*American Journal of Sciences and Engineering Research*

*E-ISSN -2348 – 703X, Volume 6, Issue 3, 2023*

# Factors of Scientific Rise and Fall of the Islamic Empire

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***Abstract:*** *The history of mathematics as one of the trends in the field of mathematics has special importance and in most of the important universities of the world, this trend in the field of mathematics is taught and researched. In teaching the history of mathematics and mathematics books, special attention is paid to the scientific works of the four Greek-Indian-Islamic and European civilizations, although the history of mathematics in China and East Asia is a special category due to its ancient civilization. In this article, while examining mathematics in the Islamic empire, the factors of the scientific rise and fall of the Islamic empire, which can include mathematics, have been studied. In this article, according to my own research and other sources mentioned s, It is believed the factors of scientific rise and fall in the Islamic Empire.*

***Keyword:*** *history of mathematics - Islamic Empire - Iranian mathematics thinkers*

**1-The arrival of Islam in vast Iran**

With the arrival of Islam in the empire of Iran and the rich culture and civilization of the Iranians before Islam and the slogan of rationality, science and knowledge, Islam developed rapidly in the empire of Iran and they converted to Islam, the background was ready, Iranian scientists with the translation movement, they started to translate the books and manuscripts of Greeks and Indians, and of course, with efficient governance and management and methodical teaching in the elementary and high school period and day by day on the expanse of the Islamic empire became more and more complex and galactic. It emerged from the thinkers of the Islamic period in various sciences.

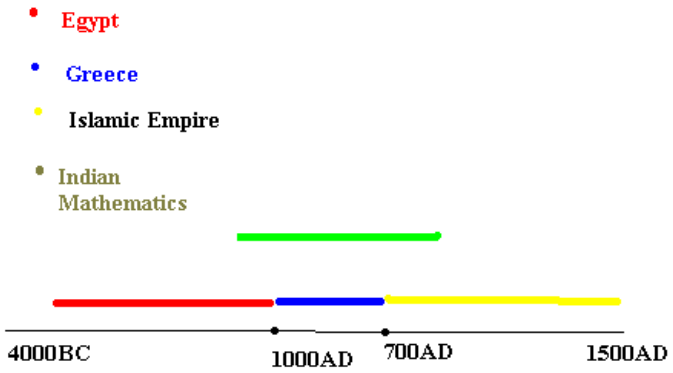


Figure1: Time line of different civilizations

 Received-22-04-2023, Accepted- 02-05-2023

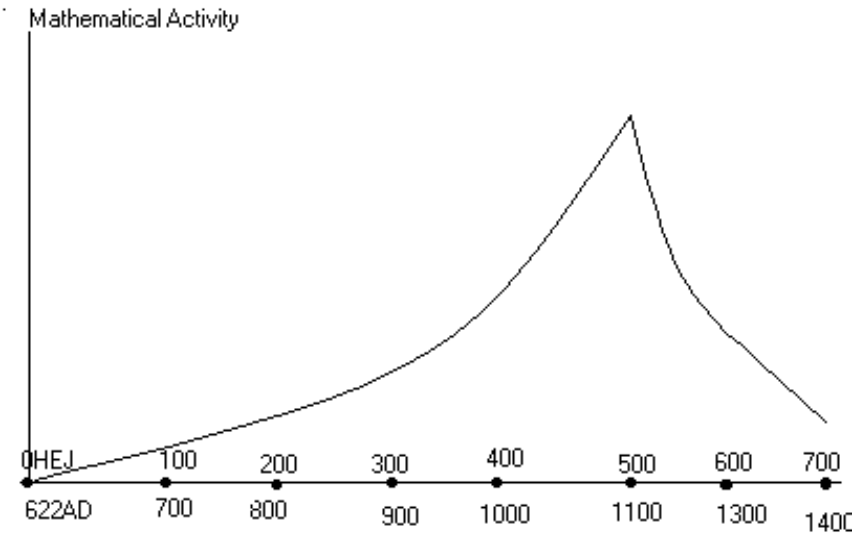


Figure2: Chart of activities of Islamic Iranian scholars over time

According to the manuscripts found in Iran[1]
The production of mathematics in the period of the Islamic Empire

In other words, these factors of the development of science are the same in all civilizations 1- Governance with rationality – systematic education during elementary and high school.

