

The Transmission of Papermaking from the Islamic West to Europe during the Medieval Period: The Seventh Century AH/Thirteenth Century CE: A Historical and Civilizational Study

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Abstract

Human history has witnessed decisive turning points closely linked to the development of media for transmitting knowledge. Papermaking ranks among the foremost technologies that reshaped human consciousness and ensured the circulation and continuity of ideas across generations. While the Islamic East provided the formative environment in which this craft developed from a rudimentary practice into an established industry, the Islamic West, particularly al-Andalus and the Maghreb, constituted the principal strategic bridge and intellectual center through which the technology reached Europe. The transmission of papermaking involved more than the transfer of a manual craft or commercial commodity. It helped dismantle the monopoly on knowledge created by reliance on parchment and papyrus and laid the material foundations for the development of scholarly institutions and universities in medieval Europe. This study traces the routes by which papermaking technology was transmitted, identifies its principal centers, and examines the most significant views expressed by Orientalist scholars on the subject.

Keywords: Islamic paper; Fabriano; watermarks; Jonathan Bloom.

Introduction

The transmission of papermaking from Islamic civilization, particularly from the Maghreb and al-Andalus, to Europe constituted one of the most prominent manifestations of civilizational interaction among nations. It involved not only the transfer of an industrial technique but also a major intellectual transformation, providing the material foundation for the translation movement, the emergence of European universities, and, subsequently, the development of printing.

Until the beginning of the twelfth century CE, Europeans continued to rely on limited writing materials, such as parchment and papyrus, which restricted the dissemination of knowledge and largely confined it to religious circles. As papermaking spread through the Islamic Maghreb into al-Andalus, particularly Xàtiva, the city became a major center for paper production and export to Europe, thereby contributing to the dissemination of culture and knowledge. Orientalist studies have differed in their assessments of this role. While some Orientalists regarded Muslims as mere transmitters of a Chinese technique, more recent studies

have affirmed that they substantially developed papermaking and made paper more widely available, thereby facilitating access to knowledge.

In view of this historical and intellectual significance, this study examines the geographical and technical routes through which paper was transmitted from the Islamic Maghreb to Europe. It also analyzes Orientalist positions concerning this transmission and assesses the objectivity of Western interpretations of the civilizational impact of Muslims in this field.

1. Routes of the Transmission of Papermaking from the Islamic West to Europe

Papermaking is regarded as one of the most prominent achievements of Arab-Islamic civilization, and it contributed substantially to the development of Europe, particularly to the spread of printing and book production.¹ Philip Hitti identifies papermaking as one of the greatest services Islam rendered to Europe, noting that the craft moved from the Islamic East to Marrakesh and then to Spain in the mid-twelfth century, thereby contributing to the flourishing of book production.²

Hasan Husni Abd al-Wahhab maintains that papermaking was transmitted directly to Europe from Tunisia via Sicily during the Aghlabid period. It subsequently spread to southern Italy and from there to Salerno, contributing to its diffusion throughout Europe.³ Abd al-Hamid Bahrani supports this view, arguing that the transmission of the craft from Kairouan to Sicily is reflected in the similarity of papermaking techniques and production methods, which remained nearly unchanged from the eighth century CE until the invention of the first papermaking machine in the eighteenth century.⁴

Abd al-Sattar al-Halaji argues that papermaking was transmitted from Kairouan to Palermo, the capital of Aghlabid Sicily, and then to Fabriano in 675 AH/1276 CE, where the André Gelvani family produced large quantities of Italian paper that circulated in Arab and African markets. Paper was also manufactured in Bologna in 693 AH/1293 CE.⁵ It was known by various names in Italian cities, including Padua paper (*Carta bambaci*), Modena paper (*Carta bambaxi*), Bologna paper (*Charta de bambare Bologna*), and Pistoia paper (*Carta de bambacia*).⁶

Papermaking reached Europe from the Islamic West through Sicily in the east and al-Andalus in the west after flourishing in Kairouan, Fez, and Ceuta; it subsequently spread to

¹ Abd al-Aziz ibn Muhammad al-Masfar, *Al-Makhtut al-Arabi wa-shay min qadaya-hu* (Riyadh: Dar al-Marikh lil-Nashr, 1999), 30.

