Islamic studies ——————— Number ISSN 1112-8011/ EISSN 2716-8352
volume: 21 Issue: 01 Year: 2026 page: 11 - 30

Bridges Between Cultures: The Toledo School as a Knowledge Conduit

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Received: 30/04/2026 Accepted: 01/06/2026 Published: 30/06/2026

Abstract:

Toledo's role as a conduit of knowledge between Islamic civilisation and medieval Latin Europe was no historical accident. After the Christian reconquest in 1085, the city retained its intellectual vitality; the vast corpus of knowledge preserved in Arabic, combined with a multicultural population (Mozarabs, Jews, and the new Christian elite), created a unique synthesis that opened Europe's gates to the Greek–Persian–Indian tradition mediated through Arabic. This translation movement unfolded in two phases. From the 1130s, Archbishop Raymond's initiative prioritised theological and philosophical works, while in the second phase, Gerardus Cremonensis's systematic efforts transferred the entire Arab scientific spectrum into Latin: astronomy, mathematics, medicine, and natural philosophy. The two-stage translation method (Arabic→Castilian→Latin) required the cultural mediation of Jewish intermediaries, who were not merely interpreters but terminological innovators and catalysts for dialogue between Christian scholasticism and Arab rationalism. Gerardus's approximately several works – including Ptolemy's Almagest, Ibn Sīnā's Canon medicinae, and al-Ḫwārizmī's algebraic treatises – shaped European university curricula for six centuries. Orientalists and historians such as Le Bon, Hunke, and Briffault emphasise that Islamic civilisation was not Europe's rival but its precursor, a culture that had already established the institutional infrastructure (libraries, observatories, hospitals).

Keywords: Toledo School of Translators, Arabic–Latin knowledge transmission, Gerardus Cremonensis, Ibn Sīnā, Jewish intermediaries, Andalusian heritage.

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The Islamic–European Knowledge Gap in the Middle Ages: Structural Antecedents

In the Middle Ages, Islamic civilisation served as a universal intellectual intermediary, absorbing Greek, Persian, and Indian heritage and transmitting it through its scientific infrastructure, including libraries, observatories, and networks of patronage. This civilisational model was characterised by three features: structural openness, with multicultural scholarly communities; institutionalised patronage, exemplified by the library of al-Ḥakam II al-Mustanṣir[1] in Córdoba, which housed 400,000 volumes; and a universal lingua franca, with Arabic as the language of science.

The humanistic and tolerant nature of this civilisation was described by the French Orientalist Claude Cahen[2] as "unique tolerance": among its greatest physicians were Christian polyglots (Ḥunayn ibn Isḥāq)[3] and Jewish philosophers (Mōsē ben Maimon,[4] court physician to Saladin), so that Islam, Christianity, and Judaism converged in a universal intellectual embrace.[5]

After the fall of the Western Roman Empire in 476 AD, scientific activity in Western Europe declined for centuries limited to clergymen and a few monastic scriptoria, while the Islamic world – from Baghdad to Córdoba – witnessed a flourishing of intellectual life. Reinhart Dozy[6] described early medieval Europe as "prey to chaos", while Gustave Le Bon[7] emphasised that "scientific activity in Western Europe was severely limited between the 6th and 10th centuries, and it was only in the 11th and 12th centuries that a desire for knowledge emerged, when people recognised the heavy veil of ignorance that shrouded them and turned their faces toward the Arabs, who were the sole masters".[8]

This structural contrast was no historical accident: while Europe fragmented into feudal monarchies where literacy was confined to monasteries, Andalusia realised a synthetic civilisational model in which political pluralism (the *taifas*[9] and the emirates) did not impede intellectual exchange but rather intensified it. The history of Toledo after 1085 must therefore be understood not merely as an Alfonsine enterprise, but as the European extension of an already existing Andalusian intellectual tradition: the scientific infrastructure created by the emirs (libraries, translation workshops, and networks of patronage) survived the political transition, ensuring intellectual continuity.

