



Research Article

## Contibutuins of Muslims to Fundamental Research

Hafiz Salmanul Farizy

Al Jamia Al Islamiya, University in Malappuram, Kerala, India; [salmanfarizyaluva@gmail.com](mailto:salmanfarizyaluva@gmail.com) 



Copyright © 2024 by Authors, Published by **Maklumat: Journal of Da'wah and Islamic Studies**. This is an open access article under the CC BY License <https://creativecommons.org/licenses/by/4.0/>

Received : August 28, 2024  
Accepted : September 23, 2024

Revised : September 16, 2024  
Available online : October 05, 2024

**How to Cite:** Hafiz Salmanul Farizy. (2024). Contibutuins of Muslims to Fundamental Research. *Maklumat: Journal of Da'wah and Islamic Studies*, 2(3), 167-172. <https://doi.org/10.61166/maklumat.v2i3.36>

**Abstract.** The period spanning from the eighth to the thirteenth centuries, often referred to as the Islamic Golden Age, was marked by significant advancements in human knowledge attributed to Muslim scholars. The influence of this era is still evident today through various aspects of our daily lives, including the numeral system we use, terms such as algebra, algorithm, and almanac, as well as the nomenclature of celestial bodies. Unfortunately, much of this historical significance remains overlooked, as contemporary views of the Islamic world have largely diminished appreciation for its rich intellectual heritage. In contrast, this article aims to present an alternative viewpoint that diverges from the narratives commonly portrayed in 24-hour news cycles and online platforms. It is crucial to acknowledge the enduring legacy of Muslim contributions to intellectual progress, which have been recognized within Western society. In conclusion, it is crucial to recognize that the groundbreaking contributions of Muslim scholars, philosophers, and inventors during the Medieval period were profoundly influenced by the teachings of the Holy Qur'an and Islamic principles. The Holy Prophet (sa) underscored the necessity of pursuing knowledge for all Muslims, regardless of gender. Engaging with the Holy Qur'an stimulates intellectual curiosity and encourages individuals to explore and

validate its assertions. This intellectual environment motivated early Muslims to excel in various fields, including science, medicine, mathematics, astronomy, chemistry, philosophy, art, and architecture. The significant impact of Muslim scientists and inventors is evident in their pivotal role in enhancing knowledge and developing technologies that have reshaped the world and continue to be relevant today. Their scholarly work and innovations serve as foundational elements of contemporary science.

**Keywords:** Muslim contributions, Fundamental Research, Intellectual

## INTRODUCTION

A thorough examination of historical records reveals that Muslims were actively engaged in fundamental research. According to Edward McNall Burns, a scholar of world civilizations, ancient Arab Muslims excelled in the fields of astronomy, mathematics, natural science, and medicine. Despite their admiration for Aristotle, they were not hesitant to challenge the geocentric model and instead proposed a heliocentric view of the solar system. Their pursuit of knowledge was driven by a desire to glorify God and serve their religion. Figures such as Albiturgi of Seville, Jabir bin Hayyan, Ali Bin Isa Al Kahhal, Ibnunafiz, and Abu Rayhan al-Biruni made significant contributions to various scientific disciplines. For instance, Albiturgi is considered the father of modern astrology, while Jabir bin Hayyan is credited with formulating theories on metallic structure and discovering nitric acid. Similarly, Ali Bin Isa Al Kahhal is recognized as the pioneer of ophthalmology, and Ibnunafiz's work on the circulatory system predates later European discoveries. Abu Rayhan al-Biruni, known for his groundbreaking ideas, speculated about the existence of a landmass between the Atlantic and Pacific oceans in his work *Kitabu Tahdeedul Amakin*, which some interpret as a reference to the Americas.

Ibn Haytham, a prominent figure from Cairo during the 10th and 11th centuries, made significant contributions to the fields of astrology and light science. In his renowned work, *'Kitabul Manazir'*, he proposed the revolutionary concept of utilizing sunlight as a source of energy. This text, after being translated into Latin, became a widely used textbook in Europe until the mid-18th century. The book itself was heavily influenced by the research conducted by Roger Bacon (1214-1292), who extensively explored the science of light through his treatises. Bacon, in turn, acknowledged the profound impact of Arab science and philosophy on his work. Another notable figure, Abu Yusuf Kindi, is considered the father of psychophysics, as he introduced fundamental principles regarding the relationship between the mind and the body. The translation of Arabic texts into European languages spanned over two centuries, with individuals such as Pope Sanuist II dedicating themselves to studying Arabic and translating these valuable collections of knowledge into Latin and other languages. Notably, figures like Michaels Hart also played a significant role in this translation process. During this period, Europeans regarded astronomy, mathematics, chemistry, medicine, and natural science as essential disciplines. However, it is worth mentioning that Roger Bacon faced a ten-year imprisonment in Paris due to his writings, which were heavily influenced by his study of Arabic.