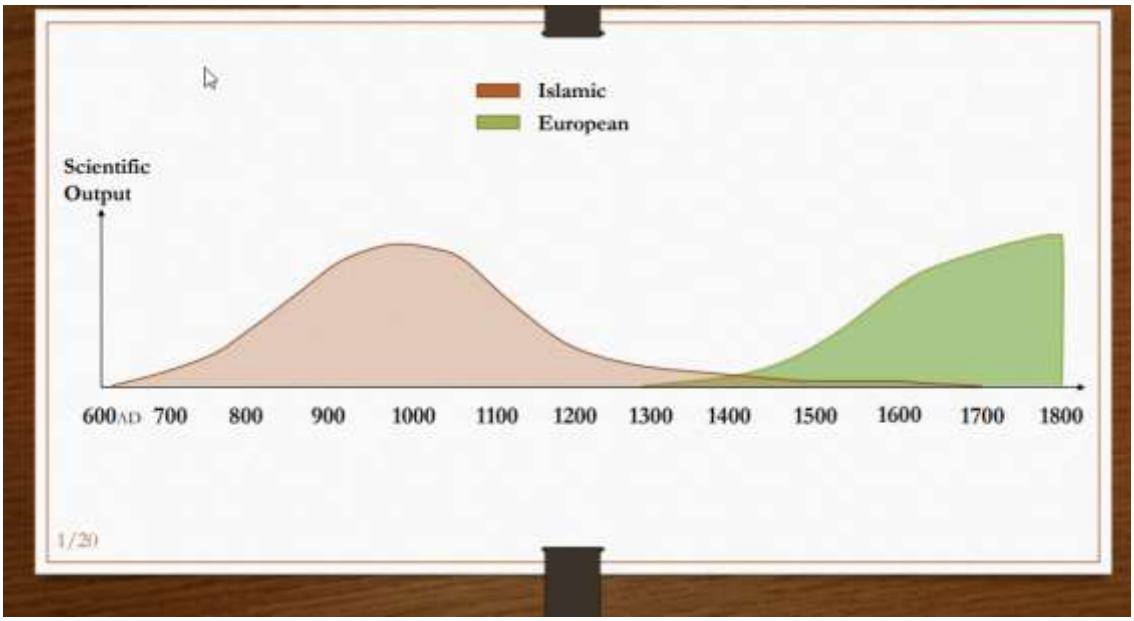


Figure3: Graph of science activity time line in Islamic empire in [2]

One of the differences of the Islamic Empire compared to other civilizations is the number of thinkers and manuscripts, which compared to other civilizations, despite the wars and looting of other nations, such as the Mongol attack on Iran, the number of manuscripts that are in hand with the civilization, the common factor of the rise of science in different civilizations is the value and respect for thinkers, which caused the production of a large number of global works of the thinkers of the Islamic Empire, which according to the Europeans,

without using the works of Islamic thinkers, Europe would never have achieved this much scientific progress.[3]