Among the Andalusian rulers, al-Ḥakam II al-Mustanṣir stood out as the foremost patron of scholars: through Qāsim ibn Asbaġ[10] and Ḥafṣ ibn al-Bar,[11] he commissioned the translation of Dioscorides' medical work from Greek into Arabic; he dispatched envoys to various countries and collected their travel accounts for his own library, including the European journey of Abū Yaḥyā al-Ṭurṭūsī[12].[13]

The Andalusian scientific flourishing is associated with the caliphal period (924–1040). Despite the era of the taifa kings, followed by the Almoravids[14] and the Almohads,[15] the scientific fields did not suffer from the political, social, and intellectual upheavals of the time, as kings and emirs continued to support scholars and provide them with a conducive environment.[16]

The "bloodless" reconquest of Toledo did not break the city's intellectual momentum: the collaboration of the Mozarab population, the Jewish scholars who remained in the city, and the new Christian elite continued what the rulers of the taifa era had initiated. The scientific infrastructure created by the Andalusian emirs (libraries, scholarly networks, and translation workshops) survived the political transition, and it was precisely this that enabled Toledo to become the most important translation centre in Europe in the twelfth century.

Toledo as a Translation Centre

Toledo's exceptional position is explained by three factors. First, in 1085, Alfonso VI reconquered the city peacefully and, as "Emperor of the Two Religions", allowed the population to retain their religious and property rights. Second, the intellectual backbone of the city was formed by the Mozarabs – the Arabised Christians – who, while preserving the Visigothic liturgy, spoke both Arabic and a Romance dialect, so Arabic remained the principal medium of scholarly communication. Third, collaboration between the Jewish community that remained in the city and the new Christian elite created a uniquely multicultural environment.[17]

These multicultural foundations enabled the systematic translation enterprise to flourish. The translation movement began in its institutionalised form in the 1130s under the direction of Archbishop Raymond (1125–1152). The cathedral's bishopric and canonry coordinated the work of the translators: through the collaboration of Jewish, Muslim, and Christian experts, dozens of Arabic scholarly works were rendered into Latin. John of Seville, for example, translated Quṣṭā ibn Lūqā's[18] *Risāla fī l-farq bayn al-rūḥ wa-l-nafs* (*De differentia spiritus et animae*) and translated the medical section of the pseudo-Aristotelian treatise *Secretum secretorum*.[19]

This structural background – institutional support, a multicultural translation community, and continuous patronage – made the Toledo School the first organised translation programme in Europe, laying the foundations for the scientific renaissance of the twelfth century.

The Two-Phase Translation Method and the Role of Jewish Intermediaries

Translations produced in Toledo generally involved collaboration between two individuals: one, well-versed in Arabic, would render the Arabic text into the locally spoken Castilian – most often a Jew, as the majority of Andalusian Jews were fluent in Arabic – after which a second person would translate this intermediary version into Latin. In rare cases, some Latins had sufficient command of Arabic to translate directly into Latin. Of particular importance is the mediating role played by Jews between Islamic civilisation and Christian culture; a prime example is Johannes Hispanus (Ibn Dāwūd),[20] who, through prodigious effort, rendered Ibn Sīnā's encyclopaedia *al-Šifāʾ* (*Sufficientia* in Latin, *The Book of Healing* in English)[21] into Castilian, a translation that assisted Gundisalvi in producing the Latin version.[22]

This two-phase method (Arabic → Castilian → Latin) was not merely practical in character; it produced a cultural fusion: through the mediation of Jewish intermediaries, the terminology was refined in ways that facilitated the integration of Christian theological concepts. The translations thus became not mere word-for-word transcriptions, but acts of creative adaptation, in which the original thought was recharged as it passed between the two languages and cultures.

Distinguishing the Two-Phase School: Archbishop Raymond and Alfonso X

It is notable that the works produced by the school founded by Alfonso X differ from those of the schools established under the archbishops: the former focused primarily on translating astrological, mathematical, and applied scientific works into Castilian (*Tabulae Alfonsinae*, *Libros del saber de astronomía*), while the initiative of Archbishop Raymond (1125–1152) was directed towards rendering philosophical and medical texts into Latin (al-Ghazālī's *Maqāṣid al-falāsifa*,[23] Ibn Sīnā's *al-Šifāʾ*, and al-Fārābī's hierarchy of the sciences).[24] This institutional and linguistic duality indicates that Toledo was not a homogeneous translation workshop, but rather comprised two projects with distinct objectives: Raymond's ecclesiastical-philosophical synthesis (the integration of Arab philosophy into Latin Scholasticism) versus Alfonso X's political-cultural ambition (the establishment of Castilian as the language of courtly scientific discourse).