## DISCUSSION

Philip K.T has recorded in his work 'The History of Arabs' that Muslims have acquired all the branches of knowledge developed by the Greeks over the centuries, crossing all the boundaries of philosophical theories within a few decades. Moreover, while religious leaders in Europe had confined scientific researchers to a rectangular earth, Caliph Al-Ma'mun (reigned 813-833) recognized the earth as a sphere and led scientists to measure its size. The famous al-Khwarizmi is also believed to have participated in that research in the plains of Sinjar, north of the Euphrates. They found the circumference of the earth to be 2,0400 miles. A century after the Arabs proved the sphericity of the earth, even a public discussion about it began in Christian Europe. Europe was far behind when the Muslims were influential in all branches of knowledge. Science encyclopaedist Jort Sartan says: 'Let's get to Islam. It is an experience like passing from darkness into sunlight, from a drowsy world to a vibrant world'.

Al-Khwarizmi, a distorted version of the name Al-Khwarizmi, is renowned for his contributions to the field of mathematics, particularly in the development of algorithms. Abu Kamil, a mathematician from Egypt, further expanded upon Khwarizmi's algebraic concepts. His influential book, titled 'Algebra', gained significant popularity and introduced innovative ideas. It is important to highlight the exceptional theoretical quality of Abu Kamil's work. He is among the Muslim mathematicians who extensively explored infinite numbers and conducted advanced theoretical studies based on them. Additionally, Muslims, starting from the Hellenistic period, engaged in the study of proportion theory. They critically evaluated existing theories and subsequently formulated their own novel theory. This intellectual pursuit led to the expansion of the concept of numbers, encompassing monetary values as well.

The theoretical breakthrough that took place in Europe centuries later, specifically by the end of the 16th century, was highlighted by George Sartre in his book 'History of Science'. He categorized significant scientific advancements into 50-year periods, linking each period to a scientific genius. Plato's era was from 500 to 450 BC, followed by Aristotle, Euclid, and Archimedes in AD 750 to 1100. This period also saw the contributions of Jabir, Khwarizmi, Razi, Mas'udi, Abul Wafa, AlbiRuni, and Umar Khayyam. Over the course of 350 years, chemists, algebraists, and physicists from Arab, Turkish, Afghan, made an appearance on Sartan's list. Leading up to that time, Westerners had only played a minor role in the scientific achievements of Ibn Rushd, Nasiruddin Tusi, and Ibn Nafis.

Begovich cites the mathematician Chas Les, who emphasizes the significance of Ibn Haitham's research in the field of light. Les asserts that these researches served as the foundation for the advancements made in the science of light. By dismissing superstitious practices such as bird calls, omens, durmantra, uruks, charms, astrology, horoscopes, and fortune-telling, Muslims were able to focus on developing genuine sciences, including astrology. The Islamic faith instructs Muslims to pray towards the Kaaba (as stated in the Qur'an 2:144) and to possess knowledge of direction, known as 'il mul mikhat'. This pursuit of knowledge also led to the development of algebraic

functions and other mathematical techniques. Additionally, understanding the prayer times for individuals residing in different geographical regions posed an astrologically related challenge. Furthermore, it was essential to be aware of the moon's phases in order to determine the month accurately and observe fasts and festivals accordingly. All of these factors contributed positively to the growth and advancement of astrology.

The Time Life editors highlight the significance of Muslim-built astrolabes in determining the direction, latitude, and approximate time to Mecca. However, what was the situation in Christendom? As per Bertrand Russell, conservatives in Christendom rejected Galileo's telescope and its discovery of Jupiter's moons, fearing it would lead to error. The Protestant scholar Jonklotz concurs, stating that Luther and Melancthon condemned Copernicus' argument, with Calvin supporting their stance.

The disparity in scientific methodologies between Islamic culture and the Christian West is evident. Notably, figures like Copernicus and Galileo faced persecution for challenging the prevailing understanding of the solar system from a secular perspective, which contradicted mediaeval Christian beliefs. In contrast, Islam did not adhere to an official approach. Islamic knowledge continuously progresses, as the Holy Qur'an encourages mankind to explore the enigmas of nature. It asserts that nature is subservient to humans and urges them to express gratitude. In essence, the Qur'an liberates individuals from physical barriers and provides guidance for scientific advancement.

