

Natural Sciences in The Era of ‘Decline’: A Study in The History of Jāmi’ Al- Azhar

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Abstract

This paper aims to critically read the decline narrative as a paradigm, especially in reading the development of natural sciences in Islamic history. The 16th century to the 19th century AD is often considered a period of decline of Islamic civilization, while at the same time, this period is also considered a time of the European Renaissance and its modern era, including in terms of natural science. This paper argues that efforts to periodize Islamic history are very biased by the West's interest to hegemonize the Islamic world. Using a historical approach, library research as a data source perspective, and qualitative research as an analytical perspective with Jami' al-Azhar as a case study, this study found that first: the decline narrative is closely related to modern Western theory as the end of human history. Second: Egyptian Modernists use the narrative of decline to attack al-Azhar and some of its scholars who are considered conservative, even though they are very supportive of progress. Third: the decline narrative built by modernists against al-Azhar and its scholars for not paying attention to the natural sciences is a distortion; as evidence, I found many manuscripts written by al-Azhar scholars or were studied at Jāmi’ al-Azhar related to natural sciences such as medic, mathematics, astronomy, geometry from the 16th century to the 19th century AD, before modernism came to Egypt.

Keywords: Natural Sciences; Decline; Islamic History; Al- Azhar

Introduction

In the 18th century, Ottoman Turkey experienced a stagnant phase, although under its rule, Egypt maintained its cultural and political identity. The weak control of the Ottoman, and the rivalry of several Mamluk factions made a multidimensional crisis occur in Egypt. Seeing an opportunity in the midst of adversity, Napoleon Bonaparte invaded Egypt in 1798.¹ It is no secret that the colonial ambitions of the West, which began with the invasion, were not just aimed at extracting natural resources, opening up trading lands, or employing cheap labor but at keeping the colonies under their continuous influence. That is why Napoleon came up with the printing press,² which is nothing but to spread Western thought, to spread modernism.

Modernism, an extension of the renaissance, is characterized by the glorification of science. This is an implication of the trauma of European society due to the church, which at that time monopolized all sciences, including that related to nature. In the history of Islamic society, there has been no conflict between religion and science. On the contrary, it is common to find the figure of ulama' who are also scientists. So, when Napoleon came to Egypt with experts in various branches of science under the pretext of enlightening those he considered bad Muslims,³ this was like teaching birds to fly.

What Napoleon did was build a narrative of decline in order to perpetuate his grip on power. Furthermore, in many ways, the effort was successful because after he departed

¹ Philip K. Hitti, *History of The Arabs*, 10 ed. (London: Higher and Further Education Division MACMILLAN PUBLISHERS LTD, 1984). P. 721.

² Muhammad Imarah, *Al- Daulah al- Islāmiyyah baina al- Ilmāniyyah wa al- Sulthah al- Dīniyyah*, 1 ed. (Cairo: Dar al- Syuruq, 1988). P. 166.

³ K. Hitti, *History of The Arabs*.

from Egypt, Muhammad Ali, whom the Ottoman Turks mandated as governor of Egypt in 1805 AD, carried out massive modernization, including in the field of education. His efforts were realized by sending Egyptian students to study in Italy, France, England, and Austria between 1823-1844, accounting for around 311 students sent by Muhammad Ali to study in Europe.⁴ It aspired to train an educator who could later utilize Western Sciences in Egypt.

Finally, the effort to modernize education was considered to be hindered by al-Azhar. In the 1870s, the acceptance of the European model of education was characterized by a parody of clerical conservatism as an antithesis to the progress promoted by the modernists.⁵ Thus, similar to what Napoleon did, figures known as reformers, such as Rifā'ah Rafī' al- Tahthāwī, Jamāludīn al- Afghānī, and Muhammad Abduh played a role in constructing the narrative of decline in portraying al- Azhar and its scholars as conservative, one of the accusations being that they did not pay attention to the natural sciences to be taught at al- Azhar.

This narrative has a rebuttal. It is noted that some figures who call themselves *muhāfizun*, protectors, or conservatives object to modernists who want to reform education in al-Azhar. Indeed, the criticism does not at all describe al-Azhar as anti-progress, especially about the teaching of natural sciences. Researcher sees that the rejection is more about the concerns of conservatives on technical issues and problems rather than ideological issues. The issuance of the Science Fatwa in 1888 by Shaykh al-Azhar al- Inābī and mufti Muhammad al- Bannā⁶ is clear evidence that al-Azhar is not anti-science.

Furthermore, it would be very beneficial if the manuscripts available in the al-Azhar library that is more than a millennium old,⁷ totaling more than fifteen thousand manuscripts,⁸ were reviewed, particularly in the 18th century, to serve as a counter-narrative to the 19th century narrative of decline in the field of science. As it turns out, researchers discovered that there are a number of al-Azhar scholars who are interested in natural sciences such as medicine, algebra, engineering, and astronomy, which can be clear evidence that the narrative of decline, particularly in the field of natural science, is not entirely true.

Methods

This research is a historical approach because it examines the history of natural science. As for the type of research, this research is qualitative; as stated by Straus and Corbin, qualitative research can be used to examine history.⁹ The method used in this research is a literature review, which is descriptive-analytical in nature, namely describing, explaining, and analyzing detailed data and information obtained by the author. The author collects data from primary sources in the form of manuscripts related to natural sciences in the Jami' al-Azhar library and has been electronically documented by the Tsāqifāt al- Safā al- Ilmiyyah Institute, whose mission is to preserve manuscripts.¹⁰

⁴ Fauzan dan Suwito, *Sejarah Sosial Pendidikan Islam* (Jakarta: Kencana, 2005). p. 165.

⁵ Indira Falk Gesink, *Islamic Reform and Conservatism: Al-Azhar and the Evolution of Modern Sunni Islam* (I.B. Tauris, 2010), p.59, <https://doi.org/10.5040/9780755623891>.

