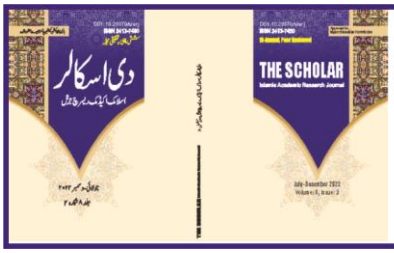

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ISLAM AND SCIENCE: A COMPREHENSIVE ANALYSIS OF THEIR CONNECTION

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ISLAM AND SCIENCE: A COMPREHENSIVE ANALYSIS OF THEIR CONNECTION

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ABSTRACT:

Misunderstanding the relationship between Islam and science often happens as a result of distorting meanings of important terms within their contexts. What kind of Islam? What category of science? These issues become important when we try to connect these two domains. This article probes into the epistemological dimensions of science with respect to Islamic perspective, looking at the ethics, societal and intellectual contributions made by Islamic scholars such as Avicenna (Ibn Sina), Al-Haytham and Al-Khwarizmi. It shows that Muslim scientists have achieved so much in earth sciences, medicine, mathematics and geometry; thereby making Islamic Intellectualism beautiful. To this end, this study adopts an exploratory survey design which is supported by content analysis. Thus, the research on Islamic Sciences will be reoriented in view of contemporary scientific discourse.

KEYWORDS: Islam Religion, Science field Relationship Contribution Researchers Muslim Civilization Epistemology Holy Quran

Introduction:

The relationship between Islam and science is multifarious, dealing with the nature of both Islam and science. These core terms are often ill-defined which leads to confusion in contemporary debates. This article seeks to

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explore how this relationship can be understood through historical as well as philosophical approaches to science within the Islamic tradition.

Islam and Science:

Determining how Islam relates to science is a difficult task due to different interpretations of science itself. In present-day parlance, the term 'Science' has come to encompass natural sciences as well as social sciences and humanities. The word "ilm" in Islamic scholarship covers religious knowledge as well as empirical sciences among others. Hence, this article adopts a wider understanding of science, seeing it as having cultural and ethical dimensions operating in an Islamic setting.

Historical Context:

Islamic civilization has contributed hugely to the development of science. Muslim scholars made breakthroughs in many areas during the Golden Age of Islam (8th-14th centuries). Religious duties such as determining prayer times, finding the direction to Mecca and formulating a lunar calendar, which helped develop astronomy, mathematics, and geography through scientific enquiry.[1]1

Islamic Contributions to Science:

Ibn Sina (980–1037)

Avicenna who is also known as Ibn Sina was a versatile scholar that changed medical and other scientific fields. His most famous publication, The Book of Medicine became a standard text for medicine in Europe for

[1] George Saliba, *Islamic Science and the Making of the European Renaissance* (Cambridge: MIT Press, 2007), 123-156

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centuries to come. It was his works that laid down the basis for modern medicine including understanding infectious diseases as well as the need for clinical trials.[2]2

Al-Haytham (965–1040)

Alhazen, also known as Al-Haytham, is often considered as the founder of contemporary optics. His research Kitab al-Manazir (Book of Optics) was ground-breaking in its empirical approach. He undermined the conventional theories on sight by suggesting that light gets into the eye rather than emitting from it. This laid down a basis for scientific method focusing on experiments and empirical evidence.[3] 3

Al-Khwarizmi (780–850)

Al-Khwarizmi, being a mathematician and an astronomer, is referred to as the father of algebra. In his book Kitab al-Mukhtasar fi Hisab al-Jabr wal-Muqabala (The Compendious Book on Calculation by Completion and Balancing), introduced concepts that are still in use today. Additionally, his work also contributed to introducing the decimal system and Arabic numerals into the western world.[4] 4

The Quran and Science: Exploring Different Fields

Although the Quran is primarily known as a spiritual guide, it also features verses that can be seen to encourage contemplation upon the environment,

[2] Gutas, *Avicenna and the Aristotelian Tradition*, 211-238.
[3] Sabra, *The Optics of Ibn al-Haytham: A Study of His Theory of Vision* (London: The Institute of Ismaili Studies, 1981), 45-67.
[4] Rashed, *Al-Khwarizmi: The Beginnings of Algebra* (New York: Springer, 2007), 77-99.

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which in turn supports science. In this regard, we look at how the Quran relates to various scientific disciplines.

1. **Astronomy:**

It is clear from many places in the Quran that study of celestial bodies and the universe are encouraged.

وَالشَّمْسُ تَجْرِي لِمُسْتَقَرٍّ لَّهَا ۚ ذَٰلِكَ تَقْدِيرُ الْعَزِيزِ الْعَلِيمِ

"And the sun runs on its fixed course for a term (appointed). That is the decree of the Almighty, the All-Knowing."(Quran 36:38)

This verse suggests the movement of stars and planets, a fact that is believed to have influenced Muslim astronomers such as Al-Battani and Al-Zarqali who significantly improved the accuracy of astrological tables and instruments.[5]

2. **Geosciences:**

Quranic allusions on formation and earth call for exploration in geology and geography.

"وَالْأَرْضَ بَعْدَ ذَٰلِكَ دَحَاهَا"

"And after that, He spread the earth." (Quran 79:30)

This verse reflects the earth geological processes, including landform spreading and shaping, according to some scholars. Al-Biruni was a

[5] Saliba, *Islamic Science and the Making of the European Renaissance*, 45-73.

