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# Sciences and Change of Perception in The Late Ottoman Intellectuals

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## Abstract

The cursory overlook of the research shows that Ottoman Empire, in general, has no conflict with science. It invites man to cultivate science. The contribution of Muslims in the field of science has been significant. After the 13th century, they paid more attention to religious teachings to preserve them from negative influences. Especially in the nineteenth century scientific and technological revolution in the West, unfortunately, was misunderstood by many Muslims at that time and lagged.
We witnessed too much scientific development in the Ottoman period. But there are some claims for the conflict between science and religion in the Ottoman period. Historically some religious intellectuals like, *Sheik al-Islam* and *ulama* opposed scientific development and the majority of them supported scientific development/reforms.

***Keywords***: Conflict; Fanaticism; Ottoman Scholar; Science; Sheikh Al-Islam; Ulama.

## 1. Introduction

Religion is a set of systems in which rituals, doctrines, sentiments, institutions, and other similar elements are interrelated, whereas science is the study of the natural world and the things that happen in it. Both religion and science suggest the truth, one through revelation and the other through observation and experiment. Thus, they become the main sources of human information. Religion deals with every aspect of human life and regulates it in the light of revealed knowledge while; science deals with the material aspect of human life. It is a fact that religion and moral values are beyond the domain of science. Science can discuss only those things, which are subject to physical laws and can lend themselves to scientific observation.
The relationship between religion and science has not always been the same in any one place or time. Under Ottoman caliphs, Muslims regained political power. During this period, there was a change in the Muslim outlook. At that time the West had made great advancements in science and technology. Muslims had closed their doors against borrowing from the West. When the West started its process of progress, the

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Muslim East failed to realize the importance of scientific and technological development. The old interest, the mother of all intellectual progress, was gone. *Allama* Iqbal is of the view that the ignorance of Muslims was so great that they considered thoroughly anti-Islamic what had in the main arisen out of the bosom of their own culture. It is surprising to note that not a single scientist of any repute existed in the entire Muslim world from the 15th century. On the other hand, what one finds in this period is a condemnation of modern scientific knowledge because of its supposedly anti-religious tendencies.[1]

**The Science and the Ottoman Scholars**

The intellectuals are expressed in the Ottoman period as *ulama*. *Ulama* is generally used in the Islamic world and means community-based scholars. They are interested in Islamic sciences such as *hadith*, *tafsir*, *fiqh*, and *kalam*. 2 Though *ulama* are a plural word for *alim* (scholar) deriving from Arabic origin *ilm* (knowledge), the term has gained a special meaning and became a common name for that section of the community who are considered to be intellectual and partly aristocratic. *Ulama* was professed as the primary element among the constituents of the community in nearly every period of the Ottomans and thus put under various evaluations as a group affecting high exceptions.

The Ottomans took the rule of the Islamic world into their hands, as a young nation. They have inherited all the Islamic institutions, among them the scientific institutions, such as colleges, mosques, and *madrasas*. Neither the state of the scientific knowledge was at a fortunate level, as claimed recently by the historians of Islamic Turkish science[3]. It was the responsibility; it is proposed by its scholars to catch the essential element in the development of science. But, as the sciences were not necessarily related to success, the arts, on the other side, which may affect the socio-economic level of the society, were not related the purely scientific knowledge. So, there was some misunderstanding set into the Islamic world, under the Ottomans. The Muslim world has had a sound economy, powerful military forces, and a dynamic scientific community.[4]

Ottoman science emerged and developed based on the old scientific legacy and institutions of the pre-Ottoman Seljukid period in Anatolian cities and benefited from the activities of scholars who came from Egypt, Syria, Iran, and Turkestan which were the most important scientific and cultural centers of the time. The Ottoman brought a new dynamism to cultural and scientific life in the Islamic world and enriched it. Thus, the Islamic scientific tradition reached its highlight in the sixteenth century.

The Muslim masses as a subject or *re'aya* (population) were organized in a parallel way. The Muslim population was separated into various schools of law and *Sufi* (mystical) brotherhoods, which the Ottomans were keen to bring under state control. They did this by extending their protection to the *ulama* and *Sufi* elites.

Ottoman patronage led to the organization of the elaborate system of *madrasa* education. The first Ottoman *madrasa* was established in Iznik in 1311 when scholars were invited from Iran and Egypt to augment Muslim instruction in the new territories. Later Sultans founded colleges in Bursa, Edirne, and Istanbul. In the late fifteenth century, these were arranged in a hierarchy that defined the career path for the promotion of leading scholars. The college built by Suleyman between 1550 and 1559 eventually became the highest ranking. Beneath it was ranked the colleges founded by previous Sultans and beneath these the colleges founded by state officials and religious scholars. The madrasas were not only organized by rank but also distinguished by their educational function. The lowest-level *madrasa* taught Arabic grammar and syntax, logic, theology, astronomy, geometry, and rhetoric. The higher-level colleges taught law and theology.[5]

The Ottomans always wanted solutions to the intellectual and practical problems they encountered in Islamic culture. The Ottomans, on the one hand, represented the Central Asian Turks. They also desired to take Byzantium and were too agreeable to the heritage of the Caesars. Mehmed II, the Conqueror of Byzantium, gained first-hand knowledge of the idea of world independence from the Romans. He gathered under his authority the areas, which had been under Eastern Rome. The religious leader of Eastern Christianity, the Patriarch, was given his old place in this Empire. The Ottoman Sultan was a new imperial type. He represented the powers and authority of the state in such a total form as had never been seen before. He did not hesitate to make sovereign an independent legal order in addition to the religious law to make his authority the utmost. In truth, this view was a good number of times opposed by the *ulama* (the authorities in Islamic law) who protected and represented the Islamic state.[6]

In the period of Mehmed II, the Conqueror (1451-1481) the Ottoman culture was found to be still in the stage of borrowing and constructing. The Conqueror complained that the *ulama* in his own country was not at the same level as the foreign scholars. The Turks in the place criticized saying that the Persians and Italians were shown favor far more than was necessary.[7]

But when the scientific revolution occurred in Europe, a space emerged between them and the Western world. Ottomans began to make some transfers from Western science selectively and increasingly the scientific traditions began to change from Islamic. Therefore, Ottoman science should be studied under two headings; firstly, the Islamic scientific tradition, classical period, and secondly, the Western scientific tradition, modernization period. Although it is difficult to demarcate the two traditions in a clear-cut way in the transition period, as the contacts became more frequent, the two periods were separated more clearly.