⁶ Gesink. p. 117

⁷ Tsāqifāt al- Safā al- Ilmiyyah, "Electronic Library of Jāmi' Al- Azhar" (Masyikhah al- Azhar: Maktabah Syāmilah, 2013). P. 10

⁸ Tsāqifāt al- Safā al- Ilmiyyah. P.12

⁹ Anseirn Straus dan Juliet Corbin, *Basics of qualitative research: Grounded theory procedures and techniques*. (Newbury Park: CA: Sage, 1995).

¹⁰ Tsāqifāt al- Safā al- Ilmiyyah, "Electronic Library of Jāmi' Al- Azhar." P. 13

As for secondary data sources, the author collects them from journals, books, and other scientific studies.

Furthermore, in this research the author uses the theory of cyclical movement of history, which has been used by many scholars such as Ibn Khaldūn, who theorizes that every culture or civilization continues to exist in a circular movement that rises and falls, resulting in various circular movements around the earth. He does not see humanity moving through stages of growth or decline in a coherent and sequential manner,¹¹ which strengthens the author's argument about the existence of a golden age between Islamic and European civilizations at one time in the 16th-19th centuries, which also strengthens the author's argument about the advancement of natural sciences, even before Egypt met modernism in the 19th century.

Results

Here the author will summarize some of the findings, which will be further elaborated and interpreted in the discussion section. First, that the root of the narrative of decline built by the West from the 16th-19th centuries AD in viewing natural science in the Muslim world, and then by modernists in Egypt to attack al-Azhar is basically an implication both directly and indirectly from the way of understanding the pattern of historical movement, which then also affects the way of dividing history into its periods. The theory used in understanding the motion of history is the theory of straight motion or cyclical motion.

According to the proponents of the linear pattern, history is constantly moving forward, leaving the previous stage to a higher stage.¹² This historical view is much influenced by the spirit of the European enlightenment period, which greatly glorifies progress; as a result, through this view comes the conclusion that the historical movement of mankind, all in one direction from beginning to end, which in the end when moving forward requires a setback to be left behind, and requires someone to lead, this is where the historical periodization bias occurs, because those who claim to be progressive, must claim others to be in decline.

So here the author finds, instead of historical progress represented by one historical subject, what happened was a parallel golden age between Islamic and European civilizations between the 16th and 19th centuries. This argument has been put forward by many historians, from Marshall G.S Hodgson, Khaled el- Rouayheb, Ahmad Dallal, Peter Adamson,¹³ to Mahmūd Syākir¹⁴ who doubt the narrative of Islamic intellectual decline, but the author more specifically took al- Azhar as a case study, by refuting allegations of decline in the field of natural science in particular, through the manuscripts that the author found.

As for the efforts to modernize Egypt by Muhammad Alī Pasha, which has invited debates, especially in the field of education, because, in many ways, it is considered to have undermined the Islamic sciences tradition that has been maintained by al-Azhar for centuries as one of the oldest Islamic educational institutions in the Muslim world, basically, the author sees what Egyptian modernist figures such as Rifā'ah al- Tahthawī, Jamaluddīn al- Afghānī, and Muhammad Abduh accuse al- Azhar of not paying attention

¹¹ Recep Şentürk, "The decline of the decline paradigm: Revisiting the periodisation of Islamic history. Niedergangsthesen auf dem Prüfstand / Narratives of Decline Revisited içinde" (Berlin: Peter Lang, 2020), 213-217 ss, <https://doi.org/10.3726/b 17739>.

¹² Mohammad Maiwan, "Kosmologi Sejarah dalam Filsafat Sejarah: Aliran, Teori, dan Perkembangan" 3, no. 2 (2013). P 167.

¹³ Şentürk, "The decline of the decline paradigm: Revisiting the periodisation of Islamic history. Niedergangsthesen auf dem Prüfstand / Narratives of Decline Revisited içinde." P. 229 -235

¹⁴ Muhammad Mahmūd Syākir, *Risālah ilā Tsaqāfātīnā* (Kairo: Maktabah Usrah, 1977). P. 80- 82

to natural science¹⁵ is not factual, in fact, they only build a narrative of decline through emotional comments, which are contrary to existing historical facts. And their support for the modernization of education, in the end, indirectly confirms the dominance of Eurocentric knowledge, not least in terms of natural sciences.

And finally the author finds, that basically those who are accused by modernists as conservative, are not at all against the teaching of natural science in al- Azhar. The objections represented by central figures of al- Azhar such as Muhammad al- Hifnī, Hasan Husni al- Tuwayranī, Muhammad al- Inābī a Grand Shaykh of al- Azhar, and Muhammad al- Bannā, mufti in Egypt at the time,¹⁶ illustrate that their objections to natural science are more technical, rather than ideological. In addition, the manuscripts in the Jāmi' al- Azhar library on natural science are important evidence to follow up on the accusations of the decline of the Islamic intellectual world.

Discussion

The neutrality of science has been challenged by many scholars; science cannot be freed from its constituent values. Hence Seyyed Hossein Nasr's concern about modern secular science, which considers reality beyond the empirical as myth and superstition.¹⁷ Furthermore, Naquib al- Attas, views that the science compiled by the West has caused chaos, for the first time in history animals, plants and metals are in the biggest problem. Likewise, in the science of history, citing LeGoff, Recep Senturk describes the development of trends in historical writing that claim that the determination of certain periods in history is never a neutral activity,¹⁸ especially regarding the determination of periods of decline, the West has a clear interest bias against the Islamic world. In this chapter, the author will first explain the theoretical roots of the decline narrative, then proceed to explain the problems of the decline narrative in reading history, as well as the bias of interests in it.

The Narrative of Decline: Theory, Bias, and Evaluation

The narrative of decline is actually an implication of the theory of historical movement patterns, which in turn has implications for the perspective of dividing history into several periods. There are at least two views related to the pattern of historical movement, namely the theory of historical movement that is straight and the theory of historical movement that is cyclical. According to proponents of the straight-line pattern, or what is commonly called linear, history continues to move forward, leaving the previous stage, to a higher stage. The keyword for this equation is progress. This pattern of historical movement was strongly influenced by the spirit of European awakening as well as its enlightenment period in 15-17, which gave rise to reformers and pioneers of science. For example, Francis Bacon, through his book *The New Atlantis*, emphasized that there is no life except with progress. Likewise, Descartes, Machiavelli, Hobbes, and John Locke, according to them, progress is the nature of humanity itself that wants to be free from the shackles and setbacks of the past. In reality, this pattern of historical motion views historical changes optimistically.¹⁹

As for those who view history as cyclical, this means that history moves in cycles, alternating from period to period. There is no civilization that is always advancing or retreating; above or below, everything has its turn in time. This theory is very familiar in

¹⁵ Gesink, *Islamic Reform and Conservatism*. P. 59- 83.