² Philip Hitti, *Al-Arab: Tarikh mujiz* (Beirut: Dar al-Ilm lil-Malayin, 1991), 187.

³ Hasan Husni Abd al-Wahhab, "Al-Bardi wa-al-raqq wa-al-kaghad fi Ifriqiya al-Tunisiyya," *Majallat Mahad al-Makhtutat al-Arabiyya* 2, no. 1 (Shawwal 1375 AH/May 1956): 44.

⁴ Abd al-Hamid Bahrani, "Al-Raqq wa-al-waraq fi al-Qayrawan," in *Amal nadwat Ishamat al-Qayrawan al-ilmiyya wa-al-taqniyya* (Kairouan: Center for Islamic Studies, University of al-Zaytuna, 2009), 169.

⁵ Abd al-Sattar al-Halaji, *Al-Makhtut al-Arabi*, 2nd ed. (Saudi Arabia: Maktabat Misbah, 1409 AH/1989), 276.

⁶ Jonathan Bloom, *Qissat al-waraq: Tarikh al-waraq fi al-alam al-Islami qabla zuhur al-tibaa*, trans. Ahmad al-Adawi (Riyadh: Dar Adab, 1442 AH), 374.

France.⁷ This process contributed to the dissemination of written works and the beginnings of the European awakening, as well as to the transmission of Islamic heritage through direct contact during the Crusades.⁸ The influence of Islamic civilization on Europeans is attested by the account of Álvaro, bishop of Córdoba, in the third century AH/ninth century CE concerning Christians' eagerness to learn Arabic and acquire Arabic books. In 793 AH/1338 CE, Pedro IV, king of Aragon and ruler of Valencia, ordered papermakers to manufacture paper according to previously established standards of quality and imposed penalties on those who failed to comply.⁹

Papermaking spread to France, the second European country after Italy to develop the industry, through al-Andalus. Paper mills were established in the mid-fourteenth century CE in Essonne and Troyes.¹⁰ The earliest surviving French paper dates to 646 AH/1248 CE, while the industry entered official use in the royal chancery in 741 AH/1340 CE.¹¹ Papermakers established an association in Paris in 800 AH/1398 CE and another in Troyes to defend their interests. King Charles VIII issued a document regulating papermaking privileges, after which the industry expanded to other cities, including Lyon. King Philip II and his successors also collected Islamic books that formed the nucleus of the Escorial Library in Madrid.¹²

France gradually replaced Italy as Europe's principal supplier of paper, and Strasbourg's printing presses came to depend on French paper because papermaking developed later in Germany, the Netherlands, and England.¹³ Women worked in French paper mills until the eighteenth-century CE, particularly in sorting rags and drying sheets. Linen, cotton, and hemp remained important raw materials because they produced high-quality paper.¹⁴ From France, the industry spread to Switzerland in the late thirteenth and early fourteenth centuries. Basel had approximately seven paper mills operated by the Italian Gliziani family, which, together with other Italian families, helped spread papermaking in Europe, particularly in Germany.¹⁵

Papermaking was introduced to Germany by the merchant Ulman Stromer, who trained in Italy and, with assistance from skilled Italian workers, established the first paper mill in 792

⁷ Mahir Hamada, *Al-Maktabat fi al-Islam: Nashatuha wa-tatawwuruha wa-masairuha* (Beirut: Muassasat al-Risala, 1997), 212.

⁸ Robert Briffault, *Athar al-thaqafa al-Islamiyya fi takwin al-insaniyya*, trans. al-Sayyid Abu al-Nasr Ahmad al-Husayni (Cairo: Matbaat Isa al-Babi al-Halabi, 1957), 145.

⁹ Matthias Koops, *Historical Account of the Substances Which Have Been Used to Describe Events, and to Convey Ideas, from the Earliest Date to the Invention of Paper* (1800), 51.

¹⁰ Muhammad al-Manuni, *Tarikh al-wiraqa al-Maghribiyya: Sinaat al-makhtut al-Maghribi min al-asr al-wasit ila al-fatra al-muasira* (Rabat: Publications of the Faculty of Letters and Human Sciences, 1412 AH/1991), 34.

¹¹ Bernard Gineste, *Histoire du papier à Étampes des origines au milieu du XV^e siècle: Étude des filigranes conservés* (2013), 26.

