Muslims having developed the foundations of modern science, by highlighting the repeated calls of the Quran to observe and reflect upon natural phenomenon. "The 'scientific method,' as it is understood today, was first developed by Muslim scientists" like Ibn al-Haytham and Al-Biruni, along with numerous other Muslim scholars.(free Encyclopedia note 18.) The physicist Abdus Salam, in his Nobel Prize banquet address, quoted a well-known verse from the Quran that stated:

Who has created the seven heavens one above another, you can see no fault in the creations of the Most Beneficent. Then look again: "Can you see any rifts?" "Then look again and yet again, your sight will return to you in a state of humiliation and worn outs. (Qur'an:67:3-4)

This in effect is the faith of all physicists: the deeper we seek, the more is our wonder excited, the more is the dazzlement of our gaze. Muslims beliefs were that there is no contradiction between Islam and the discoveries that science allows humanity to make about nature and the universe. Muslim also held the opinion that the Quran and the Islamic spirit of study and rational reflection were the source of extraordinary civilizational development. (Free Encyclopedia, Islamic attitude toward science: note.20)

The work of Ibn al-Haytham and Al-Biruni as the pioneers of empiricism who introduced the experimental approach, bring a way from Aristotle's influence, and thus giving birth to modern science. Muslim are careful to differentiate between metaphysics and physics, and advised against empirically probing certain matters on which "physics is silent and will remain so," such as the doctrine of "creation from nothing" which in their view is outside the limits of science and thus "gives way" to religious considerations.(Ibn al-Haytham and Al-Biruni nd)

Muslims believe that the Qur'an is the final revelations Allah for the guidance of humankind. Science is the pursuit of knowledge and understanding of the natural and social world following a systematic methodology based on evidence. It is a system of acquiring knowledge based on empiricism, experimentation and methodological naturalism, as well as to the organized body of knowledge human beings have gained by such research. Scientists maintain that scientific investigation needs to adhere to the scientific method, a process for

evaluating empirical knowledge that explains observable events without recourse to supernatural notions.

EVIDENCE FOR THE UNITY OF ALLAH

As with all other branches of human knowledge, science, from an Islamic standpoint, is the study of nature as stemming from Tawhid, the Islamic conception of the "Oneness" of God. In Islam, nature is not seen as something separate but as an integral part of a holistic outlook on God, humanity, the world, and the cosmos. These links imply a sacred aspect to Muslims' pursuit of scientific knowledge, as nature itself is viewed in the Qur'an as a compilation of signs pointing to the Divine. Allah says:

Verily! In the creation of the heavens and the earth, and In the alternation of night and day, and the ships which sail through the sea with that which is of use to mankind, and the water (rain) which Allah sends down from the sky and makes the earth alive therewith after its death, and the moving (living) creatures of All kinds that He has scattered therein, and In the veering of winds and clouds which are held between the sky and the earth, are indeed Ayah (proofs, evidences, signs, etc.) for people of understanding. (Qur'an: Al-Baqrah ,verse: 164.)

It was with this understanding that the pursuit of science, especially before the colonization of the Muslim world, was respected in Islamic civilizations.

Whether Islamic culture has promoted or hindered scientific advancement is disputed. Islamists such as Sayyid Qutb argue that since "Islam appointed" Men "as representatives of Allah and made them responsible for learning all the sciences, "science cannot but prosper in a society of true Muslims.(Sayyid Qutb, nd, Misrah)

Many "classical and modern [sources] agree that the Qur'an condones, even encourages the acquisition of science and scientific knowledge, and urges humans to reflect on the natural phenomena as signs of Allah's creation." Some scientific instruments produced in classical times in the Islamic world were inscribed with Qur'an citations. Many Muslims agree that doing science is an act of religious merit, even a collective duty of the Muslim community- (Free Encyclopedia, Islamic attitude toward science: note.20 53)

Others claim that traditional interpretations of Islam are not compatible with the development of science. Author Rodney Stark argues that Islam's lag behind the West in scientific advancement after (roughly) 1500 C.E was due to opposition by traditional Ulama efforts to formulate the systematic explanation of natural phenomenon with "natural laws." He claims that they believed such laws were blasphemous because they limit "Allah's freedom to act" as He wishes, a principle enshrined in the Qur'an. Allah says:

And we sent not a Messenger except with the language of his people, so that He might make (the Message) clear for them. Then Allâh misleads whom He wills and guides whom He wills. And He is the All-Mighty, the All-Wise. (Qur'an:14:4)

Abdus Salam, who won a Nobel Prize in Physics for his electroweak theory, is among those who argue that the quest for reflecting upon and studying nature is a duty upon Muslims, stating that 750 verses of the Quran (almost one-eighth of the book) exhort believers to do so. (Wikipedia, the free Encyclopedia. Avoid weasel words.as.at. April 2016)

CREATION AND EVOLUTION

Evolution is a theory of development from an earlier form, which also refers to the theoretical process by which all species develop from earlier forms of life.