¹⁶ Gesink. P. 118

¹⁷ Seyyed Hossein Nasr, *Knowledge and the Sacred* (New York: Crossroad, 1989). P. 33

¹⁸ Şentürk, "The decline of the decline paradigm: Revisiting the periodisation of Islamic history. Niedergangsthesen auf dem Prüfstand / Narratives of Decline Revisited içinde." P. 216

¹⁹ Maiwan, "Kosmologi Sejarah dalam Filsafat Sejarah: Aliran, Teori, dan Perkembangan." P. 167

the intellectual tradition of Eastern societies, which are very respectful of religious teachings and traditions. For example, Ibn Khaldun departing from his development of history, which previously only recorded the history of the ulama, then made the state his focus. For Ibn Khaldun, history is cyclical; whose lifespan is like a living organism.²⁰ In addition to Ibn Khaldun, Splenger also argued that culture moves in cycles like a living organism in its biological process.²¹ Modern historians such as Arnold Toynbee, through his famous work, *A Study of History*, argue that civilizations emerge as a result of responses to challenges, and that no civilization continuously retreats or advances; decline and destruction, according to him, are common.²²

From the explanation above, the difference between the two, according to the author, lies fundamentally in the meaning of history. The cyclical theory of history views every civilization, country, and society as having its own historical period, and the movement towards progress and decline is uncertain, and the alternation of the two is common. This is different from the straight or linear movement, which views the historical movement of mankind as entirely one-way from beginning to end, which in the end when it goes forward requires a setback to be abandoned. Meanwhile, the factors of regression itself are numerous, differ depending on the determinant, and in many cases cannot avoid subjective generalizations about something or someone. This is where regression as a paradigm - meaning that its emergence is biased as a result of the relationship between science and power - comes into history.

As for the following, the author will discuss the consequences, biases and then evaluations related to the decline narrative. As Senturk stated, In terms of progress and decline, the duality of historical periods has at least five negative consequences: The first is the periodization of broad categories of development and decline, which leads to broad judgements and blinds scholars to what is actually happening in the field. Second, it pushes researchers to interpret evidence to meet their predetermined dichotomies. Third, using the terms progress and regression implies subjective value judgements rather than what and who. Fourth, it reflects ideological biases against others, such as eurocentrism, racism, nationalism, puritanism, or religious fanaticism. Fifth, it entails enforcing a specific periodization of history on others while disregarding how they periodize their own history.²³

Furthermore, the bias can be read, for example, in the division of periods of Islamic history related to the period before al- Ghāzalī (1111 AD) as the golden age of Islamic science and afterwards as a period of decline, the orientalist based their thesis on the assumption that the first 500 years of Islam was a productive period in which Greek philosophy was translated in the Islamic world, giving birth to figures such as Ibn Sīnā in medicine, Ibn Haytam in optics, al- Khawārizmī in mathematics and al- Biruni in Biology, then al- Ghāzalī came with his efforts to restore the position of revelation as superior to reason. This view has certainly been challenged by various scientists, George Saliba through his book *Islamic Science and The Making of the European Renaissance*, rejects the assumption that the Greek Tradition made the rise of Islamic Science. According to him, Islamic Science had already existed before the translation movement existed, and

²⁰ Şentürk, "The decline of the decline paradigm: Revisiting the periodisation of Islamic history. Niedergangsthesen auf dem Prüfstand / Narratives of Decline Revisited içinde." P. 221

²¹ Abdurrahman Badawi, *Mausūah al- falsafah*, 1 ed., vol. 2 (Beirut: Muassasah Arabiyyah liddirasat wan nasyr, 1984). P. 34

²² Mufid al-Zaidī, *Madkhal ilā falsafat al- Tārikh*, 1 ed. (Amman: Darul Manahij, 2006). P. 118-119

²³ Şentürk, "The decline of the decline paradigm: Revisiting the periodisation of Islamic history. Niedergangsthesen auf dem Prüfstand / Narratives of Decline Revisited içinde." P.214

the translation was then not taken for granted, but there was a dehellenization process that made the Greek tradition more Islamic. This can be found in Al-Ghazali's own position which encourages the study of mathematics, but not to make mathematics everything.²⁴

Furthermore, the problem is not just that after Ghazali Islamic science declined, according to Syed Hossein Nasr, there are more than three thousand medical manuscripts in India and Yemen that have not been studied. Dimitri Gutas, points out that scientific work in the Ottoman period was almost completely untouched. Muzaffar Iqbal also confirms the problem, stating that in Iran, there are approximately 200,000 manuscripts, three-quarters of which have not been cataloged.²⁵ This proves that the paradigm of decline blinds researchers from the data on the ground because they are trapped in the narrative of decline.

Orientalists - especially those from the far right - have a vested interest in attacking al- Ghazālī as a central figure of Islam whose influence is extraordinary. It is almost impossible to find a mosque without the book *Ihyā' Ulūmiddīn* on its bookshelf alongside copies of the Qur'an. In addition, an important role of al- Ghazālī is to build a scientific concept that makes science within the framework of Islam. His disagreement with the certainty of causality, by making God the main cause of science,²⁶ has attacked the concept of Western science that glorifies reason and the five senses. This is where the attempt to make the post-Ghazali period a decline finds its bias.

