

MANIFESTATIONS OF THE SCIENTIFIC RENAISSANCE IN AL-ANDALUS DURING THE Umayyad ERA (138–422 AH / 756–1031 CE)

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<https://doi.org/10.54922/IJEHSS.2025.1137>

Received: 02 November 2025/Published: 12 December 2025

ABSTRACT

This study aims to analyze the manifestations of the scientific renaissance in Al-Andalus during the Umayyad period (138–422 AH / 756–1031 CE), a pivotal era that contributed to establishing a unique intellectual and civilizational foundation in the Islamic West. The research examines the factors that supported the flourishing of scientific activity, such as relative political stability, the Umayyad rulers' interest in supporting scholars and writers, and the establishment of schools, libraries, and learning institutions. It also highlights the impact of cultural interaction among Muslims, Christians, and Jews in enriching scientific output, in addition to the role of translation and the transmission of sciences from the East. The study presents the major sciences that developed during this period including medicine, philosophy, astronomy, mathematics, jurisprudence, and linguistics while pointing to the most prominent scholars who left a significant mark on Andalusian intellectual life. It concludes that the Umayyad scientific renaissance in Al-Andalus was not merely a phase of knowledge development, but rather a foundation for the later European civilization through the movement of translation and knowledge transfer that passed from Al-Andalus into Europe.

Keywords: Scientific Renaissance, Al-Andalus, Umayyad Era, Scientific Development, Scholars, Translation, Libraries, Islamic Civilization, Islamic West, Sciences in Al-Andalus.

1. INTRODUCTION

Al-Andalus witnessed a profound scientific and civilizational renaissance during the Umayyad era (138–422 AH / 756–1031 CE), which transformed it into a prominent center of intellectual radiance in both the Islamic world and Western Europe. The stable political environment established by the Umayyad rulers created suitable conditions for the advancement of science and knowledge. Their patronage of scholars, writers, and students paved the way for a broad scientific awakening in Al-Andalus. Scientific exchange between Al-Andalus and the East through scholarly journeys and the transfer of books and manuscripts had a tremendous impact on shaping the intellectual personality of Al-Andalus, as travelers carried with them diverse knowledge, methodologies, and scholarly works.

The importance of this study lies in tracing the trajectory of this scientific renaissance, analyzing its causes and manifestations, and clarifying the reciprocal roles of rulers, scholars, and students in building an advanced intellectual system. It also sheds light on the nature of education in Al-

Andalus in its institutions, methods, and accompanying intellectual progress which resulted in the emergence of prominent scholars across various religious, linguistic, and rational sciences. This study therefore presents an integrated picture of the scientific movement in Al-Andalus and affirms that the Umayyad era constituted a foundational stage in the making of a civilization that left an enduring impact on human history.

The study concludes that the scientific movement in Al-Andalus during the Umayyad era represented one of the most flourishing intellectual periods in Islamic history, where political, cultural, and social factors combined to establish a comprehensive knowledge renaissance. The Umayyad rulers played a pivotal role in supporting scholars and educational institutions and providing the environment necessary for the spread of sciences. Meanwhile, the scholarly journeys between Al-Andalus and the East broadened the horizons of knowledge and diversified its sources, making Al-Andalus a civilizational bridge between East and West.

The study further shows that the educational systems in Al-Andalus from Kuttab schools to mosque circles and higher learning institutions helped produce generations of scholars who enriched human knowledge in multiple fields and demonstrated the capacity of Al-Andalus to develop an independent intellectual identity with a distinctive imprint. The Umayyad scientific renaissance was the fruit of a collective awareness of the importance of knowledge and the necessity of advancing it an advancement that spanned religious, linguistic, rational, medical, and philosophical sciences.

The findings confirm that what was achieved during this era was not a local intellectual development, but rather a foundation for a civilization that profoundly influenced Europe and the world. This underscores the importance of studying this period and drawing from its lessons in understanding the evolution of Islamic civilization and its role in human history.

Manifestations of the Scientific Renaissance in Al-Andalus during the Umayyad Era (138–422 AH / 756–1031 CE)

Al-Andalus, during the period 138–422 AH / 756–1031 CE, became a beacon of science and knowledge, which greatly contributed to its intellectual and civilizational progress. This advancement was due to the patronage of the Umayyad rulers, who supported educational institutions, scientific movements, and scientific journeys from various parts of the world.

This study is divided into three sections: The first discusses the role of the ruling class in supporting the scientific movement. The second examines scholarly journeys. The third and final section addresses educational methods among Muslims in Al-Andalus.