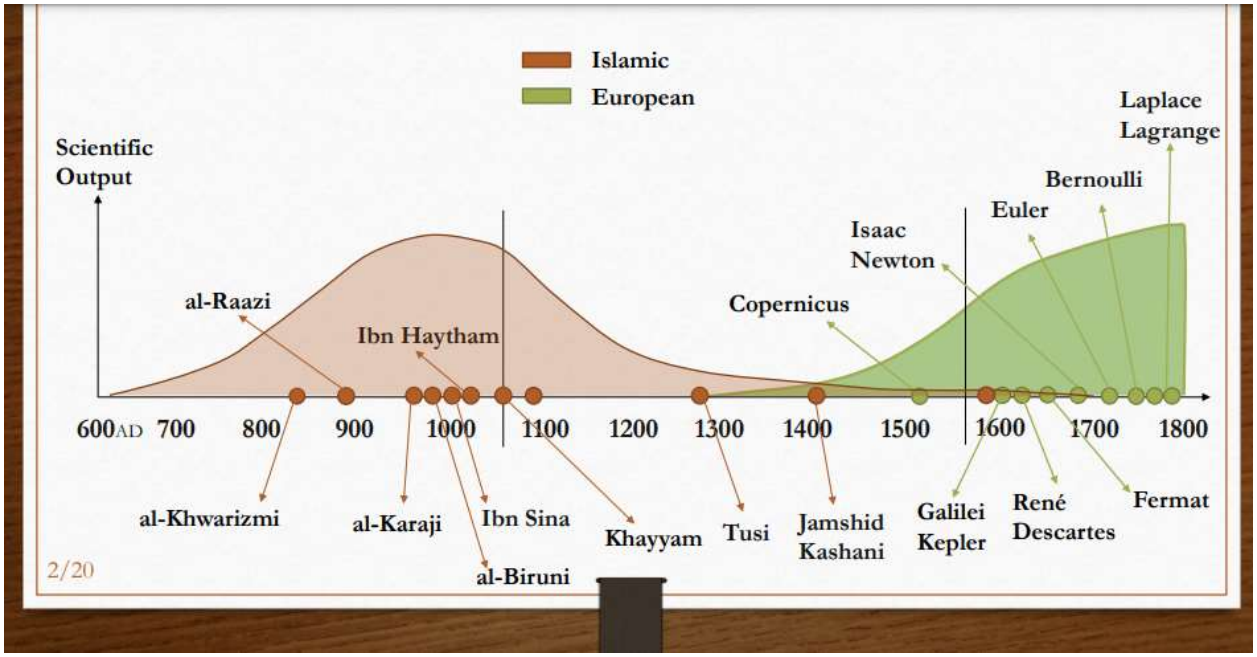


Figure4: Some important Islamic mathematicians of Islamic empire with time line

Many of the manuscripts of Islamic thinkers currently have a unique freshness and scientific appeal, among which we can mention the manuscripts of al-Kandi, one of the mathematicians of the Islamic Empire period. which is unique in cryptography.[4]