The confusion over the biased periodization of Islamic history is also what has recently invited a re-reading among historians. Marshall G.S Hodgson is credited with developing a critique of the declinist paradigm. He maintained that the 16th century was the apex of Muslim dominance, not its decline. His work is attributed to Khaled el-Rouayheb, who effectively claimed that the 17th century was not a period of decline in the Muslim world but rather one of active intellectual activity and interaction. Therefore, Rouayheb's pushed the beginning of the age of decline a century into the 18th century. Furthermore, Ahmad Dallal's study pushes the beginning of the decline even later by demonstrating that the 18th century was a lively intellectual century before European influence. Peter Adamson's places the start of the stagnation period in the late nineteenth and early twentieth century.²⁷

The parallel of Golden Age Between Islam and Europe

One of the things that are very influential in how we move away from the binary opposition between the categorization of decline and progress is that we can assume more than one renaissance or even golden age at a time, and that is precisely what happened in the period between 16th- 19th AD between Islam and Europe. When we over-read the West as the subject of human history, we conclude that the 16th century, marked by the religious reformation led by Martin Luther in 1517, was the beginning of the renaissance and the end of the Middle Ages,²⁸ which is often identified as the dark ages of humanity.

²⁴ Abū al- Hāmid al-Ghazālī, *Ihyā' Ulūmiddīn*, vol. 1 (Darul Hadits, t.t.). P. 36

²⁵ Macksood Aftab, "Ghazali, Islamophobia and the Myth of Islamic Decline," t.t. P. 3

²⁶ Hamid Fahmy Zarkasyi, "Epistemological Implication of Al-Ghazzālī's Account of Causality. Intellectual Discourse," *Journal Intellectual Discourse* 26 (2018). P. 52

²⁷ Şentürk, "The decline of the decline paradigm: Revisiting the periodisation of Islamic history. Niedergangsthesen auf dem Prüfstand / Narratives of Decline Revisited içinde." P. 214

²⁸ Mahmūd Hamdī Zaqqūq, *Dirasāt fī al- Falsafah Hadītsah*, 2 ed. (Cairo: Dar al- Tiba'at al- Muhammadiyyah, 1998). P. 16

Regarding the West, as the main protagonist of history, according to Malik Bennabi, there is indeed a kind of oddity that became a common phenomenon among Western historians in the 19th-20th century, which considers that human history seems to begin in Greece and Rome, then disconnected, or stagnant, until finally appearing in Paris and London.²⁹ This means that the role of Islamic civilization is completely eliminated, when in fact the period they consider as disconnected and stagnant, even darkness can actually be called the golden age of Islamic civilization. That is why this model of reading history is also adopted in reading the 16th-19th centuries AD, where it seems that the significance of Islamic intellectuals declined at that time, while the West arose.

Therefore, western subjectivity in reading history began to be corrected by several scholars, namely Marshall Hodgson; according to him, one of the mistakes in reading Islamic history is when making Arabic the only culture for him. So conventional science concludes after the 10th-century Islamic civilization with its culture, science, art, and philosophy entered a long period of decline until it was saved by modernization and westernization in the 19th century AD. In fact, the key to understanding Islamic civilization after the 10th century AD is to read the role of Persia and Turkey in building a cosmopolitan Islamic culture.³⁰

Therefore, in contrast to the general view, Hodgson extends the golden period of Islamic civilization from the 10th century to the 16th century, which ended, according to him, due to military factors, namely colonialism in the early 19th century which destroyed the Safawi kingdom in Iran, the Timurid Empire in India and the Ottoman Empire. So by claiming the 16th century as a decline rather than a golden peak, the 17th century can be said to be the beginning of the decline, this view which then invited further research by Khaled al- Rouyheb.³¹

In 2015, in his book *Islamic Intellectual History in the Seventeenth Century*, in addition to refuting Halil Inalcik's claim that the seventeenth century was the triumph of fanatics, as well as nationalists and Islamists who in many ways portrayed the period as degenerate and backward, Rouyheb boldly argued for the existence of a very significant intellectual life in the Ottoman Empire and Morocco; a conclusion he drew from primary sources written by scholars of both countries.³²

Agreeing with Khaled Rouyheb's claim, Mahmūd Syākir is also among the most outspoken against the narrative of decline voiced by modernists through their poisonous terms, such as "new and old", "classical and contemporary", "progress and decline" these terms are full of slander, ambiguity, and in many ways deadly according to him.³³ Refuting the claims of the 19th century modernists, since the 17th century, according to Syakir, there has been an intellectual movement, the Arabic language has been preserved even though Arab is not the center of civilization, mentioning the figure of scholars in Egypt such as Abd al- Qadir bin Umar or famously called al- Baghdādī who has contributed to preserving Arabic literature and sciences (1620-1683 AD).³⁴

²⁹ Badrān Benalhasan, *Al- Khoshāis al- Amah li al- Hadhārah al- Gharbiyyah inda Mālek Bennabī* (al- Jāmi'ah al- ālamiyyah Māliziyya, 1998). P.67

³⁰ Şentürk, "The decline of the decline paradigm: Revisiting the periodisation of Islamic history. Niedergangsthesen auf dem Prüfstand / Narratives of Decline Revisited içinde." P. 229-230

³¹ Şentürk. P. 230

³² Şentürk. P. 231

³³ Syākir, *Risālah ilā Tsaqāfātīnā*. P. 80

³⁴ Syākir. P. 82

After Rouyheb, Ahmad Dallal continued the project of critiquing the decline thesis; this time, the 18th century was the main focus of his research; the period is important because it is the period right before Western colonialism occurred. It is well known that the justification for colonialism is to enlighten, or in Napoleon Bonaparte's terms, teach the 'bad Muslims,' so backwardness is the real motive for the West. Ahmad Dallal challenges this backward narrative with his 2018 book *Islam without Europe; Traditions of Reform in Eighteenth-Century Islamic Thought*.

Dallal's argument boils down to two things: that intellectual dynamism, not limited to a particular geography, India, North and West Africa, Syria, and Yemen, knowledge, and thought continued to flourish in the Islamic world. As for the second equally interesting finding, he argues that intellectual dynamism was not the result of European influence because this period was before colonialism took place.³⁵ The development of knowledge during this period was very distinctive, born from the centuries-old Islamic intellectual tradition.