¹² Lucien Febvre and Henri-Jean Martin, *Zuhur al-kitab* (Dar Talas, 1988), 54.

¹³ Febvre and Martin, *Zuhur al-kitab*, 60.

¹⁴ Leonard N. Rosenband, *Papermaking in Eighteenth-Century France, 1761–1805* (Johns Hopkins University Press, 2000), 8.

¹⁵ Charles Delon, *Histoire d'un livre* (Paris: Librairie Hachette, n.d.), 107.

AH/1390 CE.¹⁶ In the fifteenth century, the Holbein family rose to prominence in Ravensburg and is credited with inventing brass-wire frames. The industry also spread to several German cities, including Nuremberg in 793 AH/1391 CE, Luneburg in 834 AH/1431 CE, and Leipzig between 1380 and 1390 CE.¹⁷

Papermaking was introduced into England with the establishment of the first mill in Hertfordshire in 900 AH/1495–96 CE by John Tate, mayor of London, with the support of the English government. Wynkyn de Worde used Tate's paper to print *On the Properties of Things* in 1495 CE.¹⁸ The industry developed slowly because of the English Civil War (1642–52 CE), but it regained momentum following the events of 1675 in France and the ensuing migration of Protestants, including Henry Portal, who became one of the foremost papermakers and obtained, in 1034 AH/1625 CE, the privilege of producing paper for Bank of England notes.¹⁹ Nevertheless, the English paper remained inferior in quality to its French and Italian counterparts. The industry also suffered from shortages of raw materials and consequently imported them from France and the Netherlands until the first quarter of the eighteenth century.²⁰

Europeans used various watermarks in papermaking, including the bell, of Italian origin; circles, which spread from Italy to Spain and Portugal; the flower, found in southwestern France; monograms; images of animals, particularly the lion; crosses; and the bull's head.²¹ As the number of paper mills in Europe increased, the paper and printing industries expanded and reached the Scandinavian countries in the sixteenth century CE, when the first mill was established in Stockholm.²² The Danish astronomer Tycho Brahe also established a paper mill on the island of Hven, while sources indicate that the Kingdom of Denmark established its first mills in 978 AH/1570 CE.²³ Denmark nevertheless continued to import paper through Sweden and Norway.²⁴

Papermaking was introduced to the American continent during the Age of Exploration. Until 1620 CE, America depended on paper imported from England. In 1690 CE, the first paper mill was established in Philadelphia, Pennsylvania, by two men from the Netherlands. Another mill was founded near New Jersey in 1726 CE by the renowned printer William Bradford, and a third was established in Dorchester, Massachusetts, in 1728 CE by a group of papermakers.²⁵

¹⁶ Shaban Abd al-Aziz Khalifa, *Al-Bibliyughrafiya aw ilm al-kitab: Dirasa fi usul al-nazariyya al-bibliyughrafiyya wa-tatbiqatiha* (Cairo: al-Dar al-Misriyya al-Lubnaniyya, 1997), 40.

¹⁷ Svend Dahl, *Tarikh al-kitab min aqdam al-usur ila al-waqt al-hadir*, trans. Muhammad Salah Hilmi (National Foundation for Publishing and Distribution, n.d.), 81.

¹⁸ Christopher J. Biermann, *Handbook of Pulping and Papermaking*, 2nd ed. (Academic Press, 1996), 1.

¹⁹ Khalifa, *Al-Bibliyughrafiya aw ilm al-kitab*, 41.

²⁰ Philip Gaskell, *A New Introduction to Bibliography* (Winchester, UK: St. Paul's Bibliographies, 1995), 60.

²¹ Theo Laurentius, *Watermarks in Paper from the Southwest of France, 1560–1869* (Leiden, n.d.), 3.

²² Febvre and Martin, *Zuhur al-kitab*, 62.

²³ Dahl, *Tarikh al-kitab*, 81.

²⁴ David Olafsson and Silvia Hufnagel, *Paper Stories: Paper and Book History in Early Modern Europe* (De Gruyter, 2023), 16.

²⁵ Lyman Horace Weeks, *A History of Paper-Manufacturing in the United States, 1690–1916* (New York, 1916), 3.