Section One: The Role of the Ruling Class in Supporting the Scientific Movement

The Umayyad period in Al-Andalus represents the intellectual and scientific maturity of Andalusian culture. Andalusians valued scholars, jurists, and literary figures, who held influential positions in society. These scholars were known for their passion for knowledge, often mastering more than one field. The ruling class played a major role in supporting the scientific movement, as the Umayyad rulers were known for their love of knowledge and appreciation of scholars. This is evident in their patronage of scholars, their presence in their courts, and their support for

scientific activities. The Emirate period marked the beginning of a new era of intellectual and civilizational development.

After the political situation in Al-Andalus stabilized particularly at the beginning of the Umayyad emirate Andalusian society advanced beyond many other Islamic societies in knowledge, culture, and appreciation of scholars. Sciences and arts flourished extensively due to the strong public interest in knowledge and education, supported by widespread community encouragement.ⁱ

Scientific progress in the Umayyad emirate was further strengthened by the rulers' establishment of suitable conditions: building mosques, creating libraries, supporting scholars especially those arriving from the East and encouraging scholarly writing through generous patronage.ⁱⁱ

Most Umayyad rulers were themselves scholars and men of letters, as learning was closely linked to authority and governance. This contributed to raising the cultural and educational level of the society they ruled. They also ensured that their own sons were educated by leading scholars and literary figures.ⁱⁱⁱ

Below is an overview of the scientific interests of each Umayyad ruler in Al-Andalus:

• Abd al-Rahman I (al-Dakhil)

When Prince Abd al-Rahman al-Dakhil assumed the Umayyad emirate in 138 AH / 755 CE, he began constructing the Great Mosque of Córdoba, which later became a beacon of knowledge in the Islamic West. During his reign, the number of mosques in Córdoba reached 400, and this number continued to increase significantly thereafter.^{iv}

Abd al-Rahman al-Dakhil was distinguished by his knowledge and culture, and with his intelligence, he was able to build the city of Córdoba as the capital of the region.^v This development was accompanied by the construction of monumental buildings, the establishment of palaces, and a strong emphasis on education. He founded mosques and places of worship to spread Islamic culture and to teach various sciences to different segments of society, including religious studies, language, philosophy, and other disciplines.^{vi} During his reign, Córdoba became a cradle of sophisticated life, a source of knowledge and civilization, a home for philosophers and poets, a refuge for thinkers and scholars, and a center for arts and literature. Before his death, he began the construction of the Mosque of Córdoba, which was completed under the reign of his son, Hisham. This mosque stands as a magnificent testament to Islamic civilization, which played a central role in the advancement and development of nations and peoples.^{vii}

Abd al-Rahman al-Dakhil also paid great attention to religious matters, showing respect for scholars and promoting the dissemination of knowledge. He cared for the judiciary and public administration. Among the scholars of his time was Mu'awiya ibn Salih al-Hadrami, a prominent hadith scholar, from whom several imams, such as Sufyan al-Thawri, Ibn 'Aina, and Al-Layth ibn Sa'ad, learned. Abd al-Rahman also appointed judges, including scholars of Al-Andalus such as Sa'id ibn Abi Hind, whom Imam Malik nicknamed "al-Hakim" for his renowned wisdom and sound judgment.^{viii}

From the foregoing, it is clear that Abd al-Rahman al-Dakhil was the first to lay the foundations for intellectual and scholarly development in the Emirate of Al-Andalus. He was the first to demonstrate a genuine interest in scientific and educational matters, as is evident in his initiation of the construction of the Great Mosque of Córdoba. This mosque served both for worship and for the pursuit of knowledge, where scholars, jurists, and literati held teaching circles for students in various fields of learning.

• **Hisham al-Radi**

Hisham al-Radi was a pious and humble ruler who cared deeply for the affairs of his subjects. His reign was distinguished by the promotion of justice, as he ruled according to the Qur'an and Sunnah.^{ix} He was a learned man who loved knowledge and valued scholars, surrounding himself with jurists and religious scholars. He had a significant impact on Al-Andalus through the promotion of the Arabic language and even ordered the teaching of Arabic in Christian and Jewish institutes, which facilitated cultural and religious interaction among different communities in Al-Andalus, leading many to embrace Islam.^x

During his reign, the Maliki school of thought was introduced to Al-Andalus. Prior to that, the people of Al-Andalus followed the school of Al-Awza'i. Sa'sah ibn Salam al-Shami, a disciple of Imam Malik, was responsible for leading prayers in Córdoba. Several hadith transmitters also traveled from Al-Andalus during his reign, including Qar'us ibn al- 'Abbas and 'Isa ibn Dinar. Upon returning to Al-Andalus, they described the vast knowledge and virtues of Imam Malik, which contributed to the spread of his school of thought in the region. The leading figure in this process was Shabtun, who was the first to introduce Malik's "Muwatta" to Al-Andalus.^{xi}