Among the interesting things, as Mahmūd Syākir explains, is that in the 18th century, there was a scholar in Egypt named Hasan bin Ibrahim al- Jabartī al- Aqīli (1698-1774 AD) who was more famously known as al- Jabartī al- Kabīr. He was not only a Hanafi faqīh, who mastered linguistics, and Kalam and became mufti at the age of 34, but also an expert in the fields of Chemistry, Engineering, and Astronomy, to whom the Europeans studied who later became famously known as orientalist.³⁶ Jabarti's existence not only breaks the narrative of decline but also proves that natural sciences are still preserved even until modernists in Egypt claim that Egypt needs to import teachers from Europe to teach natural sciences, even accusing the scholars of al-Azhar of lacking attention to these sciences.

Furthermore, it didn't stop at the 18th century; efforts to criticize the narrative of decline reached Peter Adamson. If Dallal put more emphasis on the movement of the Islamic intellectual world before the colonial period, Adamson was more concerned with answering the question: did colonialism that occurred in the 19th century have an effect on the Islamic intellectual world? As a historian of philosophy, he disputes the claim that Islamic philosophy went backward after Ibn Rushd, saying that the production of philosophical works continued for centuries. Philosophy and rationalism should not be identified with Aristotelian alone; even theologians can be called philosophers. According to Adamson, all of that continued to develop even until the end of the Ottoman dynasty.³⁷

We may deduce from this explanation that parallel revivals of Islamic and European civilizations occurred at the same time, particularly in the growth of intellectual zeal. But what makes Europe appear to be more dominating now? Researcher believes that what happened was a military loss expressed in the success of colonization, rather than the fall of science.

Because the advancement of knowledge does not ensure that a state will always prevail militarily, because war is an amalgamation of possibilities impacted by a variety of circumstances. When the Ottoman Empire fell, Islamic science really continued to grow within the confines of its own worldview. The problem is that when the West is in

³⁵ Şentürk, "The decline of the decline paradigm: Revisiting the periodisation of Islamic history. Niedergangsthesen auf dem Prüfstand / Narratives of Decline Revisited içinde." P. 233

³⁶ Syākir, *Risālah ilā Tsaqāfātīnā*. P. 84

³⁷ Şentürk, "The decline of the decline paradigm: Revisiting the periodisation of Islamic history. Niedergangsthesen auf dem Prüfstand / Narratives of Decline Revisited içinde." P. 234- 235

a position of power, and its scientific constructs are imposed on others, this is where the narrative of decline continues.

Al- Azhar: Target of The Narrative of The Decline of Science

Egypt is crucial to discuss the modernist initiative since it is the largest Arab country in the Middle East in terms of population. There is also al-Azhar, one of the oldest educational institutions that has had a significant impact on the Islamic world. According to Justin K. Stearns, the nineteenth century in Egypt was an important period for a series of modernism projects, during which Muhammad Alī carried out major reforms in all fields, from administrative reforms, the military in the form of a modern army, to secular education. This modernization project became known as the Tanzimat Reform (1839-1876).³⁸

Muhammad Alī's efforts to reform education in Egypt increasingly found success in the second half of the 19th century. This was marked by the acceptance of the European model of education both on the part of the ulama' of al- Azhar and other parties who objected, but all that happened with the narrative campaign of decline carried out by modernists, by framing the conservatism of the ulama as the antithesis of progress.³⁹ Their proximity to the authorities, as well as the role of the media they controlled, made their voices more audible and, in many ways, succeeded in making the conservative ulama an outsider who stood in the way of the progress they defined.

In addition to sepeaking up about importance of opening the door to *ijtihad* as widely as possible for individuals, fighting *taqlīd*, which in this case took a lot of inspiration from the Protestant reform, one of the efforts to reform education was to voice the importance of studying modern sciences, mainly the natural sciences. This is what Rifā'ah al- Tahthāwī, one of the students sent by Muhammad Alī to study in France, did. He reread the meaning of "useful knowledge" in the prophetic hadith, and emphasized the importance of including applied sciences in the category of useful sciences, because he claimed that applied sciences had declined in popularity among Egyptian Islamic Scholars.⁴⁰

A more straightforward attack with the narrative of decline can be seen in the Persian scholar Jamāluddīn al- Afghānī. As Indira Falk Gesink recounts, in 1869 al- Afghānī arrived in Egypt, and taught the students of al- Azhar. In each of his teachings, he always emphasized using journalism as a means of cultural revival, while denigrating the scholars who he considered incapable of taking on this role, because "their wick is narrow, the fire that burns is small, unable to illuminate its surroundings,"⁴¹ said al- Afghānī.

Until 1870, the journalistic movement controlled public opinion. Afghānī continued to construct the narrative that al- Azhar, with its educational system, symbolized social stagnation. In addition, his students, modeled on Europe, portrayed science as the main cause for European progress, and as such, they also thought it was an absolute prerequisite for Egyptian and Muslim progress.⁴² Throughout 1881-1882,

³⁸ Justin K. Stearns, *Revealed Sciences: The Natural Sciences in Islam in Seventeenth- Century Marocco* (Cambridge University Press, 2021). P. 12

³⁹ Gesink, *Islamic Reform and Conservatism*. P. 59

⁴⁰ Gesink. P. 60- 61

⁴¹ Gesink. P. 72

⁴² Gesink. P. 76- 77

journalists from al- Afghānī's circle, whenever they wrote about educational reform, always emphasized the importance of education should, include modern sciences.⁴³

Muhammad Abduh, an Azharite, perhaps al- Afghānī's most famous student, whose name is immortalized in one of the halls of al-Azhar University today, viewed al-Azhar as having no organized curriculum, the subjects taught there as having no relevance, and he even referred to his own Islamic scholars as "ignorant fanatics."⁴⁴ Similarly, Alī Mubārak, who was appointed administrator of the Ministry of Education by Khedive Ismail in 1871, accused al-Azhar scholars of claiming that teaching history, geography, philosophy, and mathematics was a waste of time and even deemed people who appreciated these studies to be kafirs. Alī even said that the experts of al-Azhar taught just texts and not wisdom.⁴⁵

However, what needs to be underlined from all these skewed comments against al- Azhar, and all the accusations of regression leveled at it is that these modernists were conscious pawns of the West. I don't think so, Tahthāwī, al- Afghānī, and Abduh's alignments were clear, in opposition to colonialism, but their efforts to modernize Egypt were in agreement with Western interests in many ways. Especially when it came to the narrative of the decline of the natural and applied sciences, their protests only confirmed the separation of religion and science, which is typical of modern Western thinking, and Islam is completely divorced from it. In other words, the modernists take issue with something that has never been a problem in the Islamic intellectual repertoire.

