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Bridging Worlds: How Islamic Civilization Shaped the Rise of Western Europe

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ABSTRACT

This article attempts to analyze the influence of Islamic civilization on the rise and progress of European-Christian (Western) civilization in the Middle Ages. The focus of this research is to trace the process of transferring knowledge (philosophy, science, technology, humanities, literature, medicine) from the Islamic world to European-Christian society through intellectual interaction in Andalusia (Spain), translation of scientific works of Islamic intellectuals, and through trade and the Crusades. This research employs a qualitative method with a literature study approach, where data are obtained from various academic literature sources and other scientific works. The results of the study show that Islamic civilization in Andalusia played a very decisive role in triggering intellectual development and European-Christian civilization which became the foundation for the Renaissance (Revival) in the West. Through a number of libraries and educational institutions in Andalusia and other Islamic centers, the process of translating books by Islamic scientists in Arabic into Latin took place by European-Christian students who brought them and spread them in their respective countries, thus giving birth to the spirit of the Renaissance in mainland Europe. This study concludes that Islamic civilization not only played a role as the guardian of the classical knowledge heritage of Greece, Rome, Persia, India, but also as a red carpet for European civilization, from the Dark Ages to the Renaissance (Revival).

1. INTRODUCTION

The intellectual progress of Islamic society, both in the Abbasid Dynasty (Daulah) era in the East (Baghdad) and the Umayyad Dynasty era in the West (Andalusia, Spain) played a significant role in the birth of the Renaissance spirit (Revival) on the European mainland. When Islamic civilization experienced its heyday, with the rapid increase in science (philosophy, history, geography, mathematics, art, architecture, medicine, literature, architecture, and technology), along with the decline of Roman civilization (after the destruction of Ancient Greek civilization, European society was actually experiencing the "Dark Ages" where the dominance of the church was so strong and controlled all sectors of life and rejected rationality in thinking (Muttaqin et al., 2023).

Changes slowly occurred when Europeans in the Iberian Peninsula, especially in Andalusia (Spain), studied at a number of Islamic universities there in order to adopt the rapidly advancing Muslim intellectual civilization. The Renaissance itself comes from French which means "Rebirth", referring to the period in European history from the 14th to the 17th centuries marked by a revival of interest in classical literature, art, and science from ancient Greek and Roman civilizations (Hasibuan et al., 2025).

It is indeed common for a backward culture to become a student who adopts the culture of a more advanced teacher. Quoting Gaffar's opinion that no culture in the world has developed without a process of interaction with foreign cultures, then when Islamic civilization excelled, Europeans then imitated, adopted, and developed it, although not all of these cultures were taken raw from other cultures that were considered more civilized. Each culture has its own identity, values, concepts and ideology (worldview). This, continued Gaffar, applies in the history of Islamic thought and civilization, when Islam borrowed the treasures of Greek, Indian, Persian, and other thoughts. An important lesson to note in this case is that when scholars borrowed foreign concepts, they tried to integrate foreign concepts into the Islamic worldview. The same thing was then done by Europeans who adopted Islamic culture in the Middle Ages (Gaffar, 2016).

Through the translation of scientific books, European scholars had a new horizon and awareness that a nation's civilization would only advance if they used logic and rationality in viewing and measuring the world that often changed, which led to a new awareness called the Renaissance, namely the revival of Ancient Greek philosophy that had previously been chewed and reinterpreted by Islamic intellectuals in Andalusia and Baghdad (Dear, 2018). Learning centers such as Cordoba, Sicily, Granada, Baghdad, and Damascus were silent witnesses to how Muslim scientists translated and developed the works of Greek, Roman, Indian and Persian philosophers. The works of Muslim scientists such as Al-Khawarizmi in mathematics, Ibn Sina in medicine, and Al-Farabi in Arabic philosophy, were translated into Latin and absorbed by European intellectuals. Muslim scientists not only preserved the knowledge of pre-Islamic civilization (Hellenism, Judaism, Christianity, Persia, and India), but also developed scientific methods that became the basis for modern knowledge methodology. Scientists such as Al-Razi (Rhazes) became an inspiration for European scientists in the Renaissance era such as Roger Bacon and Galileo Galilei (Muqowim & Lessy, 2023).

The interaction between the Islamic world and Europe was not only through the transfer of knowledge, but also through cultural contact, military (especially the Crusades), and trade networks, where Andalusia was a bridge between the two civilizations. Tolerance between Muslims, Christians, and Jews created a multicultural culture that allowed for the exchange of ideas and cultures (Banitalebi et al., 2012).

In modern times, some Western politicians and scholars have acknowledged the contributions of Muslim scholars to Western civilization. Robin Cock, the British Foreign Secretary, for example, in his speech at the Ismailiyyah headquarters in London on October 8, 1998, said:

> “This headquarters is the core of the Islamic architecture museum and the best reminder for us in the heart of the city of London that the roots of our culture are not only Greek or Roman, but also Islamic. Islamic art, Islamic sciences and philosophy have helped shape our development, have served in conditioning the growth of our people, have shaped our way of thinking and our way of life and he is the one who made us able to count in the right way. Indeed, our civilization owes a lot to Islam, a debt that cannot be forgotten by the European (Western) generation [….] Western West really owes a lot to Islam, Islam has laid the foundations of thought in various large and important fields in Western culture. Starting from the Arabic numerals we use to our understanding of the sky (al falak). Indeed, many of the foundations of Hadharah return to the merits and gifts of Islam (Obaid, 1999).