In the classical period, the *madrasa* was the essential source of science and education and the most important institution of learning in the Ottoman Empire. The Ottoman *madrasas* continued their activities from the enterprise of the state around until the turn of the twentieth century. The basic organization of the madrasas remained the same within the construction of the Islamic tradition, but in terms of the organization they underwent several changes in the Ottoman period.[8]

The Ottoman scientific literature in the classical period was produced mainly within the milieu of the *madrasa*. Scholars compiled several original works and translations in the fields of religious sciences as well as mathematics, astronomy, and medicine besides a great number of textbooks. These works were written in Arabic, Turkish, and Persian. Ottoman Turkish became the most frequently used language in the transfer of modern sciences.[9]

At the same time, the Ottomans conserved the fundamental quality of Islamic civilization in their scientific institutions. There six Ottoman state scientific institutions dealt with here are in the area of astronomy and the other three have to do with medicine. The institutions which, provided health services and medical services, and medical education were called “Dar al shifaa”, “Shifahane” or “Bimaristhan". The Ottomans' "Dar al shifaa" was not constructed as independent buildings but as part of a *kulliya*.[10]

In the traditional Ottoman system, there was little, that signified more the involvement of the *ulama* in state affairs than the place occupied by the heads of the *ulama*, the chief *mufti* of Istanbul, or the *Sheik al-Islam*, and the two chief judges; the *Kadiasker* of Rumeli and Anadolu. The latter who at first had been the heads of the *ulama*, were members of the Imperial Council (Divan-i humayun) and, although their chief function was to assist the grand vizier in matters concerning the *Shari’a* and act as judges in cases brought before them, they were entitled to take part in all deliberations concerning state affairs. They retained these

functions even later when in the sixteenth century, the *Sheik al-Islam* took precedence over them and their former power and influence began to decline.[11] *Sheik al-Islam*, on his part, was elevated by the sultan to a position equal to the grand vizier and was given the authority to recommend the appointment of the high-ranking *ulama*, including the two *kadiasker*. Though he was not a member of the Imperial council, it was to the *Sheik al-Islam*'s legal opinion (fatwa) that the sultan resorted to an all-important matter affecting the state, giving him the final word in determining actual resolutions and actions[12]. The *Sheik al-Islam* even had the authority to bring about the dismissal of the sultan himself, giving his opinion that the latter was not competent to rule according to the Holy Law, and, in this sense, he stood, at least in theory, above the absolute power of the sultan. In practice, of course, and with the *Sheik al-Islam* being the appointee of the sultan, there was little chance of a power struggle evolving between the two personages. There is ample evidence that sultans ignored the advice of their *Sheik al-Islam* if not to their liking and that they easily affected their dismissal in cases of real conflict.[13]

However, the power of the *Sheik al-Islam* increased considerably during the centuries of Ottoman decline, when the stature of the sultans was a mere shadow of what it had been and when disintegration and internal feuds became rampant. With the deterioration in the central organization of the state, the *Sheik al-Islam*'s counsel was more often sought and accepted. They inevitably became involved in numerous crises, which affected the state, and were often called upon to sanction the transfer of power to a new sultan.[14]

Sometimes, certain *Sheik al-Islam* and *ulama* were under constraint and pressure from sultans. For example, when Osman II requested a fatwa to assassinate his brother *Sheik Zade Mehmed*, the *Sheik al-Islam Esad Efendi* rejected his request. Osman II then was able to get such a fatwa from the *Kadiasker of Rumelia Tashkoprizade Kemaleddin Efendi* and to eliminate his brother. This is a typical example of a political fatwa.[15]

The *ulama* increasingly gained and consolidated its power until the XVII century, then entered a period of decadence due to reasons most of which were external developments, and found itself within the harsh milieu of daily politics. In this period starting with Ahmed I and continuing with consecutive reigns of children sultans, power has been transferred into the hands of military commanders, influential palace circles including *Mother Kosem Sultan*, and naturally to the *ulama*. Political fatwas (religious decrees) and the internal division of the *ulama* across various political factions, on the one hand, prevented it from scholarly works, and on the other hand, deteriorated its status within political fights.[16]

Early period Ottoman sultans played a great role in all those developments. As a part of their position, they were raised as warriors, but they always paid a great tribute so *ilm* and *ulama* took concrete steps in that direction.[17] There are several ways in which the *ulama* benefited during these formative years. They have decided approximately on every subject after taking the ideas of scholars. That practice is somewhat similar to an informal consultancy meeting (*meshveret*). Various passages report such consultations in *Asık Pashazade*'s *Tevarih-i Al-i Osman* and *Katip Chelebi*'s *Kitab-i Cihan-nüma.*[18] References to the consultation are frequently seen in Ottoman chronicles as well. It appears to be the usual practice and those who neglect it are disapproved, as shall be seen with Bayezid I. However, the custom of consultation does not mean that the sultan did not have the right to command before Kosovo, Murad I command the begs to gather their soldiers and be ready to fight.[19]

On the other hand, they have also directly benefited from *ulama* by appointing them to the memberships of *Divan* as *vizier*, *grand vizier*, *kadiasker*, *defterdar*, *nishanci*, and to some important posts in the central bureaucracy. One should not ignore the significant contribution of *Chandarli ulama* family in studying the

formative period of the Ottoman policy. *Chandarli* members were in the intimate circle and service of the Ottoman royal family in the fields of *ilm* and administration for approximately one and a half-century until the conquest of Istanbul.[20]

The family members, all of whom has been educated in *madrasa*, occupy high-level position first serving as *kadi* and *kadiasker*, and later as *vizier* and *grand vizier*, and worked directly or through their advisor in the establishment of military, educational and administrative institutions.