Al- Azhar and Its Manuscripts Answering The Accusations

European modernism itself is not without criticism, many religious humanists who are Western scholars such as Goethe, George Bernard Shaw, Bertrand Russel, Alexis Carrel, Fritjof Capra, and Franz Fannon, these circles, criticize modernity as a great achievement but also at the same time a disaster for the future of humanity, due to its emphasis on material (mādah) but poor in spirit (rūh).⁴⁶ Especially in modern science itself, according to Seyyed Hossein Nasr, the main problem is its secular view that does not see traces of God in the natural order.⁴⁷

Likewise, modernists in Egypt are not free from criticism from those who call themselves *muhāfizun*, aka protectors, of modernization projects that they consider excessive, even destroying the long-established Islamic intellectual tradition. The criticism or rebuttal actually arises from various points of view that modernists think should be reviewed. And in many technical rather than ideological objections, especially regarding the implementation of science studies at al-Azhar.

From this chapter, the author will first present the refutation of the conservatives against the accusation of al- Azhar anti-science because, as described in the previous chapter, the narrative of the modernists seems convincing about the absence, ignorance, stagnancy of al-Azhar as one of the largest centers of Islamic education. After presenting these refutations, the author will present the manuscripts, which prove that the ulama' of al-Azhar were very interested in natural science until the 19th century when the narrative of revival was widely shouted.

⁴³ Gesink. P. 83

⁴⁴ Indira Falk Gesink, "Islamic Reformation: A History of Madrasa Reform and Legal Change in Egypt," *The University of Chicago Press Journals*, 2006. P. 335

⁴⁵ Gesink, *Islamic Reform and Conservatism*. P. 45

⁴⁶ Maiwan, "Kosmologi Sejarah dalam Filsafat Sejarah: Aliran, Teori, dan Perkembangan." P. 167

⁴⁷ Seyyed Hossein Nasr, *Islam, Sains, dan Muslim.*, 1 ed. (Yogyakarta: IRCiSoD, 2022). P. 25

The conservatives' objection to the inclusion of science subjects in al- Azhar can be read as the beginning of various considerations, for example, the consideration that it is the habit of students in al- Azhar to be interested in new things, so new subjects will divert the attention of students from religious studies, this is what Muhammad al- Hifnī, one of the scholars of al- Azhar, is worried about, the study of natural and applied sciences will take up the time of al- Azhar students, and it is feared that it will reduce their expertise in religion.⁴⁸ For this reason, the teaching of natural and applied sciences was not considered feasible.

Another argument is financial. According to Hasan Husni al- Tuwayrani, editor of the literary journal al-Nil, al- Azhar is a waqf institution, and waqf will theoretically last forever "until God inherits the earth," so al-Azhar will continue to focus on teaching the religious sciences - like Fiqh, Tafsir, and Hadits- because the waqf donors in many cases have explained in detail that their *waqf* is for the teaching of religious sciences specifically. Therefore changes in this regard would violate the legal provisions of hundreds of *waqf* charters.⁴⁹ From these rebuttals, we can see that the protests of al- Azhar's defenders are more on technical matters related to the application of science to be taught at al-Azhar.

As for the ideological issue, as Alī Mubārak alleged, the answers of Muhammad al- Inābī and Muhammad al- Bannā, a Shaykh of al- Azhar and Mufti of the Hanafi Shaykh at the time, suffice to answer the charge. In 1888 qādī Muhammad Bayram petitioned the elder, asking about the legal status of studying mathematics, geometry, arithmetic, astronomy, chemistry, and the natural sciences. Shaykh al- Inābī then replied that these sciences are not against religion, and he even encouraged students to study them wholeheartedly for the public good. As for the natural sciences that carry a uniquely Western view - for example, today physics considers that the universe began with a 'big bang' - al- Inābī said that this view should not be applied to the study of the natural sciences referred in question. Seventeen days after al- Inābī issued his statement, Muhammad al- Bannā issued a fatwa in support of his opinion.⁵⁰

The counter-argument can also be traced to the manuscripts in the Jami' al-Azhar library, the primary resource of this research. Where historical researchers, and modernists, are trapped in a decline-period model of study, it is prevented them from accessing these sources, which are the clearest tongues to speak the truth. At least 20 manuscripts on natural sciences were found in the electronic library of Jami al-Azhar. The number could be more than that, while the researcher only includes those whose names are known between the 16th and 19th centuries, whether the author lived at that time or whose writings were copied at that time. The following manuscripts are arranged in table form:

Author	Title	Preservation Number	Copy Year	Category
Muhammad bin Alī al- Hamīdī al- Rūmī al- Hanafī (1170 H- 1756 AD)	Risālah fī Ilmi al- Falak	8171	1160 H- 1747 AD	Astronomy
Bisyārah Ahmad Bisyārah al- Dimyāthī (1244 H- 1828 AD)	Hāsyiah Bisyārah al- Dimyāthī fī Ilmi al- Falak	2279	-	Astronomy

⁴⁸ Falk Gesink, "Islamic Reformation: A History of Madrasa Reform and Legal Change in Egypt." P. 338