The Outstanding Figures of the Toledo Translators and Their Methods

The success of the Toledo translation movement was ensured by two factors: institutional support and the exceptional linguistic competence of the translators.

These translators came to Toledo from diverse backgrounds: Iberian clergymen (Hugo de Sanctalla), Jewish converts (Johannes Hispanus), Italian scholars (Gerardus Cremonensis), and German philologists (Hermannus Dalmata). What united them was methodological awareness: they recognised that translating from Arabic to Latin was not a simple act of textual transfer, but a process of cultural mediation requiring a synthesis between the Arab scientific mode of thought and the categories of Latin Scholasticism. The following sections present the work of the most significant translators in chronological order, highlighting their methodological innovations and scholarly contributions.

Hugo de Sanctalla and the North-Eastern Spanish Translation Circle

Hugo de Sanctalla (Hugo Sanctallensis), active during the first half of the twelfth century, represents one of the earliest figures of the Toledan translation movement. Hugo was commissioned by the archdeacon of Tarazona, Michael de Tarazona, to translate Arabic works into Latin; he served as a priest in that city between 1119 and 1151. He was deeply engaged with Arabic scientific texts even before the archiepiscopal court of Toledo, under Archbishop Raymond, institutionalised the work of translation. Among Hugo's translations are the astrological treatise *Liber de Nativitatibus*,[25] Ibn al-Muṯannā's[26] commentary on al-Ḫwārizmī's astronomical tables (*zīj*), and the astrological writings of Abū Maʿšar[27] relating to meteorological forecasting. Scholarly research suggests that he was not an isolated figure, but worked as a member of a north-eastern translation circle connected to Zaragoza until its fall in the early twelfth century – a circle that preceded what is conventionally termed the "Toledo School". Also associated with this circle is Plato of Tivoli, who translated works on applied geometry from Hebrew into Latin, as well as astronomical and astrological texts, including the works of al-Battānī (Albategnius),[28] through which the concepts of trigonometric functions and the sine were organically incorporated into European mathematics.[29]

This regional translation network was characteristic of its kind: rather than a centralised institution, it constituted an intellectual ecosystem in which coherence was created by a combination of personal connections (clergymen, patrons, and monastic orders) and linguistic competence.

Johannes Hispanus (John of Seville, Ibn Dāwūd): The First Castilian-to-Latin Translator

Johannes Hispanus deserves a chapter of his own. Born Jewish and later baptised, he entered the service of the powerful Archbishop of Toledo, Raymond (1125–1152). He primarily translated philosophical and mathematical Arabic texts first into Castilian, which Domingo Gundisalvi then rendered into Latin. His most celebrated work is the *Liber Algorismi de practica arismetrice*, one of

the earliest Latin works to introduce calculation using Arabic numerals and zero.[30] Johannes Hispanus also translated al-Ghazālī's[31] *Maqāṣid al-falāsifa*, the philosophical sections of Ibn Sīnā's *al-Šifāʾ*, Ibn Sīnā's version of *De caelo et mundo*, Quṣṭā ibn Lūqā's *Risāla fī l-farq bayn al-rūḥ wa-l-nafs* (*De differentia spiritus et animae*), the treatise on the astrolabe by Ibn al-Ṣaffār[32] entitled *Kitāb al-ʿAmal bi-l-asṭurlāb* (*Liber de astrolabio*), as well as the astrological writings of ʿAbd al-ʿAzīz al-Qabīṣī[33] and the astronomical compendium of al-Farghānī (Alfraganus)[34].[35]

In the person of Johannes Hispanus, the ethos of the first generation of the Toledo School finds its fullest expression: conversion is not merely a religious category but also an intellectual one – Arabic knowledge is articulated in the universal language of Christendom without losing its identity.