Murat II's period has particular importance in that respect. This period was somewhat of a cultural preparation for the great conquest witnessing the establishment of the institution of *Sheik al-Islam* institution and the appointment of *Mulla Fenari* to this post.[21]

Mehmet II, the Conqueror (Fatih) period is not only a turning point in terms of organization but also in terms of perspective or approach. In the famous law regarding organization and protocol (teshkilat ve teshrifat kanunnamesi) there were provisions about *ulama* for the first time. In addition, a clear-cut differentiation was made between *ilmiye*, *sufiye*, and *kalemiye* occupations, with some preferences about origins, educational backgrounds, and formations of the youngsters that would serve in those fields.[22]

**Scientific Developments in the Ottoman Period**

Ottoman science developed more remaining to the personal interest of Mehmed II and the educational institutions, which he established after the conquest of Istanbul. Ottomans managed to build a very large collection of libraries. There can be no doubt about Mehmed II's religious tolerance. Mehmed's empire must have been a paradise for non-Muslim subjects, especially for Jews. Accordingly, some famous scholars engendered in the sixteenth century and made original help to science in this most brilliant period of the Ottoman history of science.[23] Mehmed the Conqueror patronized the Islamic scholars and at the same time he ordered the Greek scholar from Trabzon Georgios Amirutzes and his son to translate the *Geography Book of Ptolemy* into Arabic and to draw a world map.[24] This global map must have been quite in keeping with the desires and the intentions of be would be the conqueror of the world. Mehmed II's interest in European culture started while he was the own prince established in the Manisa Palace. In 1445, Italian humanist Ciriaco d'Ancona and other Italians who were in the Palace taught him Roman and European history. While Patriarch Gennadious prepared his work on the Christian belief *Itikad nâme* (The Book on Belief) for the sultan, Francesco Berlinghieri and Roberto Valtorio wished to present their works Geographia and De re Militari.[25]

On the other hand, Mehmed II encouraged the scholars of his time to produce works in their special fields. For example the comparison of al-Ghazzali's criticisms of *Messai* (peripatetic) philosophers concerning metaphysical matters, expressed in his work titled *Tahafut al-Falasifa* (The Incoherence of the Philosophers), and Ibn Rushd's answers to these criticisms in his work *Tahafut al-Tahafut* (The Incoherence of Incoherence), he ordered two scholars of his time, Hocazade and Ala al-Din al-Tusi, each to write a work on this subject.[26]

Another highly respected family of scholars, *the Fanarizada*, achieved new fame on conqueror's day with *Ali al-Fanari*, a grandson of *Mulla Shemseddin* who had enjoyed high esteem under *Bayazid I*. after *Fenari* had completed his studies in Herat, Samarkand, and Persian. *Mullah Gurani* persuaded Mehmed II to call him to Bursa. There he occupied first a teaching position and then the judgeship and was finally elevated to the rank of army judge. For ten years he held this important position, taking advantage of it to help many scholars and to obtain teaching posts for those whom he held to be worthy.[27]

No doubt the most notable scientist of the Conqueror's period is *Ali Kushcu*, a representative of the Samarkand tradition. The total number of his works on mathematics and astronomy is twelve. One of them is his commentary on the *Zij-i Ulug Bey* in Persian. His two works in Persian, namely, *Risala fi al-Haya* (Treatise on Astronomy) and *Risala Fi al-Hisab* (Treatise on Arithmetic) were taught in the Ottoman madrasas. He rewrote these two works with some additions under new titles, *al-Fathiyya* (Commemoration of Conquest) and *al-Muhammadiyya* (The Book dedicated to Sultan Muhammed) respectively.[28]

Another remarkable scholar of the Bayezid II period (1481-1512) was *Molla Lutfi*. He wrote a book about the classification of sciences titled *Mawduat al-Ulum* (Subjects of the Sciences) in Arabic and collected a geometry book titled *Tadif al-Madhbah* (Duplication of Cube), which was partly translated from Greek. *Mirim Celebi* (d. 1525) who was a well-known astronomer and mathematician of this period and the grandson of *Ali Kushcu* and *Kadizade-i Rumi* contributed to the establishment of the scientific traditions of mathematics and astronomy and was celebrated for the commentary he wrote on the *Zij of Ulug Bey*.[29]

Scientific literature developed significantly in the period of Sultan Suleiman the Magnificent. Possible to find two major mathematical books in Turkish entitled *Jamal al-Kuttab wa Kamal al-Hussah* (Beauty of Scribes and Perfection of Accountants) and *Umdat al-Hisah* (Treatise on arithmetic) by *Nasuh al-Silahi al-Matraki* (d. 1564). His book in Turkish entitled *Beyan Menazil-i Sefer-i Irakeyn* (Description of the Stopping Places of the Campaign to the Two Iraqs), is related to geography and should also be mentioned.[30]

*Musa b. Hamun* (d. 1554), one of the famous Jewish physicians of Andalusian descent, was appointed as Sultan Suleiman's physician and wrote the first Turkish and one of the earliest independent works on dentistry which are based on Greek, Islamic, and Uighur Turkish medical sources and in particular *Sabuncuoglu Ceerefeddin*'s works like *Mücerrebname* and *Cerrahiyet el-Haniyye*. [31]