Furthermore, in an article for the New York Times, science journalist Dennis Overbye highlights the contributions of Al-Tusi, a prominent Muslim polymath known for his extensive writings, which encompass around two hundred treatises across various fields such as architecture, astronomy, biology, chemistry, and theology. Overbye states, "Al-Tusi produced numerous significant works in astronomy, ethics, mathematics, and philosophy, establishing him as one of the foremost intellectuals of his time... During the Middle Ages, Muslim societies emerged as the epicentre of scientific advancement. For five centuries, the Arabic language became emblematic of knowledge and science, marking a golden age that laid the groundwork for the development of modern universities..."

Alasdair Soussi, a freelance journalist, observes that the contributions of the Muslim world are frequently overlooked in scientific discourse. He notes that while Harvey's groundbreaking identification of systemic circulation is unparalleled, it is essential to recognize Al-Nafis, who accurately articulated the concept of pulmonary circulation in the 13th century, as a significant figure in the history of science.

Jim al-Khalili, a professor of Physics and Public Engagement in Science at the University of Surrey, asserts in his book *Pathfinders – The Golden Age of Arabic Science* that the scientific revolution of the sixteenth and seventeenth centuries in Europe was fundamentally reliant on the numerous advancements achieved in the medieval Islamic world across various disciplines, including philosophy, medicine, mathematics, chemistry, and physics.

During a meeting in 2006, Carly Fiorina, who serves as both a historian and the chief executive officer of Hewlett-Packard Corporation, highlighted the extraordinary

accomplishments of a historical civilization. She noted, "There was once a civilization that was the greatest in the world...Its architects designed buildings that defied gravity. Its mathematicians created the algebra and algorithms that would enable the building of computers, and the creation of encryptions. Its doctors examined the human body, and found new cures for disease. Its astronomers looked into the heavens, named the stars, and paved the way for space travel and exploration...the civilization I'm talking about was the Islamic world from the year 800 to 1600...although we are often unaware of our indebtedness to this other civilization, its gifts are very much part of our heritage. The technology industry would not exist without the contributions of Arab mathematicians."

The exploration of the profound legacy of Islamic scholarship serves not only to encourage Muslims to engage in scientific professions but also instills a sense of pride in their contributions. Contemporary Muslim scientists, such as Nobel laureates Ahmed Zewail, Aziz Sancar, and Mohammad Abdus Salam, exemplify this enduring tradition. Additionally, Atta-ur-Rahman, a chemist hailing from my native city of Karachi, is recognized as a Fellow of the Royal Society and was the inaugural Muslim recipient of the UNESCO Science Prize in 1999.

Regrettably, there is a growing trend of Islamophobia in Europe, and initiatives aimed at promoting equality, diversity, and inclusion frequently neglect minority faith communities. Efforts focused on racial equality often fail to consider the unique challenges faced by racialized religious minorities. The pronounced secularization within Western academic institutions, particularly in the natural sciences, inadvertently marginalizes discussions surrounding access, equality, and the inclusion of religious personnel. This issue is exacerbated for members of underrepresented faith groups, who often find themselves lacking adequate representation at various levels and require workplace accommodations to practice their beliefs.

## CONCLUSION

In conclusion, it is crucial to recognize that the groundbreaking contributions of Muslim scholars, philosophers, and inventors during the Medieval period were profoundly influenced by the teachings of the Holy Qur'an and Islamic principles. The Holy Prophet (sa) underscored the necessity of pursuing knowledge for all Muslims, regardless of gender. Engaging with the Holy Qur'an stimulates intellectual curiosity and encourages individuals to explore and validate its assertions. This intellectual environment motivated early Muslims to excel in various fields, including science, medicine, mathematics, astronomy, chemistry, philosophy, art, and architecture. The significant impact of Muslim scientists and inventors is evident in their pivotal role in enhancing knowledge and developing technologies that have reshaped the world and continue to be relevant today. Their scholarly work and innovations serve as foundational elements of contemporary science.

## REFERENCES

- Edward Burns, *Western Civilization*, 1963, P.264  
G. Anawati, *Science in P.w Holtetal*, P.741  
Will Durant, *The Age of faith*, NY. P. 33  
George Sartun, *History of Science*, Vo.1 Cited in shiham, *African Civilization*  
Burnad Russell, *Impact of Science on Society* London, P. 9  
Philip K. Hitti, *History of the Arabs*, P.315  
M.N Roy, *Reason, Romanticism and Revolution* P.68  
H.G. Wells, *The Outlines of History*, London 1934, P.926  
Albert Hourani, *A History of the Arab Peoples*, Warner Books: N.Y. 1991, P. 187  
House of wisdom – (P. 128)  
The Crusades Through Arab Eyes- 1954 (P. 29)  
C.S Lewis, *Miracles*, Geofry Bles: London, 1947, P.26  
Jean-Paul Sartre, *Existentialism and Humanism*, London, 1969, P.13  
Jacques Monad, 'Chance and Necessity' N. York, 2016