2. METHOD

This study was conducted using a qualitative-descriptive approach, which aims to describe in depth the traces of the contribution of classical Islamic civilization to the intellectual revival in Europe. Data collection was carried out through literature studies, by reviewing various primary and secondary sources including historical reference books, scientific journals, and relevant academic papers. The focus of the study was directed at the thoughts, institutions, and scientific works of the golden era of Islam which have historically been proven to have a significant influence on the birth of the Renaissance movement in Europe. Data analysis was carried out by compiling literature findings into a descriptive narrative form, so as to provide a complete and systematic

picture of the relationship between classical Islamic civilization and intellectual transformation in the West (Sugiyono, 2019).

3. RESULTS AND DISCUSSION

When ruling the Umayyad Dynasty, Caliph al-Walid bin Abdul Malik (Al-Walid I; 86 H 705 AD), as the sixth caliph, appointed Musa bin Nusair as governor in North Africa, which West Africa could be controlled except for Sabtah (Ceuta) which was under the Byzantine Empire. At this time, Islamic forces were able to dominate the western part of Africa up to Andalusia (Iberia Peninsula) (Khairuddin, 2017).

The conquest by Islamic forces in Andalusia cannot be separated from the role of three Muslim commanders: Tharif ibn Malik, Tariq bin Ziyad, and Musa bin Nushair. The expansion of the Umayyad Dynasty into Andalusia was pioneered by Tharif ibn Malik who succeeded in controlling the southernmost tip of Europe, which was continued by Tariq bin Ziyad who succeeded in controlling the capital of Andalusia, Toledo. Tariq bin Ziyad also succeeded in controlling Archidona, Elfiro, Cordova; even Roderick, the last king of Vichigothic, was defeated. Under the leadership of Tariq bin Ziayad who brought 7,000 troops, Islam entered Cordova in 93 AH (711 AD). With additional strength, becoming 12,000 troops, on July 19, 711, Tariq faced King Roderick's troops at the mouth of the Barbate River and succeeded in defeating the Gothic army. This victory made it easier for Muslim troops to conquer other cities in Spain without significant resistance. Thariq's success in occupying Andalusia was recorded as the official benchmark for the conquest of Andalusia by Muslims (Khairuddin, 2017).

Sicily has three regions that have great influence, namely Val di Mazarra, Val di Noto, and Val di Demino. Islam has become the official religion in Val di Mazarra, and has developed various cultural activities. The attempt to conquer Sicily was only carried out during the time of Uthman bin Affan with his governor in Damascus, namely Muawiyah ibn Abu Sufyan with the leadership of the troops of Mua'wiyah bin Khudaij, although it failed. New conquests were carried out by the Umayyad Dynasty I during the time of Abdul Malik bin Marwan (685-705). Governor Musa bin Nuhsair in 704 and 710, Bish bin Safwan in 727, and Abdurahman bin Addul Malik in 753 (Ajid, 2009).

At the same time, Tariq's military expansion was continued by Musa bin Nushair who was able to control the western part of Andalusia which had not been passed by Tariq's troops; this attack was the same, without significant resistance from the natives. Thus, the Muslim troops were able to control the entire Andalusia region. However, the Umayyad Caliphate during the time of Walid bin Abdul Malik only made Andalusia an emirate (province), where Musa bin Nushair was the emir based in North Africa. Administrative changes occurred when the Umayyad Dynasty in Damascus collapsed, which caused the authority of Andalusia to be held by an Umayyad prince, namely Abdurrahman ibn Mu'awiyah ibn Hisham who managed to escape from the pursuit of the Bani Abbas. Abdurrahman ibn Mu'awiyah then succeeded in re-establishing the Umayyad Dynasty in Andalusia after Damascus was attacked by the Bani Abbasids (Khairuddin, 2017).

Intellectual Horizons of the Medieval Islamic World

Before discussing the influence of Islamic civilization on the birth of the Renaissance in Europe, it is better to first explain the realms of Muslim intellectual knowledge from the Classical to the Middle Ages. Many the realm of knowledge that was born from the cradle of Islamic civilization in the Umayyad period in Andalusia and the Abbasid period in Baghdad during the span of the 8th century to the 13th century (Ali et al., 2024).

The peak of Muslim-Andalusian intellectual achievement occurred in philosophical thought. Andalusian Muslims were the connecting link between classical Greek philosophy and Latin-Western thought. They also played a major role in reconciling religion with science, reason with faith. During the time of Caliph al-Hakam II (961-976 AD), thousands of scientific works of philosophy were imported from the East. These works were collected in his personal library (Rhorchi, 2024). Al-Hakam's policy of supporting the creation of an intellectual environment was what made Cordoba with its libraries and universities able to rival Baghdad as the main center of science in the Islamic world. At the same time, this was a preparation for the birth of great Spanish philosophers in the future.

One of the Andalusian philosophers was Abu Bakr Muhammad bin al-Sayyigh, better known as Ibn Bajjah. Born in Saragossa, he moved to Seville and Granada. Ibn Bajjah died of poisoning in Fez in 1138 at a young age. Just as Al-Farabi and Ibn Sina in the East, he studied philosophy in the fields of ethics and eschatology. Historians view him as a person with extensive knowledge and mastery of no less than twelve fields of science.