In the sixteenth century, the greatest astronomer of this period was *Taki al-Din al-Rasid* (d. 1585) who combined the Egyptian-Damascus and Samarkand traditions of astronomy and mathematics in his studies. He wrote more than thirty books in Arabic on the subjects of mathematics, astronomy, mechanics, and medicine. He presented a report to his teacher *Sadaddin Efendi* observing that it had become necessary to Modify *Ulug bey*'s system of astronomy, which did not always produce an accurate reading. *Sadaddin Efendi*, who was well respected by Sultan Murad III, took this matter to the court and obtained the permission of the Sultan to build an observatory with all the appropriate instruments, on the hills above the *Tophane* area of the *Galata* region in Istanbul.[32]

It thus becomes apparent that the Istanbul Observatory was conceived as one of the largest of the observatories of Islam, comparable to the *Maragha* or the *Ulug bey* observatories. Unfortunately, no specific information has come to light concerning the other astronomers of the observatory. European sources speak of a Jewish astronomer who was brought from Salonica to Istanbul at about this time. European sources speak of him as a person who secretly coached *Takiyyuddin* in matters of astronomy. 33 It is seen that the Istanbul observatory was created as an official state institution.

From the sixteenth century onwards, *Piri Reis* produced noteworthy geographical works, in 1511; *Piri Reis* drew his first map. This map is part of the world map prepared on a large scale. It was drawn based on his rich and detailed drafts and in addition, European maps including Columbus' map of America. This first Ottoman map, which included preliminary information about the New World, represents Southwestern Europe, Northwestern Africa, and Southeastern and Central America. It is a Portland, without latitude and longitude lines but with lines delineating coasts and islands. *Piri Reis* drew his second map and presented it to Suleiman the Magnificent in 1528. Only the part, which contains the North Atlantic Ocean and then

newly, discovered areas of Northern and Central America, is extant. *Piri Reis* also wrote a book *entitled Kitab al-Bahriye* (The Naval Book, 1521). In this work, *Piri Reis* presents drawings and maps of the cities on the Mediterranean and Aegean coasts and gives extensive information about navigation and nautical astronomy. The *Kitab al-Bahriye* consulted Western works, though, on a great many points, he added from his own experience. This book was translated into French in 1756. *Admiral Seydi Ali Reis* (d. 1562), who wrote the work in Turkish titled *al-Muhit* (The Ocean), was a notable figure of the period in maritime geography. This work contains astronomical and geographical information necessary for long sea voyages and his observations about the Indian Ocean. [34]

Another work of the sixteenth century, which contains information about the geographical discoveries and the New World, is the book entitled *Tarih-i Hind-i Garbi* (History of the Discovery of America). This work, whose author is unknown, was presented to Sultan Murad III in 1583. *Tarih-i Hind-i Garbi* was printed in Istanbul in 1732, and reports on the discovery of the New World. It is the first book by a Muslim author about America and includes 13 woodcut illustrations. It was based on Spanish and Italian geographical sources. It is important in showing that the Ottomans knew the geographical discoveries of the West. The work has three parts; the third part which is the most important and which comprises two-thirds of the whole book relates the adventures of Columbus, Balboa, Magellan, Cretes, and Pizarro during the sixty years from the discovery of America in 1492 until 1552. Cartography was organized as a profession in the Ottoman Empire, for example, in the seventeenth century; fifteen individuals were occupied with the art of surveying, in eight locations in Istanbul and nearby areas.[35]

From the seventeenth century onwards, the new medical doctrines, which were put forward, by Paracelsus and his followers in the sixteenth century began to be observed in the Ottoman medical literature under the names of “Tıbb-i cedid” (new medicine) and “Tıbb-i kimyai” (chemical medicine), in the works of *Salih b. Nasrullah* (d. 1669), *Omar b. Sinan al-Izniki* (eighteen century), and *Omer Ceifai* (d. 1742).[36]

At the same time, *Semseddin Iraki*’s book on anatomy (1632) reflects the first influence of European anatomists. Ottoman medical literature carried both classical Islamic and European medical information side by side until the beginning of the nineteenth century when *Sanizade Ataullah* (1771-1826) wrote his work entitled *Hamse-i Shanizade* composed of five parts as physiology, pathology, surgery, and pharmacology, based totally on European sources without any reference to traditional medicine.[37]

The first contact with Copernican astronomy in the Islamic world occurred around the mid-seventeenth century when the Ottoman astronomer *Tezkereci Kose Ibrahim Efendi*. He translated a work by the French astronomer Noel Durrer (d. 1650). The introduction and spread of the new heliocentric concept of Copernicus into the Ottoman world did not to the case in Europe.[38] This concept, which was first seen as a technical detail, was later referred to as Ptolemy's geocentric system and considered more suitable concerning religion. However, the conflict between religion and science entered Ottoman Turkish intellectual life around the end of the nineteenth century together with Western trends of thought such as positivism and biological materialism.[39]

**Ottoman Scholars and Scientific Reform Movements**

Many reform movements were achieved by the guidance, support, and at least, consent of the *ulama* in the Ottoman state. That has a deep-rooted tradition in the Ottoman state. From the period of formation till the demise of the state the leadership or encouragement of the *ulama* created many military, scientific, and political organizations. There were many *ilmiyye* members of different quality among writers of reform reports in the XVIII-XIX centuries, among those writing in the field of state management. *Yenisehirli Abdullah Efendi* who gave a *fatwa* for establishing a printing house in July 1727;[40] *ilmiyye* members who gave the most satisfactory reports to the reform demand of Selim III among whom *Tatarcik Abdullah Molla* gave one of the most comprehensive reports; and finally *Sheik al-Islam Kadizade Mehmet Tahir*, *Yasincizade Abdulvehhab Efendi* and *Kadiasker of Rumeli Sahaflar Sheikizade Esat Efendi* who were prominent persons spending a lot of efforts to legitimate and prove the necessity of Mahmut II's reforms, to form a favorable public opinion, are some significant concrete examples[41].

