

The Scientific Migrations between the Mashriq and the Maghreb: A Study in the Dynamics of Knowledge Transmission and Intellectual Cross-Fertilization

الهجرات العلمية بين المشرق والمغرب: دراسة في ديناميكية نقل العلوم وتلاقح المعارف

Youcef Ahlem

University of 08 Mai 1945 Guelma , (Algeria)

youcef.ahlem@univ-guelma.dz

orcid/0009-0002-7970-4379

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• Abstract:

This paper explores the phenomenon of scientific migrations between the Mashriq (Eastern Islamic lands) and the Maghreb (Western Islamic lands) during the medieval Islamic era. These intellectual movements were not incidental but were driven by a combination of religious, political, economic, and academic factors that collectively shaped a trans-regional network of scholarly interaction. The study highlights how these migrations contributed to the transmission and transformation of knowledge, the formation of distinctive intellectual schools in the Maghreb, and the integration of Eastern scientific heritage into local contexts. Using a historical-analytical methodology, this research draws on primary sources such as travel literature, biographical dictionaries, and institutional records, alongside modern scholarship. The findings indicate that the intellectual cross-fertilization fostered by these migrations played a foundational role in the construction of an Islamic epistemic space that was both unified and diverse.

Keywords:

Scientific Migration, Knowledge Transmission, Mashriq, Maghreb, Medieval Islam, Intellectual Networks, Cross-Cultural Exchange, Islamic Education, Scholarly Travel,

المخلص:

تتناول هذه المداخلة دور الهجرات العلمية بين المشرق والمغرب الإسلامي خلال العصور الوسطى في تعزيز التفاعل الثقافي والمعرفي بين الأقاليم الإسلامية، وتسلط الضوء على الديناميكية التي رافقت هذا التواصل العلمي وأثرها في تطوير العلوم وتلاقح المعارف، فضلاً عن تأثيرها في تطور الفكر والعلم في كلا الجانبين. تركز الدراسة على دوافع هذه الهجرات، والتي تنوعت بين الدوافع الدينية والثقافية المرتبطة بالبحث عن بيانات علمية أكثر انفتاحاً أو أداء فريضة الحج، وبين الدوافع السياسية والاقتصادية الناتجة عن الاضطرابات أو تأسيس مراكز علمية جديدة، إضافة إلى البحث عن التخصص العلمي في مجالات الفقه، الفلسفة، والعلوم التطبيقية. تحلل المداخلة آليات نقل العلوم بين المشرق والمغرب، بما يشمل الرحلات العلمية، وعمليات الترجمة، وتبادل الكتب والمخطوطات، ودور المكتبات والأسواق العلمية في تسهيل انتقال المعرفة. كما تعرض أثر هذه الهجرات في نشوء مدارس فكرية وعلمية جديدة، من خلال التفاعل بين العلماء المغاربة والمشاركة، مما أسهم في تطور الفقه المالكي، وظهور تيارات فلسفية متميزة، وتقدم العلوم الطبيعية والتطبيقية. إضافة إلى ذلك، تبحث الدراسة في الأبعاد السياسية للهجرات العلمية، حيث ساهمت الظروف السياسية المتغيرة والحروب والاضطرابات في نقل أفكار جديدة وإعادة تنظيم السلطات العلمية في بعض المناطق، بما عزز من انتشار المعرفة وتطوير النظم التعليمية. تهدف المداخلة إلى إبراز الهجرات العلمية كجسر حضاري أسهم في نهضة معرفية شاملة في العالم الإسلامي، مؤكدة على أهمية فهم هذه الظاهرة لتعزيز التعاون العلمي والتبادل الثقافي في الحاضر والمستقبل، وإظهار كيف ساهمت هذه الهجرات في إحداث تحولات فكرية وعلمية مستدامة أسهمت في تطوير أنظمة التعليم والبحث العلمي في مختلف أنحاء العالم الإسلامي.

الكلمات المفتاحية: الهجرات العلمية، المشرق والمغرب، نقل العلوم، التلاقح الفكري، التواصل الحضاري، التأثيرات السياسية.