Abraham Ibn Ezra: The Jewish Polymath as Cultural Intermediary

Abraham Ibn Ezra (1097–1160) was one of the leading figures of the Toledo translation milieu. He spent the last decades of his life as an itinerant scholar in Italy, southern France, and England. Before his death, he translated Ibn al-Muṯannā's commentary on one of al-Ḫwārizmī's astronomical tables (*zīj*) into Hebrew, later using this Hebrew text as the basis for a Latin work, a process that clearly demonstrates his role as an intermediary between Arabic, Hebrew, and Latin scholarly cultures. However, Ibn Ezra's influence extends far beyond this single translation: he was one of the most significant cultural brokers of Andalusian Jewish scholarship, who – though making few original contributions to mathematics, astronomy, and astrology – played a crucial role in disseminating knowledge of Arabic-Islamic origin through concise, accessible handbooks across Latin Europe, primarily within Jewish communities but not exclusively. These handbooks helped make the Judeo-Arabic intellectual heritage widely accessible to Christian Europe, not through their depth, but through their systematic nature, their function in standardising terminology, and their ability to present the achievements of Arabic scholarship in a readily digestible form.[36]

Ibn Ezra's model is significant: he was not an outsider translator, but the custodian of a network who consciously practised intellectual mediation, understanding that translation between languages is also a translation between communities.

Domingo Gundisalvi: The Philosopher-Translator and the Hierarchy of the Sciences

Domingo Gundisalvi (Dominicus Gundissalinus, c. 1110–1190) was another key figure of the Toledo translation school, who systematically followed and

rendered into Latin the Castilian translations of Johannes Hispanus, including the psychological section of *al-Šifāʾ*, completed around 1160. He left an enduring legacy not only as a translator but also as a philosopher: his encyclopaedic work *De ortu scientiarum* is a revised adaptation of al-Fārābī's[37] *Iḥṣāʾ al-ʿulūm* (*The Enumeration of the Sciences*, c. 940), which significantly influenced the European conception of knowledge and the formation of university curricula from the thirteenth century onwards – particularly through *De divisione philosophiae*, in which he describes the hierarchy of the sciences. He also translated al-Ghazālī's *Maqāṣid al-falāsifa* (*Summa theoricae philosophiae*) into Latin. Most of his translation activity took place between 1130 and 1170, during which time he served as archdeacon in Cuéllar (near Segovia, in the 1150s–1160s) before relocating to Toledo, where he worked as a clergyman of the cathedral.[38]

A less frequently recognised aspect of Gundisalvi's work is that he was the figure who intellectually "recomposed" al-Fārābī's hierarchy of the sciences within a Christian doctrinal framework, a process that should be understood not as a simple act of translation, but as an intellectual conversion.

Gerardus Cremonensis: The Most Prolific Translator of the First Generation

The most celebrated and prolific figure of the Toledo translation school was Gerardus Cremonensis (Gerard of Cremona) (1114–1187), a native of Lombardy. In his youth he studied philosophy, then travelled to Toledo to master Arabic, since – by his own account – he had been unable to find in his homeland Ptolemy's monumental astronomical encyclopaedia, the *Almagest* (*al-Maǧisṭī*, or *Mathēmatikḗ Sýntaxis*).[39] In Toledo, overwhelmed by the richness of the Arabic-language libraries and perceiving the scientific poverty of the Latins, he translated dozens of works into Latin from Arabic originals or through Arabic intermediaries, frequently revising earlier translations with improved terminology and a more precise word-for-word method.[40]