• **Al-Hakam ibn Hisham**

Hakam ibn Hisham was a man of virtue and righteousness, as well as a strict and disciplined ruler. He engaged extensively in military campaigns and jihad. His reign was marked by several characteristics, including frequent internal strife, a strong focus on warfare and military expeditions, and a lack of attention to religious scholars and jurists. This neglect led to their displeasure and open opposition to him. Unlike his father and grandfather, he did not maintain close relations with scholars and jurists, and the learned community during his reign did not enjoy the same status and respect that they had under his father's rule. This situation prompted scholars to criticize him publicly, which in turn fueled the discontent of those who eventually revolted against him.^{xii}

• **Abd al-Rahman II (al-Awsat)**

Abd al-Rahman al-Awsat was renowned for his memorization of the Qur'an in the seven canonical readings, as well as for his knowledge of the Prophetic traditions (Hadith). He was also well-versed in astronomy and philosophy.^{xiii} His reign is considered one of the most prosperous periods in the history of Al-Andalus. He resumed jihad against the Christians in the north, and was known for his good conduct, calm demeanor, and affection for his people.^{xiv}

Abd al-Rahman al-Awsat was a virtuous and just ruler with a keen interest in the rational sciences. He was the first to mint silver coins in Al-Andalus, built the walls of Seville, and ordered visits to the Great Mosque of Cordoba.^{xv}

He actively promoted the dissemination of knowledge and learning, showing a particular passion for Islamic jurisprudence and philosophy. He also invested in the construction of mosques and hospitals. In his palace, he organized scholarly gatherings for philosophical studies and debates. Much like Caliph al-Ma'mun, he generously rewarded scholars and jurists and is considered the first Umayyad ruler to take a significant interest in collecting books.^{xvi}

During his reign, many Andalusian students returned from the East after completing their studies, including notable figures such as Abd al-Malik ibn Habib al-Salmi and Yahya ibn Yahya al-Laythi.^{xvii} Most of these scholars were prominent intellectuals representing the first generation of the learned community in Al-Andalus. Under his leadership, Córdoba became a major center of civilization, emerging as the principal city for Muslims in Al-Andalus and a hub of prosperity, progress, and intellectual activity.

• **Muhammad ibn Abd al-Rahman II**

He was known for his eloquence, literary skills, poetry, and mathematical knowledge.^{xviii} Scholars and jurists gained significant authority during his reign and influenced his policies toward Christians. He was tolerant, patient, and well-liked.^{xix}

• **Al-Mundhir ibn Muhammad**

Al-Mundhir ibn Muhammad assumed power in 273 AH / 886 CE, and his reign was brief, lasting approximately two years until his death in 275 AH / 888 CE. From the outset of his rule, he focused on matters of jihad and the suppression of revolts and internal unrest.^{xx} It was said of him: "Under Al-Mundhir, the lands of Al-Andalus were restored to order."^{xxi}

• **Abdullah ibn Muhammad**

Prince Abdullah ibn Muhammad was pledged allegiance following the death of his brother Al-Mundhir in 275 AH / 888 CE.^{xxii} He was known for his piety, virtue, and love of goodness. He was humble yet severe against oppressors, and he devoted himself to the collection of beneficial knowledge for both religion and worldly affairs. He was also a man of letters and a poet.^{xxiii}

From the foregoing, it is evident that the Umayyad princes worked diligently to develop Al-Andalus and advance it significantly, particularly through their encouragement of knowledge and support for scholars. Differences in the capabilities of each ruler are noticeable, which may be attributed to the specific circumstances of Al-Andalus at the time, as well as the varying breadth of knowledge each prince possessed. Overall, the scholarly activity during the reigns of the Umayyad princes marked a significant stride toward extensive intellectual progress across multiple fields.

Section Two: Scholarly Journeys

Cultural exchange between the East and Al-Andalus had a profound impact on the flourishing and stimulation of the scientific movement. Scholars traveling to the East, as well as those from the East journeying to Al-Andalus, brought with them a wealth of knowledge and expertise, in addition to numerous manuscripts and writings across various fields of knowledge. This type of scholarly activity produced two significant benefits: the knowledge and understanding retained by the

scholar, and the valuable books and texts they transported to Al-Andalus. Consequently, the Andalusian scholars began to acquire this knowledge both orally from the scholars themselves and through the books brought to them, which led to rapid and continuous growth in scientific activity.

First: The Journeys of Andalusian Scholars to the East in Pursuit of Knowledge

One of the outcomes of political stability in Al-Andalus was that people turned their attention toward civilizational development, seeking means to advance their society. Among the most important of these means was education, which became a fundamental pillar of their cultural activity. The Andalusians insisted on the necessity of traveling in pursuit of knowledge to broaden the scope of their understanding through diverse sources of learning. This characteristic was emblematic of Islamic civilization and the Islamic state. It was particularly evident in their scholarly journeys to centers of learning in the East. After stability was achieved under Prince Abd al-Rahman al-Dakhil and following the diminishing of the Abbasids' fears of the Umayyads in Al-Andalus, there was no longer any justification for isolating Al-Andalus from the East. Consequently, openness toward the East emerged during the reign of Hisham ibn Abd al-Rahman al-Dakhil.