He is equated with the philosopher Ibn Sina and can be categorized as the main and first figure in Arabic-Spanish philosophy and the successor to his philosophical thought is Ibn Thufail (Dahlan & Islam, 1998).

Another philosopher is Abu Bakr ibn Thufail. He was born in a small village, Wadi Asy, east of Granada and died in old age in 1185 AD. He wrote a lot about medicine, astronomy and philosophy. His philosophical work, which is famous until now is *Hay ibn Yaqzhan*. The next philosopher was the greatest follower of Aristotle in the Islamic philosophy arena, Ibn Rushd of Cordoba. He was born in Cordoba in 1126 and died in Morocco in 1198. In the West he is known as Averoes. Ibn Rushd's greatness is evident in his works, which always divide their discussions into three forms, namely comments, criticism, and opinions. That is why he is known as a commentator and a great critic. He commented a lot on the works of his predecessor Muslim philosophers, such as Al-Farabi, Ibn Sina, Ibn Bajjah, and Al-Ghazali. In particular, his criticism and comments on the works of Aristotle made him very famous in Europe. His comments on Aristotle's philosophy had a great influence on the rise of European science and could form a school of thought attributed to him: Averroism (Aniroh & Sangadah, 2022).

In addition, one of the legacies of Islam to Western civilization is the scientific method as an intellectual framework. So far, there has been an assumption that Roger Bacan was the inventor of the scientific method. However, Briffault stated: Roger was nothing more than a messenger of Muslim science and method to Christian Europe. He studied Arabic in France in 1240-1250 and 1257-1268; with Arabic as his capital he studied exact sciences and Islam and then translated from Arabic what had not been translated and *Greater work*-it is the result of plagiarism from *Al-Syifa* Ibn Sina's work (Obaid, 1999). After that, Francis Bacon (1561-1627) spread the theory of induction and deduction and the experimental method through his works which are considered the standard of scientific research.

In the field of Sufism, Andalusian Muslims also have a number of figures. One of them is Ibn Arabi, who is a representative of the illumination school (*Israqi*) pioneered by Suhrawardi (1191) in the East (Abbasid Dynasty). Ibn Arabi's Sufi thought style can be categorized as philosophical Sufism. One of his famous theories is*wahdah al-wujud*(unity of existence). Starting from this theory, Islamic Sufism experienced contact with the idea of pantheism. Ibn Arabi's thoughts were not only influential in Persian and Turkish Sufi circles but also in the Christian scholastic school called the Augustinian school. Among his most important works is al-*Futuhat al-Makiyyah* (*The Revelation of Mecca*) And *Fushush al-Hikam* (*Pockets of Wisdom*), as well as *Al-Isra' and Maqam al-Asra*which develops the theme of the Prophet's ascent to the seventh heaven (Aniroh & Sangadah, 2022).

In the realm of science (exact sciences), Andalusian Muslims helped give birth to famous figures from various fields such as medicine, astronomy, chemistry, and algebra. In the field of medicine, Ibn Sina (980-1307) with his work*al-Qanun fi at-Thibb*became the main reference for prospective doctors until the 19th century, especially regarding nervous diseases. It can be said that between the 13th and 16th centuries, no Western medical expert could escape the influence of Ibn Sina. Other figures are Ibn Nafis (687 H), the discoverer of blood flow; while Az-Zahrawi Abu Al-Qasim Khalaf (404 H/1013) was a surgeon whose book was a reference for centuries (Obaid, 1999). Other scientists were Ahmad bin Ibas, a medicine expert; Ummi al-Hasan binti Abi Ja'far and Al-Hafidzh's sister were two female medicine experts.

In the field of Mathematics, Muhammad Ibn Musa al-Khawarizmi (780-850 AD) was the pioneer of algebra. *Al-Jabr wa Al-Muqabalah* is his book that spread the use of Arabic numerals and the decibel system (Toscano, 2020). Several geometry formulas, including the triangle theory, logarithmic lists, and the decibel system were his discoveries, not those of John Naiper (1550-1617) or Simon Stevin (1548-1620). then thinkers in the field of lenses or optical glass were discovered by Ibn Haritsam (965-1038 AD), known in the West as*al-Hazen*. His work *Kitab al-Manazhir* And *The Word of God in Life and in the World*has been published in several languages. Keppler's work is a modern optician *Ad Vittelionium Paralipomena* which was first published in Frankfurt (1604) was based entirely on Ibn Haritsam's work. The discovery of lenses is key in the military, medical, industrial and technological worlds (Obaid, 1999).

In the field of chemistry, Andalusian Muslims in Cordoba, Seville, and Toledo had Abbas bin Farnas, the first person to discover the manufacture of glass from stone (Aniroh & Sangadah, 2022). In the field of astronomy, there was Ibrahim bin Yahya al-Naqqash, a scientist who could determine the time of a solar eclipse and determine how long it would last. He also succeeded in making a modern telescope that could determine the distance between the solar system and the stars. Other astronomers from Andalusian Muslims were Al-Majriti (1007 AD) from Cordova, Al-Zarqali (1029-1087 AD) from Toledo, and Ibn Aflah (between 1140-1150 AD).