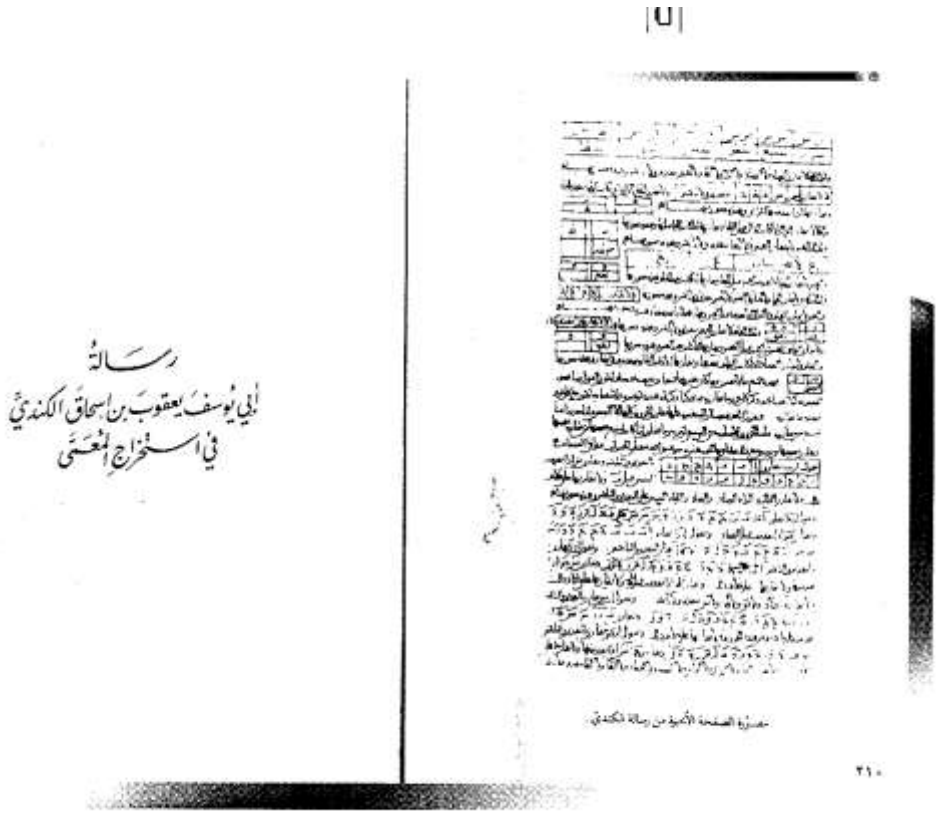


Figure5: Copy of article of al-kandi about cryptology

Abu Yusuf Yaqub bin Ishaq bin Al-Sabbah bin Imran bin Ismail bin Muhammad bin Ash'ath bin Qays al-Kindi Makni to Abul al-Hakma (801-873 AD, 185-256 AH) was a translator, mathematician, musician, philosopher, and member of Dar al-Hikma. He wrote a book on the use of numbers. In 830 AD, Al-Hindi had a great role in transferring Indian numerals to Islamic civilization and then to Europe. He is the first Islamic sage who had access to the works of Greek sages and translated Aristotle's works, interpreted and expressed them.[5]
Now, by examining the social classes and the relationships between them, we can understand the rise and fall of the Islamic empire.[6]

## 2-Important social classes

**1-** political (rulers - ministers - caliph - military commanders - court)
**2-** Scholars (spirituality - jurisprudents - narrators of hadith - scholars - oral sciences -...)
**3-** Intellectuals and thinkers (scientists-philosophers-people of intellectual sciences -...)

Economic (producers - farmers - merchants - industrialists)

The occupations of religious scholars in the 7th-11th centuries AD

| | |
|---|---|
| Merchants or artisans in the textile industry | 22% |
| Processing or dealing with food | 13% |
| Miscellaneous merchants | 11% |
| Selling or making leather, metals, wood, or clay | 9% |
| Ornaments (e.g., jewelers) and/or perfumes | 8% |
| Bankers, money-changers | 5% |
| Booksellers, book copiers, and paper sellers | 4.5% |
| Teachers and investigators | 11% |
| **Government officials** | **8.5%** |
| Physicians, lawyers, hair dresser, mule drivers, … | 8% |

Source: COHEN, 1970

Figure6: Job of religious scholar in about 500 year in golden age of Islamic empire [7]

From the obtained information, it is clear that the socio-political economic relations of the rulers and the influential class are very important in the scientific development. The diagram below shows the role of each index class on the other class