Moreover, informal cultural connections between Al-Andalus and the East played a significant role in the intellectual revival in Baghdad and the Levant. A clear example of this is Prince Hisham al-Radi sending scholars to the East, who returned to Al-Andalus carrying books and manuscripts across various fields of knowledge.^{xxiv}

It is also noticeable that cultural motivation for travel was closely linked to religious motivation, as religion encouraged scholars to seek knowledge, which serves to refine the human soul.^{xxv} The Hajj season functioned as a cultural meeting point for Muslims from diverse countries, customs, traditions, and languages. During this period, preaching sessions and scholarly gatherings in religious and literary studies were held in the precincts of the Sacred Mosque in Mecca and the Prophet's Mosque in Medina. Andalusian scholars frequently traveled to the Islamic East, especially during the Hajj season, to study religion and acquire knowledge from its sources. The scholar gained prestige among his people when narrating or transmitting knowledge from the sheikhs of the Hijaz, Baghdad, Egypt, and other regions of the Islamic East. Thus, the journey was not merely related to performing the pilgrimage but became a necessity for the pursuit of knowledge.^{xxvi}

Evidence of the Andalusians' dedication to enriching their scientific knowledge, despite the hardships and long duration of the journeys, is abundant. For instance, Muhammad ibn Qasim al-Qurtubi (d. 327 AH / 938 CE) spent four years and four months on his scholarly journey.^{xxvii} Some scholars undertook more than one journey to the East: Qasim ibn Muhammad ibn Sayyar al-Qurtubi traveled twice in pursuit of knowledge, spending twelve years on the first journey and six years on the second.^{xxviii} Similarly, Baqi ibn Makhlad spent ten years on his first journey and twenty-five years on his second.^{xxix}

The scholarly journeys undertaken by Andalusian scholars yielded a vast amount of knowledge and expertise, which they brought back to their homeland. In addition, they carried numerous manuscripts and precious works authored by scholars from the East. Foremost among them was

the jurist Baqi ibn Makhlad, who returned to Al-Andalus with many books in various disciplines, including jurisprudence, history, and biographical literature. These works undoubtedly had a profound impact on the Andalusian scientific movement, opening wide horizons for research. The Andalusian scholars eagerly studied these books, analyzed them, and benefited from the scientific methods of research and composition that had been pioneered by Eastern scholars.^{xxx}

The frequent travel of Andalusian scholars to the Arab East drew the attention of historians such as al-Maqrizi, who dedicated a section of his book *Nafh al-Tīb* to them. In some chapters, he listed Andalusians who had journeyed to the East, as well as Eastern scholars who had traveled to Al-Andalus.^{xxxi}

The importance of seeking knowledge and traveling to the East—to countries such as Egypt, the Levant, the Hijaz, Iraq, and occasionally Yemen—was due to the rich scholarly and cultural heritage enjoyed by Eastern scholars. The Maghrebis and Andalusians viewed the East as the land where divine revelation descended, the home of knowledge, and the residence of eminent scholars. This view is uncontested. For instance, the Andalusian scholar Abu Bakr al-Tartushi (d. 525 AH) left Al-Andalus to settle in the East, particularly in Alexandria, Egypt, because he believed that knowledge in the East was far greater and more refined than in the Maghreb or Al-Andalus. Al-Hafiz Abu Bakr ibn al-‘Arabi (d. 543 AH) narrates that al-Tartushi said: “I did not depart from Al-Andalus until I pursued knowledge and studied under al-Baji. When I reached Baghdad and entered the ‘Adiliyya school, I heard the teacher pose the question: ‘If the principle and the apparent text conflict, which one prevails?’ I did not understand what was said nor grasp the intended meaning until God opened my understanding and elevated me to what I attained.”^{xxxii}

From the above, we can deduce the extent of the scientific influence and interaction between Al-Andalus, the Maghreb, and the East during the Emirate period. This era witnessed significant borrowing from different regions. However, over time, this influence gradually diminished, and Al-Andalus began to cultivate an independent scientific identity during the Caliphate period, asserting itself among other Islamic lands. The Andalusian scientific movement then started to adopt a new framework and a distinctive character, differing from the models it had previously drawn from the Maghreb and the East during the preceding three centuries.