2. Papermaking Techniques in Islamic al-Andalus and Christian Spain

The fall of Granada, the last Muslim stronghold in al-Andalus, in 897 AH/1492 CE, following the capitulation treaty concluded between Abu Abd Allah Muhammad ibn al-Ahmar al-Saghir and the monarchs of Castile, Ferdinand and Isabella, brought an end to a flourishing phase of Islamic civilization in Western Europe.²⁶ This situation was exacerbated by the Inquisition, which confiscated Muslim property, persecuted Muslims, and destroyed their cultural heritage.²⁷ Nevertheless, Islamic Spain had attained an advanced level of civilization. Córdoba was renowned for its large population and for having approximately 700 mosques, 300 public baths, and 70 public libraries, as well as numerous scribes and booksellers.²⁸

A comparison between papermaking in Islamic al-Andalus and Christian Spain demonstrates the enduring influence of Islamic techniques, despite attempts by some Orientalists to diminish the civilizational contribution of Muslims. This influence is confirmed by the account of Abu Abd Allah Muhammad ibn Abd al-Wahhab al-Miknasi (d. 1214 AH/1799 CE), recorded during his 1193 AH/1779 CE journey to Spain as an ambassador. He described in detail the stages of papermaking in Xàtiva, beginning with sorting, washing, retting, and water-powered pounding of linen rags, followed by forming the sheets in molds, pressing and drying them, treating them with a substance extracted from cowhides, and drying them again before sale.²⁹ This account demonstrates that Christian Spain continued to rely on Andalusian technical methods nearly three centuries after the fall of Granada in 897 AH/1492 CE, making it an important source for the study of papermaking in the region.³⁰

Papermaking in the Iberian Peninsula during the medieval and early modern periods preserved the Islamic techniques that had flourished in Xàtiva and Valencia, particularly the use of hydraulic power to operate paper mills, a technique known in the Islamic world before its spread in Europe.³¹ The observations of Muhammad ibn Uthman al-Miknasi during his journey to Spain in 1193 AH/1779 CE also demonstrate that Spanish mills continued to employ Andalusian methods, from the use of linen as a raw material to the stages of washing, pulping, drying, and treatment.³² Al-Miknasi's travel account is therefore an important historical source for comparing papermaking after the fall of al-Andalus with its condition during the Islamic period. It also demonstrates the enduring influence of Islamic technical heritage in Xàtiva and Valencia despite the Christian conquest. Andalusian influence thus remained evident in

²⁶ Shihab al-Din Ahmad ibn Muhammad al-Maqqari al-Tilimsani, *Nafh al-tib min ghusn al-Andalus al-ratib wa-dhikr waziriha Lisan al-Din ibn al-Khatib*, ed. Ihsan Abbas, vol. 4 (Beirut: Dar Sadir, 1997), 525.

²⁷ Adil Said Bishtawi, *Al-Andalusiyyun al-Muwarika* (Cairo: International Press, 1983), 215.

²⁸ Rom Landau, *Al-Islam wa-al-Arab*, trans. Munir al-Baalbakki, 2nd ed. (Beirut: Dar al-Ilm lil-Malayin, 1977), 177.

²⁹ Abu Abd Allah Muhammad ibn Abd al-Wahhab al-Miknasi, *Al-Iksir fi fikak al-asir*, ed. Muhammad al-Fasi (Rabat: University Center for Scientific Research, 1965), 131.

³⁰ Al-Miknasi, *Al-Iksir fi fikak al-asir*, 130.

³¹ Sharif Abd al-Rahman Jah, *Lughz al-ma fi al-Andalus*, trans. Zaynab Bin Yaya (Abu Dhabi: Abu Dhabi Tourism and Culture Authority, 2014), 84.

³² Al-Miknasi, *Rihlat al-Miknasi: Ihraz al-mualla wa-al-raqib fi hajj Bayt Allah al-Haram wa-ziyarat al-Quds al-Sharif wa-al-Khalil wa-al-tabarruk bi-qabr al-Habib*, 1785, ed. Muhammad Bukbut (Arab Institute for Research and Publishing, 2003), 14.

papermaking even after the emergence of printing in 1454 CE through the work of Johann Gutenberg, which contributed to the development of scientific and cultural life in Europe.³³