In the field of history, Aniroh et al. noted, there were two very famous Muslim historians, namely Ibn Khatib and Ibn Khaldun. Ibn Khatib (1313-1374 AD) came from an Arab family who moved to Spain from Syria. He is famous for his work which tells the history of the city of Granada. Meanwhile, Ibn Khaldun (1332-1406 AD) was born in Tunis, a formulator of the philosophy of history. His monumental work is *The Book of Ibar and the Diwan of the Mubtada*, *Wa al-Khabar, in the days of the Arabs, Wa al-Ajam, Wa al-Barbar* (*Books on Ibarat, List of Subjects and Predicates, and History of the Arabs, Persians and Berbers*). In the fields of history and geography, the Islamic-Western world (Andalusia) gave birth to many famous thinkers. Ibn Jubair from Valencia (1145-1228 AD) wrote about Muslim countries in the Mediterranean and Sicily; while Ibn Bathuthah from Tangier (1304-1377 AD) reached Samudra Pasai and the land of China (Aniroh & Sangadah, 2022).

Geographers from the Eastern world are Al-Bakri and Al-Idrisi. Al-Bakri died in 1094 AD, the first Muslim geographer who is famous for his monumental work.*The Masalik and the Mamalik* (*Books on Roads and Governments*). While Al-Idrisi was born in Ceuta in 1100 AD with his monumental work *Book of Nadzah al-Muslak in Ikhtira al-Afaq* And *Book 14 al-Jami' Li asitat an-Nabat*. His contribution to knowledge is his depiction of an astronomical place on the surface of the earth (Aniroh & Sangadah, 2022).

In the field of music and art, Andalusian Muslims gave birth to Al-Hasan ibn Nafi who was famous for his skill in composing songs. His skill was not only for his own enjoyment, but he taught it to his children, men and women, and to his slaves. The foundations of musical art were laid by Ziryab in Cordova, a student of the music school in Baghdad. Many Muslim musicians worked at the court of the Christian kings of Castile and Aragon. There is a clear connection between the tradition of the troubadours (music buskers) in Spain and the influence of Arabic poetry; also that it was Muslims who brought the guitar to Europe, the Arabic language of which *qitarah*, via Spanish *guitar*, originally from Greek (Hitti, 2008).

Famous figures in the field of language are Muhammad Ibn al-Hasan al-Zubaydi (928-989 AD) and Ali ibn Hazm (994-1064 AD). Al-Zubaydi who lived during the time of al-Hakam was appointed as the supervisor of the education of the Caliph's son, namely Hisham, so he was also appointed as *qadli*(adviser) and chief justice in Seville. His main work is a list of classifications of grammarians and philologists who appeared throughout his life. Meanwhile, Ibn Hazm was a great poet who had no less than four hundred volumes of books containing history, theology, hadith, logic, and poetry. One of his books is *Thawq al-Hamamah* (*Dove Necklace*), an anthology of love poems that glorify the concept of Platonic love (Aniroh & Sangadah, 2022).

Not only abstract sciences, but also applied sciences were of great interest to Muslim intellectuals. Roads and markets were built for trade purposes. Irrigation systems were introduced to the Spanish people who were previously unfamiliar with them. Dams, canals, secondary and tertiary channels, and water bridges were built, so that even high places received their share of water. The Arabs succeeded in introducing hydraulic regulation for irrigation purposes. If dams were used to check water levels, reservoirs (pools) were made for conservation (water storage). This hydraulic regulation was built by introducing water wheels (*water wheel*) of Persian origin which is called *na'urah* (Spanish:*Noria*). Physical development, in addition to bridges and dams, was also applied to palaces, forts, mosques, settlements, and city parks. They built magnificent buildings such as the Cordova Mosque, Al-Zahra City, Ja'fariyah Palace in Saragosa, Toledo Walls, Al-Ma'mun Palace, Seville Mosque, and Al-Hamra Palace in Granada (Aniroh & Sangadah, 2022).

Muslims also passed on agricultural knowledge to Europeans. Agricultural knowledge and its trees were then introduced to Spain, such as sugar cane, tut trees (the fruit is eaten and the leaves are for silkworms), rice, cotton, and several types of fruit. Scientific research on agriculture, plantations, and land was written down. The leading observer in this research was Ibn al-Awam al-Isybili (1190 AD). In his work *Kitab al-Falah*, he described various types of soil and fertilizers, and explained how to cultivate various plants and 50 types of fruit. He also explained how to care for them, the symptoms of diseases, and how to eradicate plant pests. Even today, Spaniards still remember the statement from the Middle Ages: "everything in the world is found in Seville, even the milk of sparrows (Obaid, 1999)."

Some industrial products have been introduced by Muslims to Andalusia, among them is paper. The first paper mill in Europe was in Asbania in the mid-12th century with the first industrial centers being in Balansia, Syathiba, and Toledo. Various mining equipment such as knives, swords are there, ornaments and carvings from mining are also there. The most important industry is the creation of firearms called *barud* (pistol), a pure Muslim innovation (Obaid, 1999).

Not only during the Umayyad I and II and Abbasid periods, the Fatimid Dynasty also experienced its peak of glory during the reign of Al Mu'izz and Al Aziz where there was a vizier named Yaqub ibn Killi (d. 991), a Jew from Baghdad who converted to Islam. Yaqub established the internal administration of the kingdom and

successfully laid the foundations of the economy, enabling the country to achieve prosperity in the Nile River basin during the early Dynasty period (797-800). In the sub-chapter "Development of Knowledge, Art, and Architecture", Hiiti describes the construction of a number of universities on the advice of Al Killi which spent thousands of dinars per month for its costs. It is told of the development of medical science, astronomy, etc.; the development *Dar al-Hikmah* or *Dar al-Lim* (House of Knowledge) by Al Hakim in 1005 as a center for learning and spreading extreme Shiite teachings; and the story of Al Aziz who loved poetry and education, developing the Great Mosque of Al Azhar into a university. It is also told about the mosques that were built, such as the Al Azhar Mosque, the development of ceramic art and bookbinding art (Hitti, 2008).