• Introduction

The scientific and cultural renaissance witnessed by the Islamic world during the medieval period was not an incidental development, but rather the result of sustained scholarly efforts that were supported by dynamic networks of knowledge exchange. Among the most prominent features (Makdisi, 1981, p. 5), of this intellectual vitality were the organized scientific migrations between the major centers of learning in the Mashriq (the East) and the Maghreb (the West). These migrations were far from being spontaneous or individual movements; instead, they represented a strategic academic phenomenon rooted in institutional and civilizational awareness (Berkey, 1992, p. 34).

This study is grounded in the need to understand the functional and epistemological dimensions of scholarly mobility within the Islamic world, not merely as a sociological event but as a key mechanism for the production, dissemination, and localization of knowledge (Rosenthal, 1970, p. 88). The migration of scholars and students across the Islamic world forged an integrated intellectual space stretching from Baghdad to Cordoba, facilitating the cross-fertilization of ideas and the emergence of hybrid scholarly traditions (Gutas, 2001, p. 102).

The importance of this research lies in its attempt to reveal the historical underpinnings of such mobility, the mechanisms that enabled it, and the outcomes it generated in terms of intellectual innovation and institutional development. Specifically, the study seeks to address the following problem: What were the principal drivers behind the scientific migrations between the Mashriq and the Maghreb, and how did these movements contribute to the formation of distinctive scholarly schools and the evolution of knowledge production in the Islamic West?

Two central hypotheses underpin this research (Nasr, 2006, pp. 45–46):

Scientific migrations were motivated by a combination of religious, political, economic, and academic factors. These included pilgrimage, the pursuit of specialized knowledge, the search for stable political environments, and the attraction of well-supported academic institutions.

These migrations were not limited to the passive reception of knowledge, but rather played a significant role in transforming and re-contextualizing eastern scientific and philosophical legacies within the Maghrebi context.

Methodologically, the study adopts a historical-analytical approach, which begins with the identification and categorization of migration phenomena, proceeds to an investigation of their causes and institutional frameworks, and concludes with an analysis of their epistemological impacts. Primary sources such as travelogues, biographical dictionaries, and institutional records are used alongside modern academic studies in the fields of Islamic intellectual history and the sociology of knowledge.

1. The Motivations behind Scientific Migrations between the Mashriq and the Maghreb

The phenomenon of scientific migration in the Islamic world was driven by various intertwined motives that compelled scholars and students to traverse vast distances. These motivations included religious obligations, cultural affinity, political upheavals, economic opportunities, and the quest for specialized knowledge. Each of these dimensions contributed to the establishment of a coherent system of intellectual mobility that enriched both the travelers and the host societies.

1.1 Religious and Cultural Motivations

Among the earliest and most persistent drivers of scientific migration were religious and cultural incentives. The annual pilgrimage (ḥajj) served not only as a spiritual duty but as a scholarly forum where Muslim scholars from different regions met, exchanged books, and participated in knowledge sessions in the holy cities of Mecca and Medina (Ibn Jubayr, 1983, p. 115). These journeys became intellectual opportunities, as pilgrims often returned home carrying rare manuscripts and newly acquired knowledge.

In addition, the deeply rooted Islamic appreciation for learning fostered an environment where travel for knowledge was seen as both a religious act and a societal honor. Students from the Maghreb sought advanced religious and linguistic studies in Baghdad, Cairo, and Damascus, learning under the guidance of renowned scholars and later returning to enrich their local academic environments (al-Maqri, 1968, vol. 2, p. 214). A notable case is that of ‘Abd al-Wāḥid al-Marrākushī, who journeyed to the East and documented the intellectual life of the Maghreb (al-Marrākushī, 1986, p. 37).

This tradition was institutionalized through the system of ijāza, or scholarly certification, which encouraged students to travel in pursuit of distinguished teachers who could grant them formal authorization to teach and transmit knowledge (al-Zarnūjī, 1998, p. 21).