⁴⁹ Falk Gesink. P. 338

⁵⁰ Gesink, *Islamic Reform and Conservatism*. P. 118

Hasan bin Darwīsy bin Abdillāh bin Muthāwī' al- Mishrī Syaikh al- Azhar (1254 H- 1838 AD)	Risālah fī Ilmi al- Jabar wa al- Muqābalah	28908	1286 H- 1869 AD	Mathematics
Muhammad bin Muhammad bin Ahmad al- Ghazālī al- Dimasyqī (912 H- 1506 AD)	Al- Lum'ah al- Mardīniyyah fī Syarhi al- Yāsmīniyyah	3613	1167 H- 1753 AD	Mathematics
Muhammad bin Muhammad bin Ahmad al- Ghazālī al- Dimasyqī (912 H- 1506 AD)	Al- Tuhfah al- Mārdīniyyah fī Syarhi al- Yāsmīniyyah	5032	-	Mathematics
Ahmad bin Ahmad bin Muhammad al- Sijārī al- Badrāwī al- Azharī al- Syāfi'ī (1197 H- 1782 AD)	Fathu dzī al- Shifāt al- Ulyah bi Syarhi Matn al- Yāsmīniyyah fī Ilm al- Jabr wa al- Muqābalah	10011	-	Mathematics
Muhammad bin Abī al- Fathi al- Fawī al- Mishrī al- Syāfi'ī al- Shūfī (853 H- 1449 AD)	Al- Rukhāmah bi Tharīq al- Handasah	131333		Geometry
Ahmad Tāib bin Usmān al- Zādah (1136 H- 1723 AD)	Syarhu Risālah al- Mawlā Abd al- Wahhāb al- Muta'alliqah bi Syain min al- Handasah fī Daf'i Istihālah al- Isrā'	5473	1217 H- 1802 AD	Geometry
Alī bin Muhammad bin Abd al- Rahmān bin Alī (1066 H- 1655 AD)	Al- Sir al- Maknūn fī Madhi al- Qahwah wa al- Ban	42810	-	Medic
Al- Husain bin Abdillah bin Sīnā (428 H- 1036 AD)	Arjūzah Ibn Sīnā fī al- Thīb	53615	1163 H- 1749 AD	Medic
Mahdī bin Alī bin Ibrāhim al- Shanburī al- Yamānī (815 H- 1489 AD)	Risālah fī Ilm al- Thib	95673	1177 H- 1763 AD	Medic
Muhammad bin Ahmad bin Rusyd al- Andalusī al- Hafīd (595 H- 1198 AD)	Syarh ibn Rusyd alā Arjūzah al- Thīb	42776	1293 H- 1876 AD	Medic
Muhammad al- Athār al- Dimasyqī (1234 H- 1818 AD)	Syarh Manzhūmah Hasan al- Athār fī Ilmi al- Tasyrīh	6509	1227 H- 1812 AD	Medic
Adnān bin Nashr bin Manshūr al- Baghdādī al- Thabīb (548 H- 1153 AD)	Al- Kāfi fī al- Thib	95676	1275 H- 1858 AD	Medic
Abd al- Wahhāb bin Ahmad bin Alī al- Hanafī al- Mishrī al- Syāfi'ī (973 H- 1565 AD)	Mukhtashar Tazkirah al- Suwaidī fī al- Thib	53612	987 H- 1579 AD	Medic
Ibrāhim bin Ahmad al- Syawī al- Dasūqī al- Syāfi'ī (1204 H- 1789 AD)	Ma'niyyah al- Ma'anī fī Shinā'a al- Thib min al- Ikhwān	53614	-	Medic

Mahmūd bin Ilyās al-Syirāzī al- Thābīb (730 H- 1329 AD)	Al- Hāwī fī Ilm al-Tadāwī	7389	996 H- 1587 AD	Medic
Ahmad bin Ahmad al-Ajhūrī al- Dharīr (1293 H- 1876 AD)	Muqaddimah fī Ilm al- Thib	131419		
Muhammad bin Umar bin Mubārak bin Abdillah al- Hamīrī al- Hadhramī al- Syāfi'ī (930 H- 1523 AD)	Syarh bi Harqī alā Arjūzatihi fī al- Thib	3496	–	Medic
Shālih bin Nashrullāh bin Salūm al- Halbī (1081 H- 1670 AD)	Al- Thib al- Jadīd al- Kimyā'ī al- ladzī Ihtara'hu Paracelsus	62120	–	Medic

These are not only important evidence to refute the modernists' narrative of decline. When these manuscripts are examined in more depth, there are many interesting things that can be concluded. For example, from Usmān Zādah's use of geometry to refute the impossibility of the Isra' event, we can conclude how religion and science were related before modernism hit Egypt. They were not contradictory but rather supported each other. This reminds the researcher of one of the lectures delivered by Hamid Fahmy Zarkasyi on "Building a Civilization of Science in Islam". There he said that science should serve the Shari'a, instead of patronizing it, which is the base of the uncivilization that occurs today.⁵¹

While Muhammad bin Abī al- Fathi al- Fawī al- Mishrī al- Shūfī, who wrote about geometry, became the antithesis of those who attacked Abu al- Hāmid al- Ghazālī on the pretext that tashawuf had caused the decline of Science. As for al-Azhar itself, Shaykh Hasan al- Attār is clear evidence that al- Azhar was not anti-science. In medicine, he was the director of the medical college, as he was the first to encourage the importance of the dissection of corpses, which at that time was still taboo.⁵² And al-Attar's status is not as an ordinary azharite; he is the grand shaikh of al-Azhar from 1830 - 1835 AD.

As Shālih ibn Nashrullāh ibn Salūm al- Halbī explained, the medical science of one of the Swiss scientific figures, Paracelsus (1493-1541 AD), who is often referred to as the father of toxicology, namely the science of poison, is proof that the reading and even development of the scientific tradition continues to be carried out by al- Azhar, not knowing certain tendencies, science is the science of whomever it is. This is also evident in the copying of *Arjūzah Ibn Sīnā fī al- Thīb*, and *Syarh ibn Rusyd alā Arjūzah al- Thīb*, although al- Azhar objected to the theological views of philosophers, especially the two figures, both Ibn Sīnā and Ibn Rusyd, it did not prevent the scholars at al- Azhar from benefiting from their medical ideas.