Famous Andalusian Books That Reached the East

Regarding the transfer of books by merchants from Al-Andalus to the East, it can be said that the scientific works of prominent Andalusian scholars, such as Ibn ‘Abd Rabbih, author of *Al-‘Iqd al-Farid*, Ibn Hazm, author of *Tawq al-Hamāmah*, the poet Muhammad ibn Hani’ al-Azdi with his famous poetry, and the renowned physician Khalaf ibn Abbas al-Zahrawi, author of the medical encyclopedia *Al-Tasrif li Man ‘Ajiza ‘An al-Ta’lif*, reached the East and were known and circulated among literary circles and students of knowledge in Iraq and Oman. This is corroborated by Ibn Hayyan, who narrates from Tahir ibn ‘Abd al-‘Aziz: “I carried with me a portion of the *Musnad* of Abu ‘Abd al-Rahman Baqi ibn Makhlad to the East and showed it to Muhammad ibn Isma‘il al-Sa’igh, who said: ‘No one has drawn from this but from the ocean of knowledge.’”

From this, we can conclude that the book trade was an essential component of commercial exchange between the East and Al-Andalus. Cultural exchange between the East and Al-Andalus

had a significant effect on the flourishing and stimulation of the scientific movement, and scholarly journeys served as the primary bridge for this interaction. The trade of books was one of the key manifestations of such cultural contact, contributing to the expansion of intellectual exchange between the East and Al-Andalus. As a result, Andalusian culture broadened, knowledge spread throughout Al-Andalus, and some Andalusian scholars emerged and authored valuable works. The Andalusian civilization thus reaped the wide-ranging benefits of this cultural interaction, which contributed to scientific maturity, the full development of the Andalusian intellectual character, and the emergence of eminent scholars.

Second: The Journeys of Eastern Scholars to Al-Andalus

In response to the travel of Andalusian scholars to the East, scholars from the East also migrated to Al-Andalus to disseminate their knowledge there. Among the foremost figures in this movement were:

Abd al-Rahman ibn Mu 'awiya al-Dakhil

He was the founder of the Umayyad state in Al-Andalus, born in Damascus, and known as "al-Dakhil" because he was the first of the Umayyad rulers to enter Al-Andalus. He was the first prince to govern Al-Andalus and succeeded in establishing an independent hereditary rule, contributing to economic, social, and military transformations. He built palaces and focused on promoting education by founding mosques to spread Islamic culture. ^{xxxiii}

During his reign, the city of Cordoba became a cradle of knowledge and civilization, a home for philosophers and poets, a refuge for scholars and thinkers, and a center for arts and literature. Two years before his death, he began constructing the Great Mosque of Córdoba, which remains a remarkable testament to Islamic civilization and its role in the advancement and development of nations and peoples. ^{xxxiv}

Abu al-Yusr Ibrahim ibn Ahmad al-Shaybani

Known as a mathematician, he was originally from Baghdad and later settled in Kairouan. He studied under leading hadith scholars, jurists, and grammarians in Baghdad and met prominent literary figures such as al-Jahiz, al-Mubarrad, Tha'lab, and Ibn Qutaybah, as well as poets including Abu Tammam and al-Buhturi, and writers like Sa'id ibn Humayd and Sulayman ibn Wahb. He brought to Africa the letters, poetry, anecdotes, and reports of scholars, and was a learned, eloquent, and cultured scholar with comprehensive knowledge of all branches of science and literature. ^{xxxv}

He authored many works, including Laqit al-Marjan and Siraj al-Huda, which dealt with the Qur'an, its problems, syntax, and meanings. He also wrote Al-Mursā'ah and Al-Mudhajja. He traveled extensively from Khorasan to Al-Andalus. He was known for his upright character and noble ethics. During the reign of Ziyad Allah ibn Abdallah, the last ruler of the Aghlabids, he served in the Bayt al-Hikma (House of Wisdom). He passed away in Kairouan at 289 AH / 910 CE. ^{xxxvi}

Ziryab

He was Ali ibn Nafi ‘, known by his kunya Abu al-Hasan, born in 172 AH / 788 CE and died in 243 AH / 857 CE. He was of Persian origin, born in Baghdad, and was nicknamed Ziryab due to the darkness of his complexion and his eloquence.^{xxxvii}

Ziryab possessed the qualities of a cultured gentleman; he was a naturally talented poet and well-versed in the affairs of kings, the lives of caliphs, and the anecdotes of scholars. In other words, he was a man of learning while also excelling in music.^{xxxviii}

Ziryab traveled from Baghdad to Al-Andalus due to rivalry with his teacher al-Mawsili. After surpassing his teacher, he initially went to the Maghreb and later to Al-Andalus, after corresponding with Hakam ibn Hisham, the ruler of Al-Andalus, expressing his desire to be his court companion. During his journey, he learned of Hakam ibn Hisham’s death and considered returning to the Maghreb, but he was received warmly by Hakam’s successor, Prince Abd al-Rahman, who honored him.^{xxxix}

Ziryab had a profound influence on social life in Al-Andalus, affecting local customs, particularly in cuisine and dining etiquette. He introduced many types of foods and sweets to Andalusian society.^{xl}

Moreover, he established an institute in Cordoba to teach Andalusians hairstyling, the use of fine glassware instead of gold or silver vessels, and regulations for clothing according to seasonal changes.^{xli}

The musician Ziryab held a distinguished position and high status due to his innovations and significant contributions to various fields of musical, cultural, and social arts. He was one of the scholars who illuminated the path of knowledge for subsequent generations and established a scientific method in musical education.