1.2 Political and Economic Motivations

As summarized in Table 1 below, key political developments in both the Mashriq and the Maghreb had a direct impact on the direction and volume of scholarly migration

Region	Key Historical Event	Date	Impact on Migration	Host Scientific Centers
Mashriq	Fall of Baghdad to Mongols	1258 CE	Mass exodus of scholars	—
Mashriq	Crusades in the Levant	1095–1291	Instability; search for refuge	—

Maghreb	Rise of Almohad dynasty	12th c.	Patronage of learning	Marrakesh, Tinmal
Maghreb	Foundation of Qarawiyyin School	9th–13th c.	Attraction of scholars	Fez, Tlemcen

Source: Compiled by author based on al-Nasiri (1997), Ibn al-Athir (1987), Makdisi (1981).

Comment: The table highlights how political decline in the East coincided with academic flourishing in the West, facilitating the redirection of scholarly traffic toward Maghrebi institutions.

Political instability in the Mashriq was a decisive factor in many waves of scholarly migration. The fall of Baghdad to the Mongols in 1258 triggered a significant exodus of scholars, many of whom relocated to the western Islamic world in search of safety and support (Ibn al-Athir, 1987, vol. 12, p. 150). Similarly, the ongoing Crusades and military unrest in the Levant further encouraged scholars to seek refuge in the relatively stable cities of the Maghreb.

On the other hand, the Maghreb offered favorable political and economic conditions that attracted scholars from diverse regions. Cities such as Fez, Marrakesh, and Tlemcen became renowned centers of learning due to the patronage of rulers who invested in schools, libraries, and scholarly grants. Ya‘qūb al-Manṣūr al-Muwahh̄id, for instance, established the Ya‘qūbiyya School in Marrakesh as part of a broader effort to promote learning (al-Nasiri, 1997, vol. 3, p. 88).

In addition, vibrant trade networks and thriving book markets helped disseminate manuscripts across regions. Some commercial caravans doubled as carriers of knowledge, transporting books and scholars alike between East and West.

1.3 The Pursuit of Specialization and Intellectual Diversity

Maghrebi scholars often traveled eastward in search of specialized training in advanced disciplines such as medicine, astronomy, philosophy, and mathematics, which were flourishing in Abbasid Baghdad and Ayyubid Damascus. The intellectual legacy of thinkers like al-Kindī, al-Fārābī, and Ibn Sīnā deeply influenced these students and shaped the emergence of a scientific revival in the Maghreb upon their return (al-Qifti, 1903, p. 198).

A salient example is Ibn al-Bannā’ al-Marrākushī, who journeyed east to study mathematics, then returned to produce foundational texts that transformed mathematical education in the Islamic West (Ibn al-Bannā’, 1971, p. 45). Furthermore, the translation movement that flourished in the Mashriq was a major attraction for Maghrebi scholars, who sought to access and master translated texts from Greek, Persian, and Indian traditions, thus building a robust scientific culture in their own regions.

2. Mechanisms of Knowledge Transmission and Their Impact on the Development of Intellectual Disciplines

2.1 Scholarly Travel :

Scholarly travel served as an effective means for the transmission of knowledge between the Mashriq and the Maghreb. Scholars journeyed in search of knowledge and returned to their homelands carrying books, manuscripts, and scholarly traditions. These travels transmitted teaching methods, debate formats, and research practices across regions. One notable figure is Abū al-Walīd al-Bājī, who traveled from al-Andalus to Baghdad and Mecca, studied under prominent scholars, and upon his return significantly contributed to the development of Mālikī jurisprudence (Ibn Saʿīd, *al-Maghrib fī ḥulā al-Maghrib*, vol. 2, p. 145). Likewise, ʿAbd al-Wāḥid al-Marrākushī documented his scientific observations and encounters in *al-Muʿjib*, which remains a primary source for understanding the dynamics of scholarly exchange between East and West.

2.2 Translation

The translation movement, particularly during the Abbasid period, played a decisive role in the transmission of scientific knowledge from other civilizations into the Islamic world, and eventually to the Maghreb via traveling scholars. Works by Aristotle, Plato, and Hippocrates were translated into Arabic in Baghdad, and later reached the Maghreb where scholars like Ibn Rushd (Averroes) not only explained these texts but restructured them within an Islamic philosophical framework (Ibn Rushd, *Tahāfut al-Tahāfut*, ed. S. Dunya, 1993, p. 211). Similarly, Maslama al-Majrīṭī adapted Indian astronomical sciences translated in Baghdad and applied them within the intellectual circles of al-Andalus and the Maghreb (*al-Qifṭī, Taʾrīkh al-Ḥukamāʾ*, p. 198).