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Muslim scholar who contributed to earth sciences investigating geology, geography as well as mineralogy which laid the foundation for knowledge in these fields as it is known today.[6]

3. **Biology:**

As regards biology, Quran talks about living creatures creation and diversity of life forms thus encouraging their study

"وَمِنْ كُلِّ شَيْءٍ خَلَقْنَا زَوْجَيْنِ لَعَلَّكُمْ تَذَكَّرُونَ"

> And of everything We have created pairs, that you may remember (the Grace of Allah). (Quran 51:49)

The verse refers to the creation of pairs and relates it to reproduction and genetics. Early knowledge in biology was contributed to by Muslim scholars like Al-Jahiz who wrote on animal classification and adaptation.[7]

4. **Medicine:**

Health is very much emphasized in the Quran which is in line with medicine.

"فِيهِ شِفَاءٌ لِلنَّاسِ"

"In it is healing for mankind." (Quran 16:69)

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[6] Rashed, *Al-Biruni: The Contributions of an Islamic Scientist to Earth Sciences*, in *Science in Medieval Islam* (Cambridge: Cambridge University Press, 2008), 89-112.
[7] Nasar, *The Grand Design: The Hidden Power of Mathematics* (London: Bloomsbury Publishing, 2009), 234-245.

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In some interpretations, this verse may be seen as hinting at the power of natural substances in healing and inspiring medical innovations. The Canon of Medicine by Ibn Sina was instrumental in shaping modern theories on clinical practices.[8]

5. Experimental Physics:

Physics laws, which link with the nature law, are mentioned in the Quran.

اللَّهُ الَّذِي رَفَعَ السَّمَاوَاتِ بِغَيْرِ عَمَدٍ تَرَوْنَهَا

"Allah is He who raised the heavens without any pillars that you can see." (Quran 13:2)

This verse refers to hidden forces behind the universe such as gravity that later on were studies by Al-Kindi – Muslim physicist who studied optics and light properties.[9]

6. Mathematics:

Mathematical inquiry is endorsed by the Quran in order to maintain balance.

"وَكُلُّ شَيْءٍ عِندَهُ بِمِقْدَارٍ

"And everything with Him is in due proportion." (Quran 13:8)

[8] Hoodbhoy, *Islam and Science: Religious Orthodoxy and the Battle for Rationality* (New York: New York University Press, 1991), 102-117.
[9] Berggren and Jones, *Ptolemy's Planetary Theory in the Middle Ages*, in *Islamic Astronomy and Astrology* (Dordrecht: Springer, 2000), 156-182.

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Measurement and precision are implied in this line, which are mathematical essentials. The introduction of algebra and algorithms by Al-Khwarizmi as described in the Holy texts reflects these characteristics.[10]

Quranic Encouragement for Scientific Inquiry:

Islam's devotion to acquiring knowledge can be traced back to its roots in the Quran. Indeed, the first word that was revealed of the Quran "Read" carries a direct command towards getting knowledge. Furthermore, the Quran often asks believers to consider nature and how it reveals God's signs to them in it. As a result of this thoughtful curiosity many Muslim thinkers have become scientists.

"سَنُرِيهِمْ آيَاتِنَا فِي الْآفَاقِ وَفِي أَنْفُسِهِمْ حَتَّىٰ يَتَبَيَّنَ لَهُمْ أَنَّهُ
الْحَقُّ ۗ أَوَلَمْ يَكْفِ بِرَبِّكَ أَنَّهُ عَلَىٰ كُلِّ شَيْءٍ شَهِيدٌ"

> "We will show them Our signs in the universe and in their own selves until it becomes manifest to them that this (the Quran) is the truth."(Quran 41:53)

Many have been led to perceive scientific investigation as a way of apprehending God's creation because of this verse which calls upon Muslims to observe and ponder over the cosmos.[11]

[10] Rashed, *Al-Khwarizmi: The Beginnings of Algebra*, 102-123.
[11] Quran 41:53.

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"وَيَسْأَلُونَكَ عَنِ الرُّوحِ ۖ قُلِ الرُّوحُ مِنْ أَمْرِ رَبِّي وَمَا أُوتِيتُمْ مِنَ الْعِلْمِ إِلَّا قَلِيلًا"

"And of knowledge, you (mankind) have been given only a little." (Quran 17:85)

This verse emphasizes that science is consistent with signs of Allah in nature, and that science findings are actually compatible with the Quranic teachings.[12]

Relevance:

Islamic scientific legacies are still pertinent to present-day times, particularly in the light of science-religion interface. Modern scientific development requires a re-look at earlier Muslim scholars' contribution into different fields.

The article insists on reconsidering the connection between Islam and science by calling for holistic knowledge which encompasses religious beliefs as well as exploration of scientific matters. This will enable us remember intellectual tradition from where we came and build upon Islamic contributions to global science community.

[12] Quran 17:85.

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Conclusion:

Islamic teachings have a long-standing association with science, which is evident from the Quran and Hadiths stressing that one should pursue knowledge and ponder on the natural phenomena. This period was marked by uncountable developments attained by Muslim scholars as evidence to the fact that faith in God is compatible with reason. The article thus underscores the need for rethinking this relationship to perceive science within Islamic worldview as a moral and philosophical construct rather than simply an empirical discipline. In this manner, we can encourage an all-inclusive approach to scientific investigation while acknowledging the contributions of Islamic civilization.