Intellectual Contact of the Islamic World with European Nations

When ruling over Andalusia, several Umayyad II rulers played an important role in the development of civilization in Spain (Abdullah & Talib, 2023). Not only did the caliphs support the development of intellectualism, the diverse communities in Andalusia also contributed intellectual shares to the formation of a scientific and rational cultural environment that fostered a spirit of love for science and knowledge. By using Arabic language and letters as the administrative language and language of science, the process of translating Greek, Persian, and Indian philosophical books was translated and interpreted by Muslim intellectuals, which in turn were translated into Latin by European-Christian scholars who studied in cities in Andalusia and later brought to their respective hometowns in the European Peninsula (Green, 2023).

Many young Europeans studied at the universities of Cordoba, Seville, Malacca, Granada, and Salamanca. While studying at these universities, they actively translated books by Muslim scholars. The center of translation was Toledo. After they returned to their country, they founded the same schools and universities. The University of Paris was founded in 1213 AD and until the end of the Middle Ages in Europe there were only 18 universities. Aniroh, said that at these universities they taught the sciences they obtained from Islamic universities such as medicine, exact sciences, and philosophy. Not a few universities produced reliable scholars such as Petrus Alfonsi (1062 AD), a European scholar, who studied medicine at one of the medical faculties in Spain. Likewise, Adelard of Bath (1079-1192 AD) who had studied in Toledo. Many Muslim scholars have contributed to researching and developing science—even their work has been translated into European languages—although ironically it is recognized as their own work (Aniroh & Sangadah, 2022).

The existence of several schools and universities in several cities in Andalusia that are very famous such as Cordova (Cordoba), Toledo, Seville, Malaga, and Granada. It was in the campuses in these cities that Muslim scholars came from the East bringing various books; and this shows that, apart from being a political unity, Islam also emerged as a cultural unity—Islamic culture. The development of science in the Andalusian Peninsula was nothing other than a cultural competition, a competition of intellectual skills. The competition between the Abbasid Dynasty in Baghdad and the Umayyad II Dynasty in Andalusia in science, said Khairuddin, can be represented by the existence of universities in Baghdad and universities in Cordova as positive competition (Muqowim & Lessy, 2023).

Andalusia itself, with its fertile soil, not only provided commodities of high economic wealth, but was also a terminal for a heterogeneous society in which various communities lived, such as the Arabs (North and South), *al-Muwalladun*, Badui,*al-Shaqalibah*, Jews, and Christians, who lived side by side peacefully—except for the Christians who still opposed Islam. Each of them, except the last, made intellectual contributions in shaping a cultured environment as an intellectual stage where literature, architecture, science, infrastructure, trade, and even shipping technology developed so rapidly. It is undeniable, Basri wrote, that religious tolerance is one of the foundations of a pluralistic society in Andalusia, so that different communities can work together and contribute their respective strengths (Basri & Ditya, 2023).

In the 9th century, the capital of Andalusia, namely Qurthubah (Cordoba) which was 20 miles long and 6 miles wide was like a metropolitan city in its time, where the streets were neat and complete with lighting, parks, hotels, shopping centers, mosques, palaces, buildings, madrasas, and universities. It was to Andalusia that seekers of knowledge from Western Europe flocked to gain knowledge, and reached its peak in the 11th century when Muslim scholars and intellectuals came to Andalusia from Iraq, Syria (Syria), and Egypt, bringing literature from the East, because the Andalusian government provided a place of honor for lovers of knowledge until the Umayyad power in Andalusia was torn apart by the attack of European-Christian troops (Obaid, 1999).

In Toledo, there is a mosque and a library rich in books. Mixed Arabs (*mullad*) and Jews worked together with Spanish Christians in a massive translation project (Hernandez, 2023). There are a number of names in terms of translating this book, namely Johannes Hispanus, Gundi Salinus, and Gerard de Cremora (1114-1187)

Italian translators who went to Toledo, Michael the Scotsman, and Herman the German (1240-1246). They studied mathematics, physics, medicine, astronomy, chemistry, from universities in Cordoba, Toledo (Thulaithulah), Seville (Isybiliyah), and Granada (Gharnathah). Apart from them, there are also the names of scientists such as Adelhard of Bath, Robert of Chester, Stephen of Saragosa (Sarqusah), William of Yunis, and Philip of Tripoli (Tharabulus). They translated books from Arabic into Latin and also Hebrew to then be translated again into European languages by removing the Islamic nuances. For this purpose, Europeans established educational institutions in Arabic, Hebrew, and Greek. From this institution in Toledo, people such as Raymond Martin (13th century), Raymond Lull (1316) were born who founded foreign language departments in European universities. This translation movement was driven by Alfonzo of Catilla (Qastalah) (Arráez-Aybar et al., 2015).