2.3 Books and Manuscripts

Scientific book markets and libraries were essential tools for the dissemination of knowledge. Cities such as Fez, Baghdad, and Cordoba became known for their *sūq al-warrāqīn* (scribes' markets), where books were sold, copied, and exchanged. Major libraries, such as Bayt al-Ḥikma in Baghdad, the Qarawiyyin Library in Fez, and the Great Library of Cordoba, housed thousands of manuscripts and served as authentic centers of research. Copyists and manuscript workshops played a pivotal role in knowledge reproduction and transfer between regions. This was well documented by Muḥammad al-Manūnī in *al-Warāqa al-Maghribiyya*, where he emphasized the importance of book production in the dissemination of culture and thought (*al-Manūnī, al-Warāqa al-Maghribiyya*, p. 61).

2.4 Educational Institutions

Madrasas and Sufi lodges (*zāwiyas*) played a vital role in sustaining knowledge transmission by serving as centers of instruction and scholarly training. For example, the Qarawiyyin Mosque-University in Fez adopted curricula influenced by the Nizāmiyya schools of Baghdad, thus facilitating the integration of Eastern scholarship within a Maghrebi framework. In his study of the Qarawiyyin, ʿAbd al-Hādī al-Tāzī noted that it served as a hub of academic exchange between

scholars of the Mashriq and Maghreb, benefiting from visiting scholars and imams (al-Tāzī, Jāmi' al-Qarawiyyīn, p. 143).

3. Epistemological Cross-Fertilization and the Emergence of New Intellectual Schools in the Islamic Maghreb

The scientific migrations between the Mashriq and the Maghreb led to a multifaceted process of intellectual interaction that extended far beyond the mere transfer of knowledge. This exchange fostered epistemological synthesis and innovation, culminating in the emergence of distinctive schools of thought within the Islamic West. These schools succeeded in integrating Eastern scholarly legacies with local cultural and social realities, resulting in dynamic and hybrid intellectual traditions.

3.1 The Mālikī School and the Reconfiguration of Jurisprudence

The Mālikī school was established early in the Islamic Maghreb, primarily through the transmission of al-Muwatta' by Yahyā ibn Yahyā al-Laythī. However, subsequent interactions with Eastern scholarly centers greatly enriched Mālikī jurisprudence. Influential figures such as al-Qāḍī 'Iyāḍ (d. 544 AH) and Abū al-Walīd al-Bājī studied under Eastern scholars and adapted their knowledge to suit Maghrebi legal and societal contexts (Ibn Khaldūn, 2005, p. 312; al-Qāḍī 'Iyāḍ, *Tartīb al-Madārik*, vol. 1, p. 44). Their efforts contributed to a distinctive Mālikī tradition marked by flexibility, contextual reasoning, and openness to innovation (al-Subkī, *Ṭabaqāt al-Shāfi'iyya*, vol. 3, p. 120; Ibn al-'Arabī, *Āriḍat al-Aḥwadhī*, vol. 1, p. 32).

3.2 Philosophical and Rationalist Influences

The encounter with Eastern philosophy was instrumental in the rise of the Andalusian-Maghrebi rationalist tradition. Thinkers like Ibn Bājja, Ibn Ṭufayl, and Ibn Rushd drew on the works of al-Fārābī and Ibn Sīnā, but moved beyond them to formulate a Maghrebi philosophical synthesis that balanced reason with revelation (Ibn Rushd, *Tahāfut al-Tahāfut*, p. 220; al-Fārābī, *Ārā' Ahl al-Madīna al-Fāḍila*, p. 141). Ibn Rushd, in particular, reinterpreted Aristotle through an Islamic lens, offering critical commentaries that later played a foundational role in the European Renaissance via Latin translations (Renan, 1997, p. 189; Leaman, 1996, p. 72). His works also bridged rationalism and Sufi spirituality, as exemplified in Ibn Ṭufayl's *Ḥayy ibn Yaqzān*.