Fadl al-Madina

She was skilled, virtuous, and of noble lineage, tracing her ancestry to one of Harun al-Rashid’s daughters. She grew up and received her education in Baghdad, then traveled to Medina. She became known for her beautiful singing and, while in Medina, purchased knowledge of music (Ilm al-Madina) for Prince Abd al-Rahman al-Dakhil of Al-Andalus along with her companion. She mastered singing there, became a cultured and eloquent individual, a memorizer of poetry and news, and a scholar of various literary arts.^{xlii}

From the above, it can be concluded that scholarly journeys from the East to Al-Andalus, or vice versa, bore fruitful results. They had a direct impact on the people of Al-Andalus, broadening their horizons, encouraging the study of diverse sciences, and enabling intellectual discourse with experts through extensive readings and studies in multiple fields. All of this contributed significantly to the advancement of Al-Andalus, its openness to the East, and the emergence of a large number of scholars who studied together and taught others, ultimately achieving a period of remarkable scientific and cultural flourishing.

Famous Eastern Books That Entered al-Andalus

Among the most famous Eastern works that were transferred to Al-Andalus was Rasā'il Ikhwān al-Ṣafā' (Epistles of the brethren of Purity), brought by Abu al-Hakam al-Karmani (d. 458 AH / 1065 CE) from Cordoba.^{xlili}

Ibn Hayyan (d. 469 AH / 1076 CE) refers to several books that Baqi ibn Makhlad (d. 276 AH / 899 CE) introduced, including Al-Fiqh by al-Shafi 'i, Al-Tarikh by Khalifa ibn Khayyat, his book on al-Tabaqat, and Sirat Umar ibn 'Abd al- 'Aziz by al-Durqi. Ibn al-Furadi notes that Wahb ibn Nafi '(d. 273 AH / 886 CE) was the first to bring Abu Ubayd's books to al-Andalus, followed later by al-Khashni.

Among the valuable jurisprudential works that reached Al-Andalus was Muwatta' Malik. It is reported that the first to bring it to Al-Andalus was Ziyad ibn 'Abd al-Rahman al-Lakhmi, known as Shabtun (d. 199 AH / 804 CE). He introduced a complete and perfected version, from which Yahya ibn Yahya al-Laythi (d. 234 AH / 848 CE) propagated the Maliki school.^{xliv}

Abu Ali al-Qali also brought with him a rich literary heritage from the East, including the diwans of Imru' al-Qais, Zuhayr, al-Nabigha, al-Khansa', al-Akhtal, Jarir, al-Farazdaq, and others, in addition to books on history and language.^{xliv}

When Faraj ibn Salam returned from Iraq, he brought with him Al-Bayan wa al-Tabyin and other works by al-Jahiz. Qasim ibn Thabit al- 'Awfi al-Sarqasti introduced Al- 'Ayn by the famous grammarian Khalil ibn Ahmad al-Farahidi to al-Andalus.

Hisham ibn 'Umar ibn Muhammad ibn Asbagh al-Umayyad was also known for bringing numerous books from the East. Upon returning from his journey to the East, he brought back many valuable works.

During the era of the Taifa kings, an Iraqi scholar and merchant came to Al-Andalus with a copy of Al-Qanun fi al-Tibb by Ibn Sina, ensuring that the manuscript was beautifully written and elegantly bound.^{xlvi}

The migration of Eastern books in various fields never ceased. Works by al-Farabi, the Diwan of al-Mutanabbi, the Maqamat of al-Hariri, Risalah al-Badi ', al-Khwarizmi, and others also found their way to Al-Andalus.^{xlvi}

Chapter Three: The Method of Education Among Muslims in Al-Andalus

One of the manifestations of the flourishing scientific movement in Al-Andalus during this period was the widespread availability of education. Education became accessible to both males and females, and there were numerous institutions where learning took place. Students also traveled abroad from Al-Andalus to seek knowledge, and Arabic became the primary language of science and culture, learned even by Spaniards and Christians, who were called musta'ribun (those who adopted Arab culture).^{xlvi}

The Arabs in Al-Andalus established Kuttab (elementary schools) to teach boys the Arabic language, its literature, and the principles of Islam, modeled after the Kuttab system in the Eastern