Islamic medicine was studied in Salerno, the capital of Sicily, where a large-scale translation was encouraged by Constantinus Africanus (1087 AD) who was once a student of an Arab Muslim. He translated the works of Hippocrates and Gales from Arabic into Latin, in addition to translating the original works of Muslim scholars. In the 12th century AD, a large-scale translation was encouraged by Frederick II and Roger II, so that within 25 years Frederick had managed to collect all of Ibn Rushd's works after the philosopher's death (1198 AD). He also invited Michael the Scot to lead the translation team he chose. Then Frederick brought the results of these translations to various universities in Europe via Italy. As a result, Lorraine, Liege, Gorze, Cologne became centers of study of Muslim intellectual thought (Obaid, 1999).

In addition, the Crusades lasted for two centuries (490-690 H) with eight battles. This war was won militarily by Muslims, but the greatest losses were on the same side; while the economic-political gains were on the Christian side (Middleton, 2015). These gains and losses occurred, first, because they took place in Muslim territory, namely in Syria (Syam) and its surroundings; second, because the civilization of the Crusaders was quite low compared to the civilization of the Muslim troops (Huntington, 1996).

The Crusades, which lasted for two centuries with ups and downs, clearly influenced the pace of world history, encouraging the exchange of technology and transportation from the hands of Muslims to the hands of Europeans (Westerners). The impact of the Crusades was not only regional but also global, including giving birth to the expansion of European trade to other parts of the world, both the Far East such as South, East, and Southeast Asia, and to other parts of the continent that would later be called America, which in turn created colonialism in the countries they visited since the 15th century (Middleton, 2015).

After the fall of the Andalusian Umayyad Caliphate, the Ottoman Caliphate was in the 15th century. The transfer of the Caliphate began on May 29, 1453, when Muhammad (Mehmed) al-Fatih succeeded in conquering the fortress of Constantinople, the capital of Byzantium (Mayall, 2024). After Constantinople was changed to Istanbul by Mehmed al-Fatih, Constantine II asked the Pope in the Vatican for help in uniting his Orthodox Church with the Roman Catholic Church in order to face the Ottoman Turks. Oddly enough, the people of Constantinople opposed the idea of unifying the two churches, preferring Muslim occupation in the heart of their capital rather than uniting with the Catholics (Israeli, 2017).

In Constantinople, there was social-cultural contact between the Turkish-Muslim community and the Orthodox Christian community. The Ottoman Turks who were tolerant of non-Muslims in their kingdom launched the transformation of Islamic values into Christian society. Here there is not too much influence of Islamic science on the West because the West at that time was seriously studying and developing Islamic science which had been carried two centuries before until finally the West surpassed Ottoman Turkey (Obaid, 1999).

There was individual contact between Christians in the East (Byzantium) and Muslims in Syria, Egypt, and Persia, even after these regions were conquered by Islamic military expeditions, dating back to the Caliphate of Umar ibn Al-Khattab. The tolerance of Muslim society allowed Christians in the East to follow the intellectual and cultural activities of Muslims. Eastern Christians who had their own scientists helped translate Greek works into Arabic. This social contact was more general than economic-trade contact (Obaid, 1999).

The Backwardness of Pre-Renaissance European Civilization

The life of European society in the Middle Ages was far behind the life of the glorious Muslim civilization. The majority of them were still illiterate, full of superstition, unscientific, so this era was called the Dark Ages (*Dark Ages*). The Catholic Church forbade medical science because it believed that illness was God's punishment so that humans had no right to get rid of illness. The church also closed public baths and prohibited bathing (Jayne, 2018).

One illustration of the backwardness of Europeans at that time is the story of Kilyam Dabur, the Mayor of Thabariyah. He told that a champion horseman who was seriously ill was brought to an archbishop for treatment. When he saw the patient, the Bishop asked for wax. After we gave him the wax, he relaxed it and formed it like finger joints, then each was placed next to his nose. After that the champion died. We told him that he had died. He said, "Yes, he was tortured, so I plugged his nostrils until he died and rested in peace (Obaid, 1999)."

Another story about the darkness of Europeans comes from Usamah ibn Munqidz in his book *Al-I'tibar*. He told that his uncle was asked by the Mayor of Munaithirah (Christian) to send a healer to treat his friends. Uncle Usamah sent a Christian healer from a country who had long studied healing in an Islamic country, named Tsabit. After ten days of his departure, Tsabit returned home, so that Usamah's family was amazed. "You treated them very quickly," said one of Usamah's family members. Tsabit said that there he was told to treat a knight on horseback who suffered from boils on his legs and a woman who suffered from a disease *nasyaf* (allergies). For boils sufferers, he has made a param that is smeared on the boils which then the boils open and he becomes better. As for allergy sufferers, Tsabit prescribes prohibitions and curbs his appetite. Suddenly an Ifrinji (European) healer came, curtly saying: "This person does not know the slightest bit how to treat them." Then he said to the male patient: "Which do you prefer, living with one leg or dying with two legs?" The patient replied: "I prefer living even with one leg." The European healer said: "Give me a sharp axe and a *did* (a horseman) who is strong." *Did* and the axe was prepared, then the healer placed the patient's feet on a wooden pillow, then ordered *did* to cut with one swing. It turned out that with one swing the leg did not break, then on the second swing the bone marrow was thrown out, and the patient died instantly (Ahmad, 2023).