Among Gerardus's works are Aristotle's treatise on natural hearing (*De auditu naturali*); Ibn Sīnā's (Avicenna's) monumental medical encyclopaedia *al-Qānūn fī at-ṭibb* (*Canon medicinae*), which served as the principal medical textbook of medieval European universities until the eighteenth century; the works of Isḥāq ibn Sulaymān al-Isrāʾīlī (Isaacus)[41] on the elements (*De elementis* – Euclid) and on definitions (*De definitionibus*); Aristotle's work on meteorological phenomena (*Meteorologica*); al-Rāzī's (Rhazes's) *al-Manṣūrī* (*Liber Almansoris*);[42] his treatises on smallpox (*De variolis*) and measles (*De morbis contiguis*); the surgical section of al-Zahrāwī's (Abulcasis's)[43] *al-Taʿrīf* (*Liber Alsaharaui*) – the *Chirurgia*, which became the foundation of medieval European surgery; Thābit ibn Qurra's treatise on geometry and sectors (*De figura*

secta); the astronomical tables associated with al-Zarqālī (Azarquiel, the Toledo astrologer), known as the *Tabulae Toletanae*; and the work of the Banū Mūsā brothers,[44] *Kitāb maʿrifat masāḥat al-aškāl* (*Verba filiorum Moysi filii Sekir*).[45] His translations – which frequently incorporated Arabic commentaries and corrections to the Greek originals – served as the standard textbooks of the Latin universities for centuries, laying the foundations of medieval European medicine, astronomy, and philosophy.[46]

In the person of Gerardus, the entire project of the Toledo School reaches its fullest concentration: he is no longer the ecclesiastical reformer of the Raymond type, nor the adaptive intermediary of the Johannes Hispanus type, but a systematic "civilisational translator" who consciously transports the full spectrum of Arab-Islamic scientific civilisation into the Latin world – translating not text by text, but world by world.

Michael Scotus: The Mediator of the Neo-Peripatetic Synthesis

Michael Scotus (Michael Scot, c. 1175–1232) was a key figure in the network connecting the intellectual centres of Toledo and Italy, and is regarded in scholarly literature as one of the most celebrated translators of his era. Before 1215, he served as a canon of Toledo Cathedral, later pursuing his career at the Palermo court of Emperor Frederick II. In Toledo, he completed the Latin translation of the work of the Moroccan astronomer al-Biṭrūǧī (Alpetragius), which offered an alternative to the Ptolemaic system: *Fī l-ḥarakāt al-samāwiyya* (*De motibus coelorum*). He then moved to Italy and subsequently to Paris, where his reputation rested above all on his Latin translations of Ibn Rushd's (Averroes's) Aristotelian commentaries (*De anima*, *Physica*, etc.), which he prepared chiefly in Palermo around 1220. His translations of Averroes played a decisive role in establishing the so-called "Averroist" interpretive tradition in the Latin world alongside – and in partial opposition to – the previously dominant "Avicennian" current, thereby preparing the ground for the University of Paris's condemnation of Averroism in 1270.[47]

Michael Scotus's career is characteristic of scholars of the transitional period: in Toledo he still worked within the project of harmonious knowledge transfer (al-Biṭrūǧī), but in Palermo, as the translator of Ibn Rushd, he became a catalyst for the conflict between Latin Scholasticism and Arab rationalism.

Alfredus Anglicus: The Botanical and Mineralogical Heritage

Alfredus Anglicus (Alfred de Sareshel / Alfred of Shaftesbury, fl.[48] 1200–1220) played an important role in mediating the natural scientific tradition. He translated into Latin the botanical work *De plantis* (*De vegetabilibus*), attributed to Aristotle, which was actually based on the Syriac-Arabic translation of

Ḥunayn ibn Isḥāq and the revision of Thābit ibn Qurra;[49] this Latin translation later inspired a back-translation into Greek (by Nicholaus Graecus, c. 1270). Alfredus also rendered into Latin Ibn Sīnā's (Avicenna's) mineralogical treatise *Kitāb al-Maʿādin* (*De congelatione et conglutinatione lapidum*, or *De Mineralibus*),[50] which contributed significantly to the enrichment of natural philosophical discourse, particularly in the circles of the Salerno medical school.[51] The distinctive methodological virtue of Alfredus lies in the fact that, in translating natural philosophical texts, he preserved the terminological innovations of the Arabic commentators (Ḥunayn, Thābit) while transposing them into Latin conceptual frameworks, thereby ensuring terminological and conceptual coherence.