Islamic world. Educators, known as mu‘addibun, taught the children of the poor and needy. Ibn Khaldun notes:

"As for the people of Al-Andalus, their educational practice consisted of teaching the Qur'an and writing. They made this the basis of education but did not restrict it to that alone. They combined it with teaching poetry, epistolary skills, the laws of the Arabic language, and its memorization, along with practice in writing, until the boy reached adolescence and youth, having strengthened his skills in Arabic and poetry, excelling in handwriting and letters, and attached to the pursuit of knowledge in general."^{xlix}

Children began learning at an early age. Education was often made accessible by bringing the teacher to the home or sending the child to the nearest kuttāb. These elementary schools were theoretically supervised by the muhtasib (market inspector). The teacher or educator would gather a small group of children in a modest open space called al-Misriyya and teach them according to a customary, unwritten program. The contract between the teacher and the child's guardian specified the curriculum, the teaching method, and the financial arrangements, often including annual payment or monthly provisions such as flour and oil. Gifts for the teacher during Eid al-Adha and Eid al-Fitr, or upon a child's completion of the Qur'an, were customary.¹

Wealthier families often employed multiple teachers, sometimes agreeing to a division of teaching responsibilities. The guardian was expected to provide a detailed report on the child's intellectual capabilities.^{li}

Although education was largely private, many free schools existed, funded by the revenues of shops, properties, and endowments established by rulers and private citizens. The public also contributed through donations and support, independently of state supervision, if the teachings did not threaten social security. Córdoba exemplified an ideal: primary education was both free for those unable to afford it and socially obligatory, without the need for formal legislation. Merchants and craftsmen insisted that children working in their shops be literate, so education became a social necessity.

Students attended lessons in subjects of personal interest, often guided by trusted teachers, and could study multiple subjects simultaneously, including grammar, religious sciences (fiqh, hadith, tafsir, usul), mathematics, medicine, language, and literature. Grammar was emphasized initially to facilitate understanding of other disciplines.^{lii}

There were also affiliated students in those whose circumstances did not allow them to attend lessons regularly, so they relied primarily on books. When they felt sufficiently confident in their knowledge, they would present themselves to a teacher to obtain authorization (ijazah). Students depended heavily on their memorization skills, and among them were individuals who could recite thousands of poetic verses, as well as those who memorized the entire Kitāb al-Aghani by Abu al-Faraj al-Isfahani a work filled with multiple, often similar narrations, lacking a unifying structure, and containing a rich variety of poetry, prose, and anecdotes. There were also those who memorized the Qur'an without forgetting a single letter, and those who memorized Malik's Muwaṭṭa', or Sahnun's al-Mudawwanah, or al-Mutanabbī's Diwan, or al-Mubarrad's al-Kamil. Indeed, in Al-Andalus one could find people who memorized such works without being scholars or specialists. Ibn Bashkuwal relates that in the marketplace of Córdoba there were sellers of grapes and figs who could, from memory, recite for you whole sections of Ma'ānī al-Qur'an by Abu Ja'far

al-Nahhas. As for those whose memories did not serve them well, they often felt deep disappointment and tried to sharpen their recollection through medicinal aid. The most famous of these was the drink known as baladhur, prepared from the fruit of an Indian tree. Physicians would prescribe it, and those who could afford it used it to enhance the sharpness and clarity of their memory. Over time, however, they became excessively focused on memorization and neglected reflective thought. According to Ibn Khaldun, this overreliance on rote memorization played a role in the intellectual and cultural decline of Al-Andalus in its later years; for knowledge does not advance merely by preserving it, but by cultivating it through growth and renewal.^{liii}

Higher education was a prestigious occupation, respected by society, and teachers were elevated to the status of high-ranking officials, comparable to governors, judges, or military leaders. The profession was open to talented individuals, whether from elite families or lower classes seeking knowledge and recognition. Exceptional teachers could be appointed to high positions by the state to gain public trust.^{liv}

On the other hand, before the emergence of printing, men of letters and prominent writers had no means of disseminating their views and ideas except by securing a teaching circle in the congregational mosque. These lessons attracted not only students and young people, but also the elite of Cordoban society. One of the students of *Abu Wahba 'Abd al-A'la* recounts: "My teacher lived near the *Maqbarat Quraysh* in Cordoba, in an orchard that he himself tended. One day, after serving lunch to his students, someone arrived seeking permission to enter. The visitor was the minister *Hāshim ibn 'Abd al-'Aziz*, one of the prince's closest confidants. The professor welcomed him warmly. When he entered, he found us eating cooked greens grown in the garden. Our host felt somewhat embarrassed before inviting him to join us, fearing the food might appear too modest.