To the female patient suffering from allergies, the European healer said: "There is a devil perched on your head because he loves you, shave your hair." After that, the woman returned to eating the forbidden foods that had been conveyed by Tsabit. Then the disease *nasyaf*-her condition worsened. The European healer finally diagnosed: the devil had now entered her head. So he took a razor, peeled the woman's head in the shape of a cross until her skull was visible and sprinkled it with salt, so that the woman met her death (Obaid, 1999).

The condition of European society was in stark contrast to the condition of Muslims at the same time. During the Crusades (489-669 H/1096-1270 AD), the city of Damascus already had 20 madrasahs and two professionally managed hospitals. The newest hospital, with a daily operational cost of 15 dinars (60 grams of gold), had employees who were tasked with registering the names of patients, diagnosing their illnesses, and recording the names of the medicines needed. Doctors made visits and examinations every day, from the morning, they visited each patient, conducted observations, identification, and medical actions (Obaid, 1999).

The Influence of Islamic Civilization on the Rise of Europe

Historian Philip K. Hitti writes:

> *" When we talk about Arabic medicine, or Arabic Philosophy, Arabic Mathematics, we are not talking about Medicine, Philosophy and Mathematics which are the result of Arab thought, or developed by people in the Arabian Peninsula, but we are talking about knowledge written in Arabic books by people who lived, especially during the Caliphate, consisting of Persians, Egyptians, or Arabs, whether Christian, Jewish, or Muslim, while the materials they processed were from Greek, Aramaic, Indi-Persian, and other sources (Hitti, 2008)."*

The transmission of thought and science from the Islamic world to the Western world in the early Middle Ages took place in three stages. *First*, a group of Western scholars visited Muslim lands to conduct personal studies. Constantinus Africanus and Adelhard were the pioneers. Then followed by pioneers from Italy, Spain, and France. They attended Muslim seminaries to study mathematics, philosophy, medicine, cosmography, and others. In a short time, they became prospective professors at the first universities in the West, which were built on the example of these Muslim seminaries. *Second*, began with the establishment of the first Western universities. Their architectural style, curriculum, and teaching methods were exactly the same as those of the Muslim seminaries. First, the seminary of Salermo was established in the Kingdom of Naples. By King Frederick II, important universities were then established in Padua, Toulause, and Leon. *Third*, at this stage Islamic science was successfully transmitted to France and the Western regions through Italy. Seminaries in Bologna and Mont Rellier were established in the early 13th century, then the University of Paris was opened in 1213.

Meanwhile, Islamic science reached England and Germany through the universities of Oxford and Kala, which were established in the same pattern (Obaid, 1999).

Not only science and technology, during two centuries of living in the East, Europeans were very interested in the form of Muslim society, adopting the customs, clothing, food, and morals of Muslims. They were impressed by Saladin's morals when he liberated Jerusalem in Palestine, as he sent his personal doctor to treat the sick English king Richard "The Lion's Heart". Not only that, Saladin also sent food and fruit (Jaelani, 2018).

In the fields of trade, agriculture, and industry, Europeans introduced various types of plants and their cultivation methods; they also brought home a range of Eastern industrial products, including woven goods, glass vessels, perfumes, chemicals, and building materials. They also imitated Middle Eastern architecture, especially forts, churches, and city planning (Candolle, 2021).

Through the Crusades, in addition to uniting all the nations of Europe under the banner of the Cross to face Islam, they adopted the art of warfare and the manufacture of weapons such as stone cannons with a catapult system, guns, and throwing weapons; and *furusiyah* (horsemanship) such as using bows and arrows, armor (war clothes), using pigeons as information carriers, horse care, using horseshoes, and horse racing competitions (Nicolle, 2024).

From Islamic civilization, Europeans brought a lot of literature in a number of fields, such as algebra, medicine, astronomy, biology, chemistry, physics, music, poetry, and philosophy. They then translated the books of knowledge into their respective languages. Upon returning to their country, they then built educational institutions as they saw when they were in school in the midst of the Andalusian Islamic civilization. One of the things they brought was the compass, with which through the Cape of Good Hope they managed to "discover" foreign continents such as America and Far East Asia (Dear, 2018).

The places that became the intellectual "crucibles" were libraries and universities in the cities of Andalusia, Sicily, Cairo, Baghdad. Regarding the establishment of these universities, Herbert A. Davies said:

> "They (the Muslims) established great universities for centuries that exceeded those of Christian Europe. The universities of Baghdad, Cordoba, especially the famous Cairo University (now more than ten centuries old) had a student body of 12,000. Great libraries were built, some of which contained hundreds of thousands of volumes, all listed and arranged in order. Many Christians who studied at the University of Cordoba, (later) brought knowledge and culture to their countries, the influence of the Spanish (Islamic) universities on the Universities of Paris, Oxford and the universities they established in Italy was certainly very great (Obaid, 1999)."

In the realm of science and *scientific spirit*, Robert Stephen Briffault (1948-1976), dark *The Making of Humanity* wrote:

> "Although no aspect of European growth was not decisively influenced by Islamic culture, the most obvious and important influence was the natural sciences and the scientific spirit. Science was the greatest contribution of Islamic civilization to the modern world, but its fruits were slow to ripen. No sooner had Moorish (Arab-Spanish) culture sunk into darkness than the giant it had spawned rose to prominence. It was not only science that revived Europe, but the other influences of Islamic civilization also revived Europe (Obaid, 1999)."

There are still many Western scholars who express the great contribution of Islamic thought and science to the West, and even the modern world in general, including Thomas Arnold, Alfred Guillame, George Anawati, Gustave Lebon, George Sarton, R.P.A. Dozy, and John William Droper.