3.3 The Rise of Empirical and Scientific Disciplines

The intellectual cross-fertilization also extended into the natural and applied sciences. Maghrebi scholars assimilated Eastern scientific traditions in medicine, astronomy, and mathematics, while contributing original advancements. Inspired by al-Khwārizmī and al-Battānī, Ibn al-Bannā' al-Marrākushī produced foundational treatises such as *Talkhīṣ A'māl al-Ḥisāb*, which shaped mathematical education in Fez and Marrakesh (Ibn al-Bannā', 1971, p. 245; Ḥājji Khalīfa, *Kashf al-Zunūn*, vol. 2, p. 1321).

In medicine, al-Zahrāwī (Albucasis) developed a surgical school rooted in Eastern medical knowledge but distinguished by its empirical orientation. His monumental work *al-Taṣrīf liman ‘ajiza* ‘an al-Ta’līf was recognized as one of the earliest surgical encyclopedias in Islamic history (al-Zahrāwī, *al-Taṣrīf*, p. 176; Cooper, 1997, p. 203).

3.4 Outcomes of Intellectual Cross-Fertilization

The result of this epistemological exchange was the emergence of locally rooted intellectual identities that were nonetheless anchored in Eastern heritage. These hybrid traditions produced new currents of thought that reconciled transmission with critical inquiry and laid the foundation for comprehensive schools in law, philosophy, and science (Rosenthal, 1970, p. 88).

This dynamic fostered an expanded framework of legal and scientific reasoning, enabling the institutionalization of scholarly autonomy and curricular independence. The Maghreb thereby positioned itself as a key intellectual center within the broader Islamic world, contributing significantly to the reformation of scientific discourse and the consolidation of a culturally distinct yet globally connected Islamic identity (Makdisi, 1981, p. 176; Saliba, 2007, p. 131).

• Conclusion

This study has proven that scientific migrations between the Mashriq and the Maghreb were not merely a transient historical phenomenon, but rather one of the foundational pillars of Islamic civilization in the Western Islamic world. They served as an effective mechanism for the transmission, development, and re-production of knowledge within distinct cultural frameworks. These migrations represented a multidimensional civilizational interaction, not limited to the passive reception of knowledge from the East, but extending to its reinterpretation and reinvestment within a Maghrebi context shaped by local, social, and political considerations.

The study revealed that the motivations behind these migrations were multifaceted, combining religious, scientific, political, and economic drivers. This reflects a comprehensive civilizational awareness of the value of knowledge as a tool for societal advancement. The scientific mobility did not merely preserve inherited knowledge but contributed to the production of new scientific discourse and the emergence of deeply rooted and open-minded intellectual schools in the Maghreb, particularly in Mālikī jurisprudence, philosophical thought, and the exact sciences.

Moreover, the research has highlighted how knowledge transmission occurred through clear institutional pathways—such as teaching in madrasas and *zawāyā*, manuscript exchange, and scholarly journeys—indicating the presence of an active and interconnected epistemic network among Islamic centers.

It also became evident that the intellectual cross-fertilization between the Mashriq and the Maghreb gave rise to dynamic knowledge systems that played a significant role in constructing an authentic Maghrebi scientific identity. This identity successfully balanced between tradition and renewal, and between heritage and innovation. The contribution of educational institutions in

consolidating this identity was no less significant than the role of individual scholars, as they served as platforms for recording knowledge, developing curricula, and nurturing new generations of scholars.

The importance of this study extends beyond offering a historical reading of an old phenomenon; it presents a model that can be emulated in the age of globalization, where scientific mobility and intellectual exchange are essential conditions for civilizational advancement. Therefore, the study recommends opening new research avenues that explore the biographies of Maghrebi scholars who migrated East, editing their unpublished works, and analyzing patterns of intellectual interaction using modern methodologies—efforts that can significantly enhance our understanding of how scientific and intellectual awareness was formed in the Islamic world.

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