Reform studies in the *ilmiyye* institute continued in the following centuries with a different approach. There were different imperial orders to the responsible people 9

regarding reform of the *ilmiyye* during the reigns of Ahmed III and Mahmud I in the early XVIII century. Those were covering the classical topics, which were common in the XVI-XVII centuries. Selim III gave importance and priority to *ilmiyye* in his comprehensive reform efforts towards the end of the century. In his imperial decrees to *Kadiasker Hamidizade* and later to *Sheik al-Islam Durrizade Mehmet Arif Efendi* there were references to the problems in the judicial system and required measures. All such efforts and viewpoints seem to be a continuation of the classical understanding.[42]

In the time of Mahmut II, there was a different approach to the *ulama* class and its role in the state. There was a period in which the *ulama* were marginalized and lost their privileges and widespread field of influence in general. A very tight attack in that period was the establishment of *Evkaf-i Humayun Nezareti* (The Imperial Ministry of Foundations) in 1826, which transferred all foundation incomes before enjoyed to a large area by the *ulama* to the source by way of the ministry. That change gave a great injury to *madrasas* and religious services managed by foundation incomes.[43] The [44]

However, in the time of Mahmut II and Abdulhamit II, *ilmiyye* members have a great extent, especially in the outstanding *ulama*, in creating a favorable public opinion and in getting the support of the community for the implementation of their reforms. Though there were great efforts in the early XX century under the leadership of *Sheik al-Islam Hayri Efendi* to reform the *madrasa* system, those efforts did not produce any results due to the calamities of the First World War and the fall of the Empire afterward.[45] Many *ulama* did prop up the reforms, but all the *ulama* did not shore up with reforms, especially in the *madrasa* system.[46]

**The Conflict between the Religion-Science and Ottoman Scholars**

*The Sheik al-Islam* had the authority to the sultan's opinion, giving his opinion that the latter was not competent to rule according to the Holy Law, and, in this sense, he stood, at least in theory, above the absolute power of the sultan. In practice, of course, and with the *Sheik al-Islam* being the appointee of the sultan, there was little chance of a power struggle evolving between the two personages. There is ample evidence that sultans ignored the advice of their *Sheik al-Islam* if not to their liking and that they easily affected their dismissal in cases of real conflict.[47]

Although *ulama* graduated from madrasa as a religion scholar, some of them wrote medicine, mathematics, and astronomy books. On account of that, a lot of them do not opposite of scientific and technological

development. But in fact, there were some problems, like between old and new scholar generations. Despite that, there are some claims:

There can be seeing some conflicts between scientific development and Ottoman *ulama* in different periods. We say that "conflict" according to historical cases, but if we dig into these cases, we may find other political and economic reasons behind them.

According to some historians, like Turkish researcher Adivar, the *ulama* took a negative position on sciences which outside of religious sciences in the eighteenth century. At the same time, *madrasas* have fanaticism and disagreement with the reforms. So, they did not accept a reformation in their education, and they objected to Western technology.[48]

The reasons of object to Western technology were religious fanaticism according to some historians.[49] Western science and technology were contrary to religious understanding according to some *ulama*.[50]

There is another claim, which argues that "The *ulama* delayed the introduction of printing house to Ottomans".[51] According to another Turkish researcher Berkes, the reason for the delay of the printing house to Ottomans was the guild of artisans of transcribers.[52]We would to study also several samples on this topic:

A well-known astronomy scientist of Ottoman *Takiyyuddin al Rasid* (d. 1585) was appointed *muneccimbasi* (Chief astronomer) in the period of Sultan Selim II (1566-1574) and Sultan Murat III (1574-1595). He informed Sultan Murat III who had an interest in astronomy and astrology and proposed to the Sultan that an observatory be built in Istanbul for that purpose. Sultan Murat III was very pleased to be a patron of the first observatory in Istanbul and asked that construction begin immediately. The new observatory (Dar al Rasad al Jadid) was built in 1577.

Takiyyudin's observations undertaken there were collected in a work titled *Sidratu Muntaha al Afkar fi Malakut al Falak al Davvar*. When compared with those of the contemporary Danish astronomer Tycho Brahe (1546-1601) who also built an observatory. Takiyyudin's observations are more exact. In addition, some of the instruments, which he had in his observatory, were of superior quality to Tycho Brahe's.[53] The observatory was torn down on 22 January 1580 through rooted in certain political conflicts, and religious arguments were put forth to justify the action. The *Sheik al-Islam* issued a legal opinion (fatwa)[54] and *Admiral Kilic Ali Pasha* executed the orders of the Sultan to destroy the building[55].

Briefly, the observatory of Takiyyuddin which was established in 1577 was demolished in 1580. It became an innocent victim of jealousy between *Sheik al-Islam Ahmed Semseddin Efendi* and *Hodja Saadeddin Efendi* (1536-1599).[56] *Hodja Sadeddin Efendi* was born in İstanbul in 1536. He worked as a teacher at *Sahn Medrese* and then he became the private teacher of the Ottoman sultan Murad III and Mehmed III. Also, he is a master of Takiyyuddin.[57]

There is another claim that argues that the Ottoman scholars made late in establishing a printing house in Ottomans.[58] But there is not any historical evidence. On the contrary, there are some opposite claims, like German historian Gersten Niebuhr. He says: "The claims of Ottoman *ulama* were objected to establish of a printing house is an incorrect understanding of Westerners".[59] At the same time, there are some *ulama*, like *Kadi Ishak Efendi*,[60] *Kadi Sahib Efendi*, and Sheikhs (head of a group dervish) employed in the printing house for editing the books.[61]