The Qur'an contains many verses describing the creation of the universe; Muslims believe Allah created the heavens and earth in six separate eras:

Indeed Your Lord is Allah, Who created the heavens and the earth in six days, and Then He Istawâ (rose over) the Throne (really in a manner that suits His Majesty). He brings the night as a cover over the day, seeking it rapidly, and (He created) the sun, the moon, the stars subjected to His Command. Surely, this is the creation and Commandment. Blessed be Allah, the Lord of the 'Alamîn (mankind, jinns and all that exists)! (Qur'an: 7:45)

Then the earth was created in two eras:

Say (O Muhammad Sal-Allaahu 'Alayhi Wa Sallam): "Do you verily disbelieve In Him who created the earth in two days and you set up rivals (in worship) with him? That is the Lord of the 'Alamîn (mankind, jinns and All that exists). (Qur'an: 41:9)

And in two other eras (into a total of four) Allah furnished the creation of the earth with mountains, rivers, and fruit-gardens:

He placed therein (i.e. the earth) firm mountains from above it, and He blessed it, and measured therein its sustenance (for its dwellers) in four Days equal (i.e. All these four 'days' were equal in the length of time), for All those who ask (about its creation). (Qur'an: 41:10)

The heavens and earth formed from one mass which had to be split:

Have not those who disbelieve known that the heavens and the earth were joined as one united piece, and then we parted them? And we have made from water every living thing. Will they not then believe? (Qur'an: 21:30)

The heavens used to be smoke; Allah clarified this by his word in the Qur'an:

Then He Istawâ (rose over) towards the heaven when it was smoke and said to it and the earth: "Come both of you willingly or unwillingly." they both said: "We come, willingly. (Qur'an:41:11)

Then Allah made the heaven and form layers, one above the other:

Who has created the seven heavens one above another, you can see no fault in the creations of the Most Beneficent. Then look again: "Can you see any rifts?"(Qur'an:67:3)

The angels inhabit the seven heavens. The lowest heaven is adorned with lights'

Then He completed and finished from their creation (as) seven heavens in two days, and He made in each heaven its affair. And we adorned the nearest (lowest) heaven with lamps (stars) to be an adornment as well as to Guard (from the devils by using them as missiles against the devils). Such is the decree of Him the All-Mighty, the All-Knower. (Qur'an:41:12)

Allah then created the sun and the moon (which follow a regular path):

Allah and has made the moon a light therein, and made the sun a lamp? (Qur'an:71:16).

And He has made the sun and the moon, both constantly pursuing their courses, to be of service to you; and He has made the night and the day, to be of service to you. (Qur'an: 14:33)

Allah adorned the stars and the constellations of the Zodiac.

Verily! We have adorned the near heaven with the stars (for beauty). (Qur'an: 37:6).

And indeed, we have put the big stars in the heaven, and we beautified it for the beholders.

Muslim believed in the creation of Universe, and they used to provide proof from the following divine source in the Qur'an. Allah says:

Verily! In the creation of the heavens and the earth, and In the alternation of night and day, and the ships which sail through the sea with that which is of use to mankind, and the water (rain) which Allâh sends down from the sky and makes the earth alive therewith after its death, and the moving (living) creatures of All kinds that He has scattered therein, and In the veering of winds and clouds which are held between the sky and the earth, are indeed Ayât (proofs, evidences, signs, etc.) for people of understanding. (Qur'an:2:164)

And He it is who has created the night and the day, and the sun and the moon, each in an orbit floating. (Qur'an:21:33).

MUSLIM SCHOLARS' CONTRIBUTION TO SOME SCIENTIFIC SUBJECTS

i. Geography

In the field of Geography, Muslim scholars paid great attention to its knowledge in facts; the great Muslim concern for geography is oriented from their religion.

The Qur'an encourages people to travel throughout the earth to see Allah's sign and patterns everywhere. Islam also requires each Muslim to have at least enough knowledge of geography to know the direction of Qiblah (the position of the Ka'abah in Makkah) in order to pray five times a day.