In terms of religion, their introduction to Muslims, Europeans in Germany had a new awareness that the Catholic Church was so dominant in all sectors of life. When in contact with the Islamic world during the Crusades, Obaid said, European kings saw that Islamic religious figures were in stark contrast to church figures, thus causing opposition to the Catholic Church from the kings of England and Germany. Frederick II, who was deeply influenced by Islamic Taqwa and the first person to establish a university in Europe (the University of Naples), formed a representative assembly and broadened the narrow Christian perspective on religion. He also drafted laws on assistance to the poor and made all levels of society under the law—the basics of modern Western democracy. In Germany, what was called the Church Reformation occurred when a monk named

Martin Luther from Germany displayed the thesis containing his protest against the doctrine of the Roman Catholic Church on the church door in Wittenberg on October 31, 1517 (Obaid, 1999).

As a result of adopting and developing the scientific knowledge produced by Muslim intellectuals, the study of Greek philosophy was born in Europe on a large scale and finally gave rise to the Renaissance movement in the 14th century. The development of classical Greek thought, through Arabic translations translated into Latin, which in turn succeeded in midwives the Reformation movement of the 16th century, rationalism of the 17th century, and *Introduction* (Enlightenment) of the 18th century in Europe (Aniroh & Sangadah, 2022).

As the military power of the Islamic world weakened and its territories were divided into smaller regions, intellectual activities in the Middle Ages slowly faded, only to be taken over by the West (Europe). The education of Muslims no longer produced material scientific and technological innovations, but instead emphasized the spiritual ritual (Sufism) and Islamic jurisprudence aspects alone. Muslims no longer philosophized, but instead fell into the practices of worship and Sufism alone. This condition, especially after the Crusades, made all the science that had been developed become a double-edged sword for Muslims whose territories became colonial areas of European nations since the 15th century.

4. CONCLUSION

Islamic civilization is mainly marked by the emergence of libraries and research such as the Baitul Hikmah (House of Wisdom) in Baghdad, as well as educational institutions such as madrasahs and universities. In these institutions, the process of translating ancient Greek, Persian, and Indian texts into Arabic by Muslim scholars took place, both in the Abbasid Dynasty centered in Baghdad and in the Umayyad Dynasty in Andalusia (Spain). This translation process not only saved ancient sciences from pre-Islamic culture, but also encouraged the development of new sciences as innovations by Muslim intellectuals. The existence of these scientists shows how Islamic civilization highly valued science in order to understand the universe and improve the quality of human life. The caliphate's support for education, open access to various traditions of knowledge, and the spirit of exploration were the main factors behind the emergence of many Islamic scientists.

As the center of Islamic-Western world civilization, Andalusia (Spain) was a fertile region, with a pluralistic society consisting of various ethnicities and nations. The Arab communities of al-Muwalladun (Spanish-Muslims), Barbar (Muslims from North Africa), Al-Shaqalibah (residents of the area between Constantinople and Bulgaria who were captured by Germany and sold to Islamic rulers to be mercenaries), Jews, Muzareb Christians who had Arab culture, contributed to the formation of an intellectual environment and scientific revival. It is recorded that a number of Muslim scholars in various fields were born in this environment, including Al-Khawarizmi (mathematics, algorithms), Ibn Sina (medicine), Al-Farabi (philosophy), Al-Biruni (astronomy), Jabir bin Hayyan (chemistry). Al-Zubaydi (language); Al-Hasan ibn Nafi (music); Al-Bakri and Al-Idrisi (geography); Ibn Khatib and Ibn Khaldun (history); Abbas bin Farnas (chemistry); Yahya al-Naqqash and Al-Majriti (astronomy); Ibn Haritsam (optics); Ummi al-Hasan bint Abi Ja'far, Ibn Nafis, and Al-Qasim Khalaf (medicine); Ibn Arabi (Sufism); as well as Ibn Bajjah and Ibn Thufail (philosophy).

In Andalusia, the intersection between Muslim scientists and Europeans occurred when schools and universities in cities such as Cordoba, Granada, Toledo, including in Cairo, Egypt. European scholars flocked to Muslim campuses to study and translate books by Muslim scientists into Latin to be taken home to be distributed in their respective countries outside Spain such as England, France, and Germany. The intellectual development that spread across Europe in turn gave birth to the Renaissance movement in the 14th century, and two centuries later rolled out the Church Reformation movement in the 16th century, to Rationalism in the 17th century, and the Industrial Revolution and Enlightenment (Aufklaerung) in the 18th century.

The Renaissance was a turning point for Europeans from the Dark Ages to the Enlightenment. The Renaissance was marked by the emergence of several scientists and philosophers who opposed the doctrines of the Catholic Church, particularly regarding geography and the predominance of Latin in the Church's teachings. They believed that the center of the world was no longer God, but humans. Humans have the right and must determine their own future and not surrender to fate. As rational beings, humans should be able to conquer the world and its contents. A number of new discoveries from European scientists then led Europeans to explore the world and open trading colonies in Asia, Africa, and America. On the Muslim side, educational institutions no longer produced scientific and technological innovations, but rather emphasized aspects of spiritual rituals (Sufism) and Islamic jurisprudence alone. Muslims no longer philosophized, but fell into matters of Islamic law, Islamic jurisprudence, and Sufism alone.

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