3. The Contributions of Islamic Paper to Europe: Between Recognition and Exclusion

Islamic papermaking, like many other achievements of Islamic civilization, was undervalued in certain Orientalist studies. Some scholars regarded it merely as a technique transmitted from China to Europe through Greece and Italy, while others maintained that Muslims introduced no innovations and attributed the principal achievement to Europe following the invention of printing in the mid-fifteenth century CE. Historical evidence, however, confirms that Islamic civilization contributed to the transmission of papermaking to Europe, thereby paving the way for the flourishing of books and printing, as well as the transmission of the sciences.³⁴ Al-Andalus, in particular, became a destination for scholars of the European Renaissance.³⁵ Among the most prominent scholars to address this subject is Jonathan Bloom, author of *Architecture of the Islamic West, 700–1800*, *The Art and Architecture of Islam, 1250–1800*, and *Minaret: Symbol of Islam*, major studies of Islamic art and architecture.³⁶

Jonathan Bloom affirmed the importance of the Islamic role in the development of papermaking and its transmission from the Islamic East to the Islamic West and subsequently to Europe in *Paper Before Print: The History and Impact of Paper in the Islamic World*. Ahmad al-Adawi translated the book into Arabic under the title *The Story of Paper: The History of Paper in the Islamic World before the Emergence of Printing*, and the translation appeared in 1443 AH/2021 CE with a preface by Bloom. The book received several awards, including the Charles Rufus Morey Award in 2003, the Albert Hourani Book Award, and second place in the British-Kuwait Friendship Society Book Prize in 2002. In chapter 6, Bloom explained that paper reached Europe through the Muslims of al-Andalus and Sicily during the fifth and sixth centuries AH/eleventh and twelfth centuries CE and that Johann Gutenberg's success in printing depended on the ready availability of paper. In chapter 7, he attributed the delayed adoption of printing in the Islamic world to the failure to embrace the technology early on.³⁷

Augustin Blanchet discussed the role of Jews in papermaking in al-Andalus. In his study "Le papier en Italie," he also noted that Sicily and the maritime cities were supplied with paper from Kairouan until papermaking became widespread under Norman rule.³⁸ In *White Magic: The Age of Paper*, Lothar Muller described the flourishing of papermaking in Baghdad, the Levant, and Egypt, drawing on the studies of Joseph von Karabacek, who regarded Arab civilization as a model for European papermaking. Muller also affirmed that papermaking technology was

³³ Abd al-Fattah Abu Aliyya and Ismail Ahmad Yaghi, *Tarikh Urubba al-hadith wa-al-muasir*, 3rd ed. (Saudi Arabia: Dar al-Marikh, 1993), 37.

³⁴ Hani al-Mubarak and Shawqi Abu Khalil, *Dawr al-hadara al-Arabiyya al-Islamiyya fi al-nahda al-Urubiyya* (Damascus: Dar al-Fikr, 1417 AH/1996), 58.

³⁵ Said Abd al-Fattah Ashur, *Urubba fi al-usur al-wusta*, vol. 2 (Cairo: Anglo-Egyptian Bookshop, 2009), 391.

³⁶ Abd Allah al-Buraydi, "Qissat al-waraq wa-tarikhu fi al-alam al-Islami," *Hikma: Min ajl ijihad thaqa fi wa-falsafi*, June 23, 2021, 1.

³⁷ Bloom, *Qissat al-waraq*, 385.

³⁸ Augustin Blanchet, *Essai sur l'histoire du papier* (Paris, 1900), 45.

transmitted through North Africa to Córdoba, Seville, Toledo, and Xàtiva and that Muslims developed the technique they had adopted from China.³⁹

Sigrid Hunke affirmed in *Le Soleil d'Allah brille sur l'Occident* that Barcelona and Valencia were renowned for producing fine paper.⁴⁰ She further noted that papermakers from Nuremberg, Ravensburg, Basel, and Constance traveled there to benefit from their expertise.⁴¹ Drawing on the testimony of al-Idrisi, who described Xàtiva paper as unrivaled in the world, she also maintained that the Arabs developed mill construction and introduced watermills and windmills to Europe.⁴² Gustave Le Bon (d. 1931 CE) likewise offered a favorable assessment of Islamic civilization in *La Civilisation des Arabes*. He explained that Europeans had relied on costly parchment and animal skins before paper became widespread and that the Arabs contributed to the preservation and transmission of Greek and Roman heritage.⁴³ He also praised Muslim achievements in the manufacture of paper, textiles, leather, ceramics, glass, and metalwork, affirming that Europeans benefited from this expertise in developing their own industries.⁴⁴