Muslims were also used to taking long journeys to conduct trade as well as to perform the Hajj (Pilgrimage) and spread their religion. The far – Hung Islamic empire enabled scholars –

explorers to compile from the Atlantic to the Pacific. Among the most famous names in the field of geography, even in the West, are Ibn-Khaldun and Ibn Batuta, renowned for their written accounts of their extensive explorations. (Abdurrahman, Usul alTarbyah wa Tarikhiha.nd.Khartoum).

In the 1166, Al-Idris; the well-known Muslim scholar who served in Sicilian court, produced very accurate maps, including a world map with all continents; their mountains, rivers and famous cities. Al-Muqdishu was the first geographer to produce accurate maps in color. Spain was ruled by the Muslims under the banner of Islam for over 700 years. By the 1st century of the Gregorian calendar, the ruler ship of Islam had been seated in Spain and Muslims had established centers of learning with commanded respect all over the known world at that time. There were no "Dark ages" such the rest of the Europe experienced for the Muslims in Spain and those who lived there with them. In January of 1492, Muslim Spain capitulated to Catholic Rome under King Ferdinand and Queen Isabella. By July of the same year, Muslims were instrumental in helping navigator Christopher Columbus to the Caribbean South of Florida. (Abdurrahman.Umar 1986.L-Tarbiya was-Saqafah.Khartoum.).

It was moreover; with the help of Muslim navigators and their inventions that Magalia was able to traverse the Cape of Good Hope and Da Gamma and Columbus had Muslim navigators on board their ships.

ii. Mathematics

Muslim Mathematicians excelled in geometry, as can be seen in their graphic arts, and it was the great Al-Biruni (who also excelled in the fields of natural history, even geology, and mineralogy) who-established trigonometry as a distinct branch of Mathematics. Other Muslims mathematicians made significant progress in number theory. (Usul al-Tarbiyah wa Tarikhiha.p.48).

It is interesting to note that Islam so strongly urges mankind to study and explore the universe. For example, the Holy Qur'an states:

We -will show them Our Signs in the universe, and in their own selves, until it becomes manifest to them that this (the Qur'an) is the truth is it not sufficient regarding your Lord that He is a Witness over all things? (Holy Qur'an 41:53).

This invitation to explore and search made Muslims interested in astronomy, Mathematics, Chemistry, and other sciences and they had an apparent and firm understanding of the correspondences geometry, Mathematics, and Astronomy.

The Muslims invented the Sign for Zero (The word "cipher" comes from Arabic Sifr) and they organized the numbers into the decimal system - base 10. Additionally, they invented the symbol to express an unknown quantity, i.e. variables like x. (Usul al-Tarbiyah wa Tarikhih.p.49).

The first Muslim Mathematician, Al-Khawarizmi, invented the subject of algebra (al-jabr), which was further developed by others, most notably Umar Khayyam. Al-Khawarizmi's

work, in Latin translation, brought the Arabic numerals along with Mathematics to Europe, through Spain, the word "Algorithm" from his name.(Usul p.49).

Shehu Usman DanFodiyo, 1754–1817) was the founder of the Sokoto Caliphate in 1809, a religious teacher, writer and Islamic promoter. He Made a wonderful amendment for Mathematical sight of the moon initiated from Malam Dan Ishaka, (Zilli zawal) up to now the National committee for moon sighting in Nigeria are still using this discovery and they didn't have a new method that was more accurate than this one. National Secretary for the moon sight, 2014 told late Imam of Shehu DanFodiyo Mosque, he revealed this during Ramadan Tafseer. (Namely Malam Usman Secretary Moon view 2014)

iii. Medicine

The human body is a source of appreciation, as it is created by almighty Allah. How it functions, how to keep it clean and safe, how to prevent diseases from attacking it or cure those diseases have been important issues for Muslims.

Ibn Sina (d. 1037), better known to the West as Avicenna, was perhaps the greatest Physician until this era. His famous book, *Al-Qanun fi al-Tibb*, remained a standard textbook event in Europe, for over 700 years. Ibn Sina's work is still studied and built upon in the east. (*Al-Qanun fi al-Tibb*). Prophet Muhammad himself urged people to take medicines for their diseases, as people at that time were reluctant to do so. He also said:

Allah created no illness, except that He has established for it a cure, except for old age. When the antidote is applied, the patient will recover with the permission of God.(Sunan Abi Daud and Tirmidhi, bab Dawaa'nd.Misra.)