On the other hand, it is valuable to look at the position of the Ottoman press. The first press in Istanbul was opened around about 1494 to print books for the Jews. We know that around 1587, works about medicine

were printed in the Arabic alphabet and sold in Istanbul with the agreement of the Sultan.[62] The Ottoman learned about printing close hand and its uses, but the printing of religious books was accepted as sinful. However, at that period the wide sale of books necessary to be able to meet the expenses of the printing house was of just this type of book. In other words, this invention was not widespread in Turkey at that time due to the deprivation of the necessary social and cultural conditions rather than the official prevention or the opposition of the *ulama* and calligrapher to it.[63]

At the same time, *Sheik al-Islam Ishak Ismail Efendi* gave a fatwa for taking away from libraries the history, philosophy, and astronomy books. But, after two years, Ahmed III (1703-1730) accepted those books to the library.[64]

The scholars of the nineteenth century, who wrote Turkish books about modern sciences, did not discuss the conflict between religion and science. The scholar of astronomy *Ishak Efendi*, chemist *Dervish Pasha*, *Hami Pasha, and Kirimli Aziz Bey*, are mentioned to get along with each other.[65] At the same time, the same researchers are hesitating on these claims. Like Adivar, who well known in the field of religious and scientific research, says: "We need very deeply to research on the relation between religion and science in eighteenth and nineteenth centuries".[66]

In addition to this, some Ottoman *ulama* criticized the madrasas' education of their time. For example, *Tashkoprizade Ahmed Efendi* (d. 1561), *Gelibolulu Mustafa Ali* (XVI Siecle), *Mustafa Selanikli* (d. 1600 years), *Koci Bey* and *Katip Chelebi* (1609-1657). According to Chelebi, the education of religion and sciences were together in Ottoman *madrasas* until Kanuni (The Magnificent) Sultan Suleiman. After him, the religion and sciences were gone away from each other by the *ulama*. It was a result of an incorrect understanding of the religion.[67] Afterwards, in addition, the education at the *madrasas* were undertaken by some *ulama* who were not expert of education".[68]

## 2. **Conclusion**

There are, usually, no conflict between religion and science in the Ottoman period. But this does not mean that there has not been any "clash" and change of mentality in the late Ottoman intellectuals.

There are many scholars educated in the Ottoman state. The majority of them got an education in religion and science together. They did not object to reformations of the late eighteenth and early nineteenth century. However, a minority of *ulama* opposed reformations.

In addition, *ulama* were educated in the *madrasas* during the period of Suleiman the magnificent. After him, much-unqualified *ulama* were appointed as teachers to the *madrasas*. They wanted to conceal their failure using religious discourse.[69]

There are some claims, which argue that Ottoman *ulama* after Suleiman opposed the scientific development on religious background. The delay of the introduction of the printing house and astronomical research to Ottomans is given as an example of these claims. But those do not have strong historical bases. Moreover, we believe that some individuals and common people forced *Sheik al-Islam* and *ulama* on the decisions sometimes. Therefore, they issued *fatwas*, legal opinions, opposite to some reforms. Resisting change and reform is a general problem for common people and religions.

However, a conflict between religion and science in Ottoman Turkish intellectual life around the end of the nineteenth century together with Western trends of thought such as positivism and biological materialism.[70] But this was a general anti-religion movement, which affected Christianity, Judaism, and Islam altogether.[71]

In summary, concentration on religious sciences only brings bigotry whereas; concentration on natural sciences only results in materialism. Real harmony however can be attained by combining the two.

## 3. References

[1] Abdurrahman K. Islam and Science, Multan, 56-57 (1982).
[2] Sami, S. Kamus-i Turki, "a-l-m." art, 1904.
[3] Sezgin, F. Conference on the History of Arabic Science. Frankfurt, 172-180 (1984).
[4] Miloudi, N. The Evolution of the Geo-cultural Space of Ottoman Science. Ottoman Philosophy, Science and Institution. Ankara, 329 (2004). Khalife, Mirna R. Cultural transformation and its impact on social change. IJEMD **2(1),** 1-13 (2022).
[5] Lapidus, Ira M. A History of Islamic Societies, Cambridge University Pres, 265, (2002).
[6] Goffman, Daniel, The Ottoman Empire and Early Modern Europe. Cambridge University Pres, 170-171 (2002).
[7] Inalcik, Halil, The Place of the Ottoman-Turkish Empire in History. Cultura Turcica, Ankara. **I/1,** 58-59 (1964).
[8] Ihsanoglu, Ekmeluddin, An Overview of Ottoman Scientific Activities. Ottoman Philosophy, Science and Institution. Ankara, 319 (2004).
[9] Ipsirli, Mehmet, Medrese. DIA, Istanbul, **XXVIII,** 329 (2003).
[10] Terzioglu, A. Bimaristan. DIA, Istanbul. **VI,** 163-178 (1992).
[11] Cihan, Ahmet. Reform Caginda Ilmiyye Sinifi. Istanbul: Birey, 144-154, 155-156 (2004).
[12] Lewis, B. Bab-i mesihat. EI², 817-818 (1960).
[13] Kushner, D. The Place of the Ulama in the Ottoman Empire During the Age of Reform. Turcica. Paris. **XIX,** 54 (1987).
[14] Peters, Francis E. The Monotheist: Jews, Christians, and Muslims in Conflict and Competition. Princeton University Pres, 119 (2002).
[15] Ipsirli, Mehmet. Seyhul Islam. History of Ottoman State: Society and Civilization. (ed. E. Ihsanoglu). Istanbul**. I,** 237 (2001).
[16] Moyser, George. Politics and Religion in the Modern World. Routledge, 110 (1991).
[17] Bilge, M. Ilk Osmanli Medreseleri. Istanbul, 5-63 (1984).
[18] Cihan, Ahmet, Reform Caginda Ilmiyye Sinifi. 63-90, 91-96, 101-120 (2004).
[19] Asikpashaoglu. Tavarih-i Al-i Osman. in Osmanlı Tarihleri I (ed. N. Atsiz Ciftcioglu). İstanbul: Türkiye Yayİnevi, 115, 133, 173 (1947).
[20] Uzuncarsili, I. Hakki. Candarli Vezir Ailesi. Ankara: Turk Tarih Kurumu, 1974.
[21] Erk, Hasan B. Meşhur Turk Hukukculari: Osmanli Imparatorlugunun Kurulusundan Gunumuze. Istanbul, 25-29 (1958).
[22] Ahmet Refik Bey. Ilmiyye Salnamesi. Istanbul, 322-639 (1334).
[23] Agoston, Gabor. Early Modern Ottoman and European. Multicultural Science in the Ottoman Empire (ed. E. Ihsanoglu-K. Chatzis-E. Nocolaidis). Belgium: Turnhout: Brepols, 17 (2003).
[24] Babinger, Franz. Mehmet Conqueror and his Time (ed. W. C. Hickman). Princeton: Bollingen, 247 (1992).