Svend Dahl, librarian at the University of Copenhagen, acknowledged the Islamic role in transmitting papermaking to Europe in *Histoire du Livre*. In a section entitled “The Arabs Introduce Paper to the West,” he affirmed that the Arabs introduced the industry into Spain in the twelfth century and that Toledo was among the first European cities to manufacture paper.⁴⁵ By contrast, the American historian Dard Hunter, in *Papermaking: The History and Technique of an Ancient Craft*, disregarded the Islamic contribution to papermaking despite the importance of his work to the history of the industry.⁴⁶ The American scholar Thea Burns also criticized Jonathan Bloom’s arguments in “Paper before Print” and maintained that papermaking was not necessarily transmitted to Europe through the Islamic world.⁴⁷ Historical evidence, however, supports the conclusion that Islamic civilization contributed to the preservation and development of human heritage and played a fundamental role in transmitting the sciences and arts, including papermaking, to Europe.⁴⁸

Some Western writings denied Muslim scientific contributions and attributed many Islamic innovations to others, whereas historical evidence confirms that Islamic civilization

³⁹ Lothar Muller, *White Magic: The Age of Paper*, trans. Jessica Spengler (Polity Press, 2014), 7.

⁴⁰ Sigrid Hunke, *Le soleil d'Allah brille sur l'Occident* (Paris: Éditions Albin Michel, 1963), 32.

⁴¹ Sigrid Hunke, *Shams al-Arab tasta ala al-Gharb: Athar al-hadara al-Arabiyya ala Urubba*, trans. Faruq Baydun and Kamal Dasuqi (Commercial Office for Printing and Publishing, 1964), 9, 11.

⁴² Hunke, *Shams al-Arab tasta ala al-Gharb*, 45.

⁴³ Gustave Le Bon, *La civilisation des Arabes* (Paris: Librairie de Firmin-Didot, 1884), 518.

⁴⁴ Abd al-Aziz Abd al-Muttalib al-Sayyid, *Athar al-hadara al-Islamiyya ala al-Sharq wa-al-Gharb: Gustave Le Bon namudhajan* (Dar al-Ilm wa-al-Iman lil-Nashr, 2014), 137.

⁴⁵ Dahl, *Tarikh al-kitab*, 41.

⁴⁶ See the index to Dard Hunter, *Papermaking: The History and Technique of an Ancient Craft* (Dover Publications, n.d.).

⁴⁷ Thea Burns, “Paper before Print,” *Journal of the American Institute for Conservation* 42 (2003): 125–26.

⁴⁸ Abu Zayd Shalabi, *Tarikh al-hadara al-Islamiyya wa-al-fikr al-Islami* (Cairo: Maktabat Wahba, 1433 AH/2012), 331.

made significant contributions to the sciences, arts, and industries during the Middle Ages.⁴⁹ Paper manufactured in the Islamic East and West bears witness to the development of Islamic industry and its role in the transmission of knowledge. It remains one of the most prominent civilizational achievements contributing to the flourishing of culture and scientific research.⁵⁰

Conclusion

The transmission of papermaking (*kaghad*) from the Maghreb and al-Andalus to Europe during the Middle Ages constituted a civilizational and intellectual transformation. It involved not only the transfer of an industrial technique but also the provision of the material foundation for the dissemination of knowledge. Muslims developed the Chinese technique in centers such as Fez and Xàtiva, using watermills and improving production methods, before the craft spread across the Iberian Peninsula and Italy, and then to the rest of Europe. There, paper reduced reliance on parchment and papyrus, paving the way for the flourishing of the translation movement, the emergence of universities, and the printing revolution of the fifteenth century. This transmission represents a prominent example of cross-cultural exchange: Muslims conveyed to Europe not only ideas but also the material medium that contributed to its intellectual renaissance.

Arabic Primary Sources

Al-Maqqari al-Tilimsani, Shihab al-Din Ahmad ibn Muhammad. *Nafh al-tib min ghusn al-Andalus al-ratib wa-dhikr waziriha Lisan al-Din ibn al-Khatib*. Edited by Ihsan Abbas. Vol. 4. Beirut: Dar Sadir, 1997.