Since the religion did not forbid it, Muslim scholars used human cadavers to study anatomy and physiology and to help their students understand "how the body functions. This empirical study enabled surgery to develop very quickly. Al-Razi knew in the West as Rhazes, the- famous physicians and scientists, (d. 932) was one of the greatest physicians in the world in 'the middle ages. He- stresses empirical observations, also wrote a treatise on hygiene in hospitals. Kahaf Abul-Qasim Al-Sahabi was a very famous surgeon in the eleventh century, known in Europe for his work, concession (*Kitab al-Tafsir*). (Abdurrahman.At-tarbiyatu was-saqafah, 1986.Khartoum)

Other significant contributions were made in Pharmacology by Muslim, such as Ibn Sina's *Kitab al-Shifa* (Book of the healing), and in public health. Every major city in the Islamic world had some excellent hospitals, some of them teaching hospitals and many of them were specialized for particular diseases, including mental and emotional. The Ottomans were particularly noted for their building of hospitals and the high level of hygiene practiced in them. (Usul al-Tarbiyah wa Tarikhiha.pp.48-49)

iv. Study of Nature

As with all other branches of human knowledge, science, from an Islamic standpoint, is the study of life as stemming from Tawhid, the Islamic conception of the "Oneness" of God.(Dan fodiyo.Usul al-Deen, 18th).

Allah says:

Say (O Muhammad (Sal-Allahu 'Alayhi Wa Sallam)): He is Allâh, (the) One.Allâh-us-Samad (the Self-Sufficient master, whom All creatures need, He neither eats nor drinks).He begets not, nor was He begotten; and there is none co-equal or comparable unto him. (Holy Qur'an 112:1-4).

CONCLUSION

Seeking Knowledge is obligatory in Islam for every Muslim, Man, and woman. The Main sources of Islam, the Qur'an and the Sunnah (Prophet Muhammad's traditions), encourage Muslims to seek knowledge and be scholars since this is the best way for people to Know Allah, to appreciate His wondrous creations and be thankful for them.

Muslims have been eager to seek Knowledge, both religious and secular, and within a few years of Muhammad's Mission, a great civilization sprang up and flourished. The outcome is shown in the spread of Islamic Universities; Al-Zaytunah in Tunis and Al-Azhar in Cairo go back to more than 1,000 years and are the oldest existing Universities in the world. Indeed, they were the models for the first European Universities, such as Bologna, Heidelberg, and the Sorbonne. Even the familiar academic cap and gown originated at Al-Azhar University.

Muslims made significant advances in many different fields, such as geography, Physics, Chemistry, Mathematics, Medicine, and Pharmacology, architecture, linguistics, and astronomy. Algebra and the Arabic numerals were introduced to the world by Muslims Scholars. The astrolabe, the quadrant, and other navigational devices and maps were developed by Muslim scholars and played a major role in world progress, most notably in Europe's age of exploration.

Muslim scholars study the ancient civilizations from Greece and Rome to China and India. The works of Aristotle, Ptolemy, Lucid and others were translated into Arabic. Muslim scholars and scientist added their creative ideas, discoveries, and inventions, and finally transmitted this new knowledge to Europe, leading directly to the Renaissance. Many scientific and medical treatises, having been translated into Latin, were standard text and reference books as late as the 17th and 18th centuries.

RECOMMENDATION

It is recommended that the Muslims of today to make a scientific discovery, the Prophet Muhammad peace is upon him, is who urges the entire Muslim to seek knowledge without specification.

REFERENCE

- Abdurrahman N.M. Umar, (1986). *At-tarbiyatu was-saqafah*, (2nd.ed). Kharthoum, Sudan.
- Abdurrahman N.M. Umar, (nd). *Usul al-Tarbiyah wa Tarikhiha*. (1st.ed). Khartoum, Sudan.
- Danfodiyo S.U. (18th). *Usul al-Deen*, Sokoto Caliphate, Sokoto, Nigeria.
- Encyclopedia Americana, (nd). *Intellectual* edition vol-20 Grolier. Incorporated.
- Ibn Sina (d. 1037), *Al-Qanun fi al-Tibb*. Misrah, Cairo.
- Imam A. \$. Usman, (2014), *Zilli zawal*, by Dan Ishaka, Sokoto Caliphate, Sokoto. Nigeria.
- Muhammad, A, \$ Muhammad, M, K. (1419 H). *The Noble Qur'an*: English Translation of the meanings and commentary, King Fahd complex. Madina Munawwara. K.S.A.
- Retrieved from <http://www.secweb.org>: Secular Web Kiosk: (n.d). *The Koran Predicted the Speed of Light? Not Really.*".
- Rutheun, M, (2002). *A Fury for God*, London; NY: Granta.
- Wikipedia, the free encyclopedia: *Alhazzen*, & *Al-Biruni*, as at 23/03/2017.
- Wikipedia, the free encyclopedia: *Islamic attitude towards science*, as at 10/12/2016.