[25] Babinger, F., ibid. 105-106, 118; Ihsanoglu, E. An Overview of Ottoman Scientific Activities. The Great Ottoman (ed. Kemal Cicek). Ankara: Yeni Turkiye. 322 (2000).
[26] Bolay, S. Hayri. The Ottoman Thought in the Classical Age and the Tahafut Ambition in the Ottomans. The Great Ottoman. Ankara: Yeni Türkiye. **III,** 13-14, 20-22 (2000).
[27] Babinger, F., ibid, 489. 13
[28] Sayili, Aydin. The Observatory in Islam. Ankara: Turk Tarih Kurumu, 260-276, 282-283, 286-287 (1988).
[29] Sayili, ibid, 282-283; Bayrakdar, Mehmet. Islam'da Bilim ve Teknoloji Tarihi. Ankara. 32, 70-71 (1985).
[30] Yurdaydin, Huseyin G.Ottoman Historian of XVIst Century: Nasuh al-Matruki and his Book "Beyan-i Menazil-i Sefer-i Irakeyn and its Importance for Some Iraki Citizen". Turcica. **VII,** 179-187 (1975).
[31] Brentjes, Sonja. Renegades and Missionaries as Minorities in the Transfer of Knowledge. Multicultural Science in the Ottoman Empire (ed. Ekmelledin Ihsanoglu, Kostas Chatzis and Efthymios Nicolaidis). Turnhout: Brepols, 63-70 (2003); Onler, Z. XV. Yüzyil Turk Hekimlerinden Sabuncu Serafeddin'in 'Mücerrebname' adli Eseri. Firat Universitesi Dergisi, 169-190 (1987); Kahya, Esin. On Besinci Yuzyilda Osmanlilarda Bilimsel Faaliyelerin Kisa Bir Degerlendirilmesi. Erciyes Universitesi Sosyal Bilimler Enstitüsü Dergisi. **XIV/1,** 17 (2003); Ganidagli Et. Al. Approach to Painful Disorders by Serefeddin Sabuncuoglu in the Fifteenth Century Ottoman Period. Anesthesiology. **100.** 165–169 (2004).
[32] Bahadır, O. R-Danisman, G. H.H. Late Ottoman and Early Republican Science Periodicals. Turkish Studies in the History and Philosophy of Science (ed. G. Irzik-G. Guzeldere). USA: Springer, 286 (2005).
[33] Sayili, A. The Observatory in Islam, 302 (1988).
[34] Inalcik, H. The Place of the Ottoman-Turkish Empire in History. Cultura Turcica. Ankara. **I/1,** 62 (1964); Ihsanoglu, Ekmeleddin, Ibid, p. 324; Goodvin, Jason. Lords of the Horizons. G.B: Chatto & Windus, 139, 162 (1976); Shaw, J. Stanford. History of Ottoman Empire and Modern Turkey. Cambridge Univ. Press, 107 (1976).
[35] Goodrich, Thomas D. The Ottoman Turks and The New World: A Study of Tarih-i Hind-i Garbi and Sixteenth-Century Ottoman Americana (ed. T. Halasi-Kun, P.B. Golden). Wiesbaden, 5-16 (1990).
[36] Bayrakdar, M., ibid, 173-174; Conrad, I. Lawrence. The Western Medical Tradition. Cambridge University Press, 317 (1995).
[37] Sari, N-Zulfikar B. The Pancelsusian Influence on Ottoman Medicine in the Seventeenth and Eighteenth Centuries. Transfer of Modern Science and Technology to the Muslim World (ed. E. Ihsanoglu). Istanbul, 157-179 (1992).
[38] Tekeli, S. Onaltinci Yuzyil Trigonometri Calismalari Uzerine Bir Arastirma: Copernicus and Takiyyuddin. Erdem, **II/4.** Istanbul, 219-272 (1986); Ihsanoglu, E.Ottomans and European Science. Science and Empires (ed. P. Petitjean, C. Jami, A.M. Moulin). Nederland: Kluwer Academic Publishers, 40-41 (1992).
[39] Ihsanoglu, E. Introduction of Western Science to the Ottoman World: A Case Study of Modern Astronomy. Transfer of Moderns Science and Technology to the Muslim World (ed. E. Ihsanoglu). Istanbul, 67-120 (1992).