Al-Miknasi, Abu Abd Allah Muhammad ibn Abd al-Wahhab. *Al-Iksir fi fikak al-asir*. Edited by Muhammad al-Fasi. Rabat: University Center for Scientific Research, 1965.

Al-Miknasi, Abu Abd Allah Muhammad ibn Abd al-Wahhab. *Rihlat al-Miknasi: Ihraz al-mualla wa-al-raqib fi hajj Bayt Allah al-Haram wa-ziyarat al-Quds al-Sharif wa-al-Khalil wa-al-tabarruk bi-qabr al-Habib*, 1785. Edited by Muhammad Bukbut. Arab Institute for Research and Publishing, 2003.

Arabic Secondary Sources

Abd al-Rauf, Abd al-Qadir Sayyid. *Athar al-hadara al-Islamiyya fi al-mujtamaat al-insaniyya*. Cairo: Dar al-Tibaa al-Muhammadiyya, 1994.

Abd al-Wahhab, Hasan Husni. "Al-Bardi wa-al-raqq wa-al-kaghad fi Ifriqiya al-Tunisiyya." *Majallat Mahad al-Makhtutat al-Arabiyya* 2, no. 1 (Shawwal 1375 AH/May 1956).

Abu Aliyya, Abd al-Fattah, and Ismail Ahmad Yaghi. *Tarikh Urubba al-hadith wa-al-muasir*. 3rd ed. Saudi Arabia: Dar al-Marikh, 1993.

⁴⁹ Abd al-Qadir Sayyid Abd al-Rauf, *Athar al-hadara al-Islamiyya fi al-mujtamaat al-insaniyya* (Cairo: Dar al-Tibaa al-Muhammadiyya, 1994), 36.

⁵⁰ Sayyid Amir Ali, *Mukhtasar tarikh al-Arab wa-al-tamaddun al-Islami*, trans. Riyad Rafat (Cairo: Matbaat Lajnat al-Talif wa-al-Tarjama wa-al-Nashr, 1938), 495.

- Ali, Sayyid Amir. *Mukhtasar tarikh al-Arab wa-al-tamaddun al-Islami*. Translated by Riyad Rafat. Cairo: Matbaat Lajnat al-Talif wa-al-Tarjama wa-al-Nashr, 1938.
- Ashur, Said Abd al-Fattah. *Urubba fi al-usur al-wusta*. Vol. 2. Cairo: Anglo-Egyptian Bookshop, 2009.
- Bahrani, Abd al-Hamid. "Al-Raqq wa-al-waraq fi al-Qayrawan." In *Amal nadwat Ishamat al-Qayrawan al-ilmiyya wa-al-taqniyya*. Kairouan: Center for Islamic Studies, University of al-Zaytuna, 2009.
- Bishtawi, Adil Said. *Al-Andalusiyyun al-Muwarika*. Cairo: International Press, 1983.
- Bloom, Jonathan. *Qissat al-waraq: Tarikh al-waraq fi al-alam al-Islami qabla zuhur al-tibaa*. Translated by Ahmad al-Adawi. Riyadh: Dar Adab, 1442 AH.
- Briffault, Robert. *Athar al-thaqafa al-Islamiyya fi takwin al-insaniyya*. Translated by al-Sayyid Abu al-Nasr Ahmad al-Husayni. Cairo: Matbaat Isa al-Babi al-Halabi, 1957.
- Al-Buraydi, Abd Allah. "Qissat al-waraq wa-tarikhuhu fi al-alam al-Islami." *Hikma: Min ajl ijtihad thaqa fi wa-falsafi*, June 23, 2021.
- Dahl, Svend. *Tarikh al-kitab min aqdam al-usur ila al-waqt al-hadir*. Translated by Muhammad Salah Hilmi. National Foundation for Publishing and Distribution, n.d.
- Febvre, Lucien, and Henri-Jean Martin. *Zuhur al-kitab*. Dar Talas, 1988.
- Hamada, Mahir. *Al-Maktabat fi al-Islam: Nashatuha wa-tatawwuruha wa-masairuha*. Beirut: Muassasat al-Risala, 1997.
- Al-Halujji, Abd al-Sattar. *Al-Makhtut al-Arabi*. 2nd ed. Saudi Arabia: Maktabat Misbah, 1409 AH/1989.
- Hitti, Philip. *Al-Arab: Tarikh mujiz*. Beirut: Dar al-Ilm lil-Malayin, 1991.
- Hunke, Sigrid. *Shams al-Arab tasta ala al-Gharb: Athar al-hadara al-Arabiyya ala Urubba*. Translated by Faruq Baydun and Kamal Dasuqi. Commercial Office for Printing and Publishing, 1964.
- Jah, Sharif Abd al-Rahman. *Lughz al-ma fi al-Andalus*. Translated by Zaynab Bin Yaya. Abu Dhabi: Abu Dhabi Tourism and Culture Authority, 2014.
- Khalifa, Shaban Abd al-Aziz. *Al-Bibliyugrafiya aw ilm al-kitab: Dirasa fi usul al-nazariyya al-bibliyugrafiyya wa-tatbiqatiha*. Cairo: al-Dar al-Misriyya al-Lubnaniyya, 1997.
- Landau, Rom. *Al-Islam wa-al-Arab*. Translated by Munir al-Baalbakki. 2nd ed. Beirut: Dar al-Ilm lil-Malayin, 1977.
- Le Bon, Gustave. *La civilisation des Arabes*. Paris: Librairie de Firmin-Didot, 1884.
- Al-Manuni, Muhammad. *Tarikh al-wiraqa al-Maghribiyya: Sinaat al-makhtut al-Maghribi min al-asr al-wasit ila al-fatra al-muasira*. Rabat: Publications of the Faculty of Letters and Human Sciences, 1412 AH/1991.
- Al-Masfar, Abd al-Aziz ibn Muhammad. *Al-Makhtut al-Arabi wa-shay min qadaya-hu*. Riyadh: Dar al-Marikh lil-Nashr, 1999.
- Al-Mubarak, Hani, and Shawqi Abu Khalil. *Dawr al-hadara al-Arabiyya al-Islamiyya fi al-nahda al-Urubiyya*. Damascus: Dar al-Fikr, 1417 AH/1996.