Social relations in the 7th-11th centuries AD

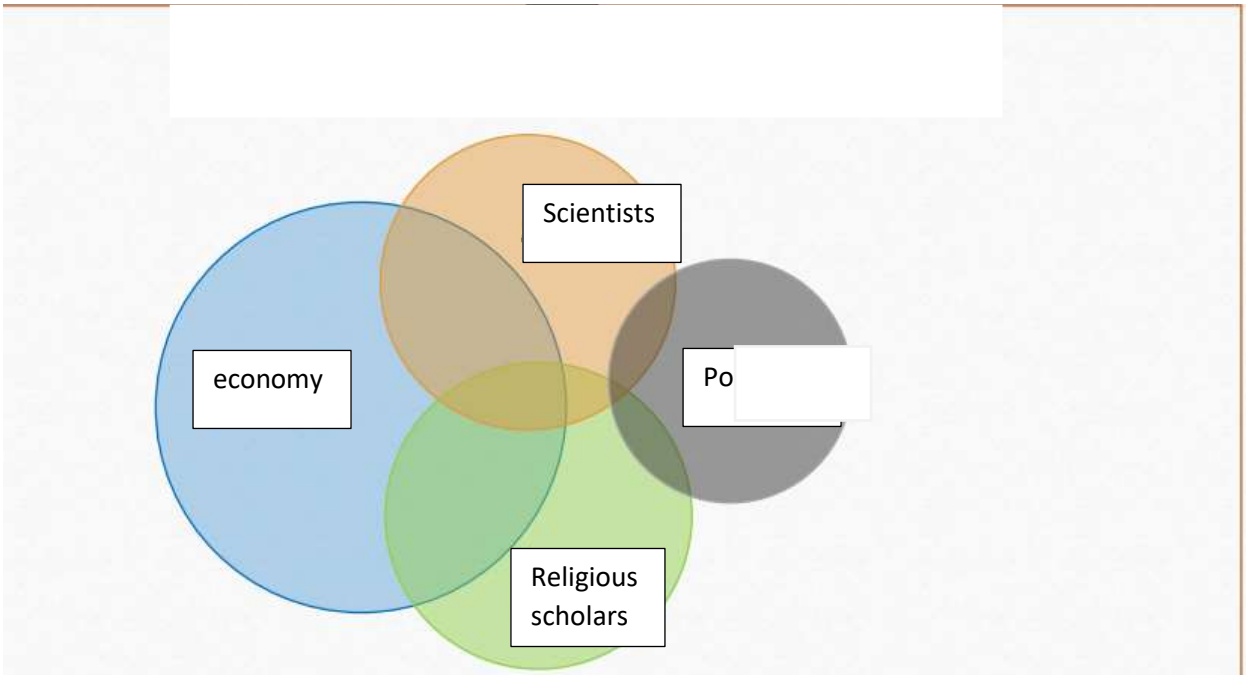


Figure7: Effect of each social community to each other on 700-1100-AD

### 3-The events of the 11th century AD

**Sector tax system**

The tax system based on the confiscation and allocation of land revenue is very ineffective and destructive to agriculture, the cause of the destruction of the economic order based on agriculture and agricultural trade, and the weakening of the independent economic class.

Economic weakening has a very special effect on endowment of property for scientific affairs.

### 4-Important events of the 11th century AD

Khwaja Nizam al-Mulk Tusi (408-485) was the minister of two of the Seljuk kings Alb Arslan and Malik Shah I in Iran, among the actions of Khwaja include:

1- Sector tax system
2- Establishment of military schools
3- The production a system to produce agent of the government and theorizing the unity of the clergy and the government, removing the philosophy and beliefs of Mu'tazila (rationalism) from the educational program in favor of text-oriented interpretations of religion .

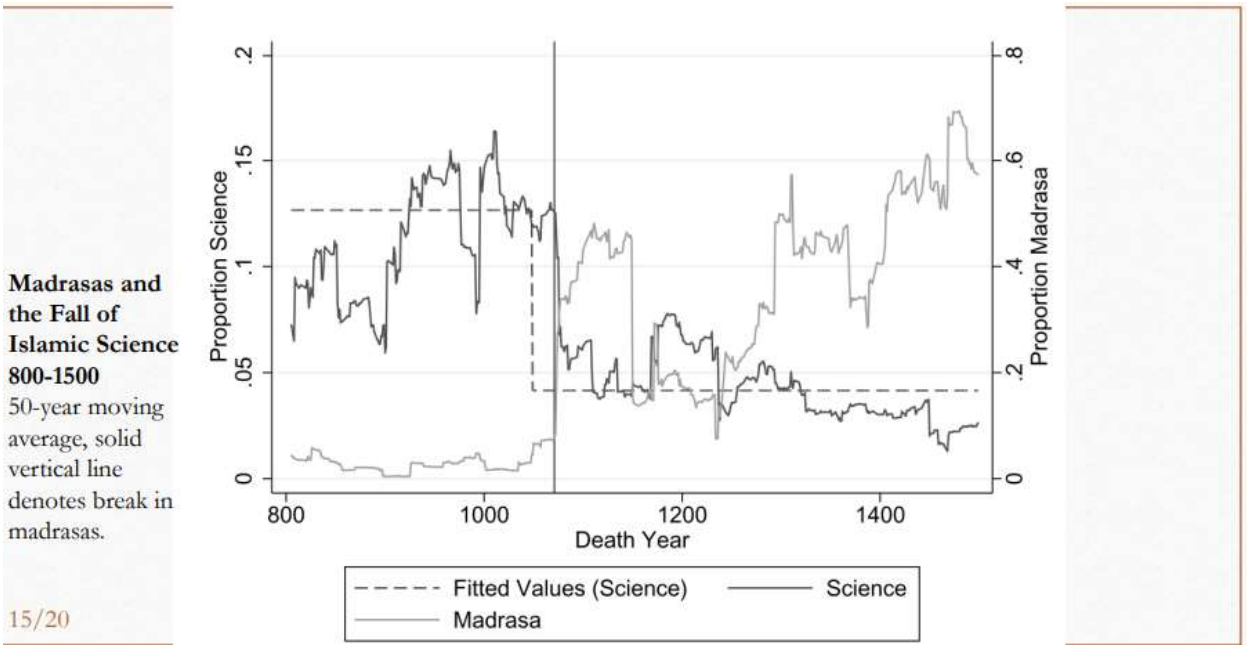


Figure8: Effect of schools on rise and fall of Islamic empire

### 5-Other events of the second half of the 11th century[8]

1-The feudal tax system

2-Mongol and Crusader attack

3-Strengthening the relation of the military and scholars. People were attracted to the military elite and mystic and Sufi scholars.[8]