However, must admit that there are many more of these manuscripts that, if researched in more detail, will provide interesting historical facts. Research on them can start with knowing the biographies of the authors of these manuscripts, which in many cases requires more effort to answer who they are? Were they just ordinary scholars, and how far did they specialize in these sciences? Another question that can be used as a research reference is also about who endowed the manuscripts so that they are in the Jami'

⁵¹ Hamid Fahmy Hamid, "Building the Civilization of Science in Islam" (Public Lecture, Institute for the Study of Islamic Thought and Civilizations (INSIST), 7 Januari 2023).

⁵² Christopher de Bellaigue, *The Islamic Enlightenment. The Struggle between Faith and Reason: 1798 to Modern Times* (New York: Liveright, 2017). P. 26- 33

al- Azhar library. In addition to the question of "who" it is also important to examine "for what purpose" the manuscripts were donated. But at least all of these manuscripts can be used as a reference to start doubting the claims of modernists about the decline of science in that era.

Conclusion

From such an explanation, it can be concluded that trying to determine the period of history is never a neutral activity, especially if history is read through the theory of linear movement, which views the history of mankind entirely from beginning to end, running on one track like a train. The impact of this model of reading history is when those who are in a position of power - especially politically and militarily - consider themselves entitled to be the driver of the train of human history, and that is what happened in this modern century, which requires the West as the end of history, whoever does not follow will be left behind.

This way of viewing history ultimately continues to nourish the dichotomy between progress and decline that are fatalistic, thus creating bias in research on certain historical periods. This has recently been realized by many scholars of Islamic history, resulting in many corrections related to determining the decline or golden age of Islamic civilization. One of the important benefits of criticizing the linear movement theory of history is that we can assume the existence of two or even more golden ages or revivals. And, that is exactly what happened in the period of the 16th-19th centuries AD between Islamic and European civilizations, until finally colonialism made Europe more dominant than Islam.

European domination through colonization was not just to extract natural resources or open up industrial markets; the bigger idea was to make those they considered as 'others' submit and follow them. Thus the narrative of decline is created, and modernism is presented as the cure for that decline. In the case of Egypt, modernism came to education by mocking centuries of established Islamic intellectual tradition. Al-Azhar was accused of not paying attention to applied sciences and natural sciences, i.e., modern sciences in the modernist sense.

In fact, many Islamic scholars and figures who call themselves conservative have responded to this accusation by considering technical aspects rather than ideological objections. Al- Azhar is not anti-science; in fact, ancient manuscripts in the Jāmi' al-Azhar library reveal otherwise. It is obvious that the decline narrative has blinded historical researchers to be able to read primary sources, in this case the modernists in Egypt, either they know but pretend not to know for political interests, or they do not know because they are trapped in the decline narrative built by the West, so that indirectly their interests are in line with the West's desire to remove the significant role of Islam on the stage of human history.

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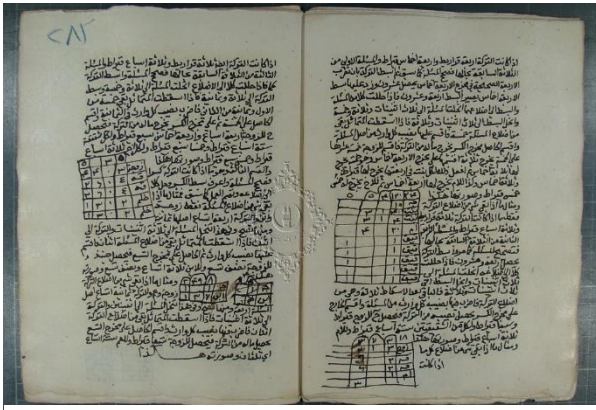
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Appendix

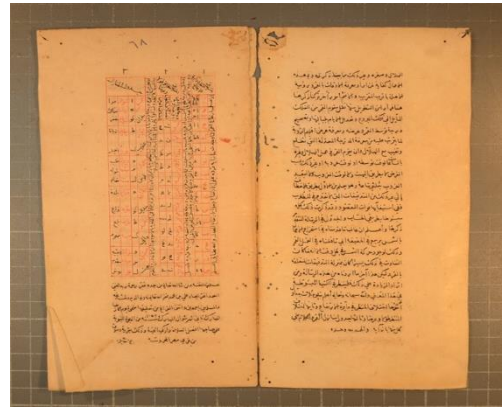
Here are some appendixes related to the manuscripts that the author found in the al- Azhar electronic library. The researcher only includes a few manuscripts that represent each science category.



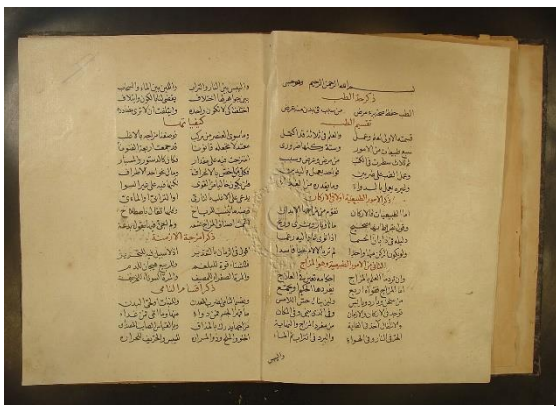
This is one of the descriptions in the book *Risālah fī Ilmi al- Falak*, on which page Maḥdī bin Alī bin Ibrāhīm al- Shanburī al- Yamānī (815 AH-1489 CE) is explained about month turnover during the year in Astronomy.



Muhammad bin Muhammad bin Ahmad al- Ghzālī al-Dimasyqī (912 AH- 1506 AD) in *Al- Tuhfah al-Mārdīniyyah fī Syarhi al- Yāsmīniyyah* is explaining the division of inheritance, in his book on Mathematics.



Discussion of geometry in the book *Al-Rukhāmah bi Tharīq al- Handasah* by Muhammad ibn Abī al- Fathi al- Fawī al-Mishrī al- Shāfī'ī al- Shūfī (853 AH-1449 AD).



These are among the poems, which Ibn Sīnā wrote to facilitate his explanation of medicine. *Ibn Sīnā's Arjūzah fī al- Thib* was copied by a man named Sayyid Abdullāh Abu al- Afn in the 18th century, and is now in the library of al- Azhar.