But Hashim quickly said: 'Will you not invite me to join them? Or do you fear that I will devour the entire table?' The teacher replied, 'It is yours!' Hashim responded, 'And why not?' He rolled up his sleeves and joined us at the meal. Afterwards, he drew my teacher aside and consulted him on several legal matters, receiving his opinion. When he was about to depart, I attempted to rise in greeting, but my teacher signaled sharply for me to remain seated. After bidding him farewell, he returned and reprimanded us sternly, saying that we had been excessive in courtesy and politeness, and had not behaved naturally."^{lv}

There were certain conditions that had to be met by the professor. The foremost of these was knowledge, which he strove to acquire with every effort available to him. He would travel to the East to study there, and the expression "*walahu rihla*" was equivalent, in our modern language, to "one who has returned from a scholarship abroad." It was a source of pride for its holder and a mark of esteem within society, and it is a description we find applied to many prominent scholars. The professor was also expected to frequent the scholarly gatherings of the leading scholars in Cordoba, especially those arriving from the East, and to be keen on obtaining or at least studying newly authored books as soon as they were published.

When cultural life later became stable, and when Al-Andalus developed its own intellectual identity and grew confident, the need for traveling abroad or for bringing in professors from outside diminished. Indeed, a scholar from Seville even swore that he would travel to Cairo, sit in the courtyard of al-Azhar, and teach *Al-Kitab* by Sibawayh, to prove that the Andalusians were no longer inferior to the Eastern scholars in their mastery and grasp of knowledge.^{lvi}

The second quality required was piety. A scholar who was not pious would find no students willing to sit with him or receive knowledge from him. The more firmly a professor adhered to the Maliki school of law, the greater the students' interest in him became. Many Andalusians traveled to the East, encountered other legal schools, and grew enthusiastic about them. They returned hoping to promote these schools in Al-Andalus. However, once the students discovered this about them, they began to turn away from them one after another, until those scholars were left alone, with no one willing to listen to them.^{lvii}

Alongside knowledge and piety, there were other qualities that people and students wished to see in their teacher. These included honesty, upright conduct, and a pleasant and sociable manner in his lessons. He was expected to be generous in explanation, commentary, and clarification, withholding nothing from his students, and to treat them as a father or an older brother would. In general, professors embodied these qualities, and their relationships with their students were marked by gentle compassion and sincere affection.^{lviii}

It was not easy for a person to become a recognized professor with students of his own unless he had advanced in age within the profession or had attained a high degree of fame and prominence in a public office of a cultural nature, such as serving as a judge, a mufti, an adviser, or a governor. There was no specific age at which a professor retired; rather, it was the students who determined this. When they perceived in their teacher the signs of senile decline or childishness, they gradually began to leave him, and only then would he retire himself. Professors did not have a fixed dress code, although the distinguished among them wore the tailsan on their heads. Ibn Habib, the Maliki jurist, would attend his lessons in his finest garments, woven from Yemeni cloth. Others believed that the best attire for a professor was simply to have something meaningful to say to his students. In addition to teaching, professors often practiced other professions that provided them with a livelihood. One might meet his students in his orchard, his shop, or his workshop. Others taught their lessons in the congregational mosque at the end of the day, after a morning spent striving for their daily bread. Accepting payment from students was something the professor resorted to only in cases of extreme necessity, and requesting or accepting gifts was considered shameful.^{lix}

Educational circles spread throughout most of the mosques of Al-Andalus, especially in the major cities such as Cordoba, Toledo, and Seville. In every mosque there was a library rich in the various branches of human knowledge.^{lx}

2. CONCLUSION

This study concludes that the scientific movement in Al-Andalus during the Umayyad period represented one of the most flourishing intellectual eras in Islamic history. The convergence of political, cultural, and social efforts laid the foundation for a comprehensive intellectual renaissance. The Umayyad rulers played a pivotal role in supporting scholars and educational

institutions and in providing an environment conducive to the dissemination of knowledge. At the same time, the scientific journeys exchanged between Al-Andalus and the Eastern Islamic world expanded intellectual horizons and diversified sources of knowledge, making Al-Andalus a cultural bridge between the East and the West.

The study also highlights that the educational system in Al-Andalus from Kuttab (elementary schools) to mosque circles and higher education contributed to producing generations of scholars who enriched human knowledge across various fields. These scholars demonstrated Al-Andalus's ability to cultivate an independent scientific identity with a distinct imprint. The Umayyad scientific renaissance in Al-Andalus was the result of a collective awareness of the importance of knowledge and the necessity of its advancement. It was not confined to a single discipline but encompassed religious, linguistic, rational, medical, philosophical, and other sciences.

The findings confirm that the achievements of that era were not merely local scientific developments but laid the foundations for a civilization that left a profound impact on Europe and the world. This underscores the significance of studying this period and drawing lessons from it to understand the development of Islamic civilization and its role in human history.

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