### 6-Social relations after the 11th century AD

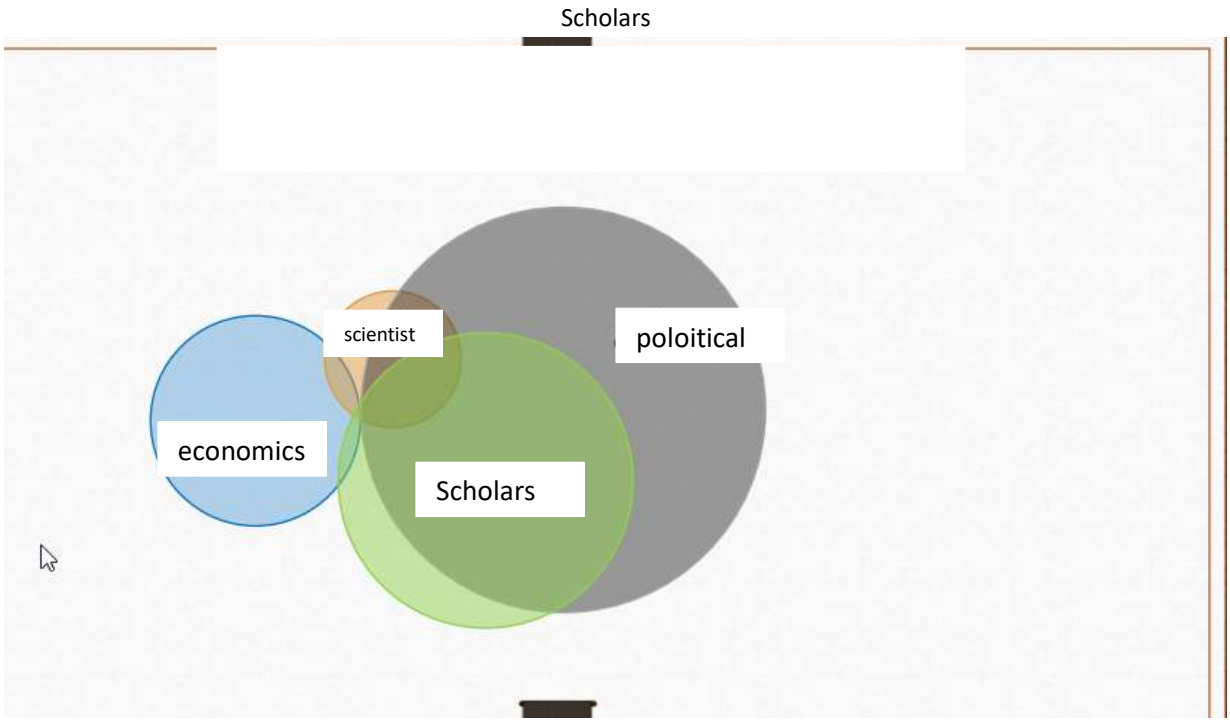


Figure9: Effect of each social community to each other after 700-1100-AD

During the years I was researching manuscripts, I was always looking for an answer to the question why after the 11th century AD we don't see any scientific works by Islamic thinkers, which this article tries to answer.[9] However, other questions still remain. It is obvious why the history of mathematics course that is taught in the important universities of the world is not taught in the mathematics faculties of the important Iranian universities.[10]

## Conclusion

The feudal tax system caused the independent economic class to be swallowed up by the government. - Military schools caused the intellectual and independent scholar class to disappear and education became the monopoly of the government. An education in which there was no mention of philosophy and natural sciences. - The unity of the religious class and the government caused the jurists and independent scholars to go to the sidelines and the rationalist ideas of the Mu'tazila and the religious and non-religious minorities were banned. This unity was not part of the essence of Islam and was a historical construction.

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