Al-Sayyid, Abd al-Aziz Abd al-Muttalib. *Athar al-hadara al-Islamiyya ala al-Sharq wa-al-Gharb: Gustave Le Bon namudhajan*. Dar al-Ilm wa-al-Iman lil-Nashr, 2014.

Shalabi, Abu Zayd. *Tarikh al-hadara al-Islamiyya wa-al-fikr al-Islami*. Cairo: Maktabat Wahba, 1433 AH/2012.

Foreign-Language Secondary Sources

Biermann, Christopher J. *Handbook of Pulping and Papermaking*. 2nd ed. Academic Press, 1996.

Blanchet, Augustin. *Essai sur l'histoire du papier*. Paris, 1900.

Burns, Thea. "Paper before Print." *Journal of the American Institute for Conservation* 42 (2003).

Delon, Charles. *Histoire d'un livre*. Paris: Librairie Hachette, n.d.

Gaskell, Philip. *A New Introduction to Bibliography*. Winchester, UK: St. Paul's Bibliographies, 1995.

Gineste, Bernard. *Histoire du papier à Étampes des origines au milieu du XVIe siècle: Étude des filigranes conservés*. 2013.

Hunke, Sigrid. *Le soleil d'Allah brille sur l'Occident*. Paris: Éditions Albin Michel, 1963.

Hunter, Dard. *Papermaking: The History and Technique of an Ancient Craft*. Dover Publications, n.d.

Koops, Matthias. *Historical Account of the Substances Which Have Been Used to Describe Events, and to Convey Ideas, from the Earliest Date to the Invention of Paper*. 1800.

Laurentius, Theo. *Watermarks in Paper from the Southwest of France, 1560–1869*. Leiden, n.d.

Muller, Lothar. *White Magic: The Age of Paper*. Translated by Jessica Spengler. Polity Press, 2014.

Olafsson, David, and Silvia Hufnagel. *Paper Stories: Paper and Book History in Early Modern Europe*. De Gruyter, 2023.

Rosenband, Leonard N. *Papermaking in Eighteenth-Century France, 1761–1805*. Johns Hopkins University Press, 2000.

Weeks, Lyman Horace. *A History of Paper-Manufacturing in the United States, 1690–1916*. New York, 1916.