[40] Beydili, Kemal. Matbaa. DIA, **XXVIII,** 108-109 (2003); Opwis, Felicitas. Chance in Modern Islamic Legal Theory. An Islamic Reformation (ed. Browers, Kurzman-Michaelle). Charles Lexington Books, 33 (2004); Saydam, A. Osmanli Medeniyeti Tarihi. Trabzon, 493 (1999).
[41] Levy, A. The Ottoman Ulama and the Military Reforms of Sultan Mahmud II. Asian and African Studies (ed. Baer, G.). Jerusalem. VII (special number), 17-20, 14 (1977).
[42] Turhan, Mumtaz. Kultur Degismeleri. İstanbul: MUIFVY, 164-168, 215-251 (1987).
[43] Ulgener, F. Sabri. Zihniyet, Aydinlar ve Izm'ler. Ankara: Mayas, 72, 91-92 (1983).
[44] Barnes, John Robert. An Introduction to Religious Foundations in the Ottoman Empire. Brill Academic Publishers, 3, 44-45, 56-57, 71-78 (1986); Ipsirli, Mehmet. II. Mahmut Doneminde Vakiflarin Idaresi. Sultan II. Mahmud ve Reformalari Semineri, Istanbul, 49-57 (1990).
[45] Ipsirli, Mehmet. The Ottoman Ulama. Ottoman Philosophy, Science and Institution. Ankara: Yeni Turkiye Yayinlari, 346 (2000).
[46] Shaw, Ezel Kural-Shaw, Stanford J. History of the Ottoman Empire and Modern Turkey. Cambridge University Press, 108-112 (1987).
[47] Ephrat, Daphna. A Learned Society in a Period of Transition, State University of New York Press, 8-9 (2000).
[48] Adivar, A. Osmanli Turklerinde Ilim. Istanbul, 159, 176 (1943); Antel, S. C. Tanzimat Maarifi. Tanzimat, Istanbul: Maarif Matbaasi. 441 (1940).
[49] Ulken, H. Ziya. Turkiye'de Cagdas Dusunce Tarihi, Istanbul: Ulken Yayinevi, 27 (1979).
[50] Levis, B. The Muslim Divcovery of Europe. London, 224 (1982).
[51] Sayili, A., ibid, 350.
[52] Berkes, N. (und). Turkiye'de Cagdaslasma, Istanbul. 57-65.
[53] Tekeli, Sevim. Nasiruddin, Takiyuddin ve Tycho Brahe'nin Rasat Aletlerinin Mukayesesi. Ankara: Ankara Üniversitesi Dil ve Tarih Coğrafya Fakültesi Dergisi, **XVI/3-4,** 342-360 (1958).
[54] Mecdi Mehmed Efendi. Hadaik al-Sakaik**. II,** 286-287 (1988); Uzuncarsili, I. Hakki. Osmanlı Tarihi. Ankara. **III,** 517 (1991). Adıvar, A. Adnan. Osmanlı Türklerinde Ilim. Istanbul, 104 (1991).
[55] Sayili, A. The Observatory in Islam and Its Place in the General History of the Observatory. Ankara, 298-305 (1960).
[56] Saydam, ibid. 473.
[57] Mecdî Mehmed Efendi. Hadaik al-Sakaik. **II,** 286 (1988).
[58] Berkes, N. Cagdaslasma, Istanbul, 59-60 (1978).
[59] Niebuhr, C. Beschreibung von Arabien. Copenhagen. **III,** 216 (1772).
[60] Ebul Ula Mardin. Huzur Dersleri. Istanbul. I, 13; İshak Hoca Harputlu", Türk Ansiklopedisi, Ankara-1972, **XX,** 231 (1951).
[61] Beydili, Kemal. Matbaa, DIA, **XXVIII,** 109 (2003); Reichmuth, Stefan. Islamic Reformist discourse in the Tulip Period: Ibrahim Muteferriqa and His Arguments for Printing. Proceedings of the International Congress on Learning and Education in the Ottoman World (ed. Ali Caksu). Istanbul, 149-161 (2001).
[62] Atiyeh, George Nicholas. The Book in the Islamic World. State University of New York Press, 283-292 (1995).

[63] Inalcik, Halil. ibid, 62; Shaw, Stanford Jay, Shaw, Ezel Kural. History of the Ottoman Empire and Modern Turkey, 236 (1987); Carleson, Edvard. Ibrahim Müteferrika Basımevi ve Bastigi Ilk Eserler (Tr. Mustafa Akbulut). Ankara. 1979. 9; Sharon, M. Sevilla. Türkiye Yahudileri. Istanbul: Iletisim Yayinlari, 105-106 (1992).
[64] Adivar, A. Osmanli Turklerinde Ilim. Istanbul, 139, 15 (1943).
[65] Ihsanoglu, E. Osmanli Devletine XIX. Yuzyilda Bilimin Girisi. Toplum ve Bilim. Istanbul. **XIX/XXX,** 97 (1985).
[66] Adivar, A. Tarih Boyunca İlim ve Din. Istanbul. **II,** 113 (1944). As known that this book was written by himself after Osmanli Turklerinde İlim.
[67] Uzuncarsili, I. Hakki. Osmanli Devletinin Ilmiyye Teskilati. Ankara: Turk Tarih Kurumu, 67-71, 71-75, 241-252, 253-360 (1965).
[68] Saydam, A. Osmanli Medeniyeti Tarihi. Trabzon, 480 (1999); Ergun, Mustafa. **II.** Mesrutiyet Doneminde Medreselerin Durumu ve Islah Calismalari. Dil ve Tarih-Cografya Fakultesi Dergisi. **XXX,** 59–89 (1979); Fortna, Benjamin C. Imperial Classroom: Islam, the State, and Education in the Late Ottoman Empire. Oxford: Oxford University Press, 4-6 (2002).
[69] Ipsirli, M. Medrese. DIA. **XXVIII,** 329 (2003).
[70] Ozervarli, M. Sait. Alternative Approaches to Modernization in The Late Ottoman Period: Izmirli Ismail Hakki's Religious Thought Against Materialist Scientism. Int. J. Middle East Stud. **XXXIX.** Cambridge University Press, 77–102 (2007).
[71] Bowler, J. Peter. Reconciling Science and Religion. Chicago: Chicago University Press, 9-14 (2001).