Hermannus Dalmata: The Mediator of Ethical Texts

Hermannus Dalmata (Hermannus Dalmaticus / Hermann the German, d. 1272) is counted among the translators of the thirteenth century who, as a canon of Toledo Cathedral, devoted himself primarily to translating philosophical and literary texts, with the assistance of Arabic-speaking collaborators (Mozarabs or Jews). In 1240, in Toledo, he completed the Latin translation of Ibn Rushd's (Averroes's) "middle" (*medium*, *talkhīṣ*) commentary on Aristotle's *Ethics* (*Nicomachean Ethics*, *Nīqūmākhiyya*), and also translated Ibn Bājja's (Avempace's)[52] treatise *Risāla fī l-Siʿr*,[53] which relates to poetry, rhetoric, and political thought.[54] Hermannus's distinctive role lies in the fact that, as a "physical-ascetic" intermediary within the sacred space of the Toledo synthesis, he rendered into Latin – within a religious setting – Islamic philosophical texts close in spirit to Christian ethics, so that both the space and the text became a domain of moral-contemplative mediation. The collective work of these translators enabled Latin Europe to know, receive, and reinterpret – according to its own intellectual categories – the finest achievements of Arabic-language scientific literature. The Toledo translation centre was thus not merely a local phenomenon, but one of the defining European nodes in the flow of knowledge during the Middle Ages.[55]

The Western Recognition of the Toledo Legacy: Orientalist Perspectives

The civilisational significance of the Toledo translation movement is further confirmed by the retrospective acknowledgement of Western Orientalists and thinkers. The renowned Italian scholar and linguist Luigi Rinaldi wrote: "The great people of the desert appeared upon the face of the earth after the destruction of Greco-Latin civilisation, and, following their military glory, brought a truly beautiful and fertile scientific flowering, which their princes supported and often cultivated themselves with tremendous enthusiasm; [...] the Arabs fulfilled the lofty mission of preserving, enriching, and transmitting the knowledge of humanity".[56] Thomas Carlyle, in *On Heroes, Hero-Worship and*

the Heroic in History, writes: "God led the Arabs out of darkness into light through Islam, and thereby revived a dead nation and a dead land; [...] the Islamic empire shone upon the earth for many generations, through long ages, with the light of grace, nobility, and heroism, and with the radiance of truth and guidance".[57]

According to Gustave Le Bon, the celebrated French thinker and physician: "The Arabs were our masters; the universities of the West drew their knowledge solely from the works of the Arabs. The Arabs civilised Europe in material, intellectual, and moral terms; history knows no nation that has achieved as much; Europe owes its civilisation to the Arabs [...]".[58] Sigrid Hunke states: "This rapid and wondrous leap up the ladder of civilisation, accomplished by the sons of the desert from nothing, deserves its place in the history of human thought; [...] it was through the Arabs that Europe came to know the Ancients; through their translations and commentaries they awakened the spirit of scientific thought in the Western world; Arab numerals, the perfection of their instruments, their useful and square numbers, their circle geometry, their precise optics – all are Arab gifts to the West, which elevated Europe and, through their own inventions, made it the leader of the natural sciences to this day".[59] The British historian Robert Briffault stated: "There is no branch of European development of which the origin cannot be clearly traced back to the influence of Islamic culture".[60]

These testimonies were not merely expressions of admiration, but signs of a historiographical turning point: Arab-Islamic civilisation was no longer the "Other" of the Christian West, but its "antecedent", a culture that had already institutionalised the scientific infrastructure (libraries, observatories, hospitals) that Europe only began to construct in the twelfth century. The Toledo translation movement was the practical manifestation of this cultural continuity: a synthesis of the Arabic language of science and Latin Scholasticism.

Conclusion

This study has identified three defining theses regarding the civilisational significance of the Toledo translation movement. First, Toledo was neither a historical accident nor an isolated phenomenon, but the embodiment of structural continuity: the scientific infrastructure (libraries, networks, and multicultural scholarly communities) established by the Andalusian emirates – particularly under the caliphate of al-Ḥakam II – survived the political transition of 1085. The bloodless reconquest of Toledo did not interrupt this intellectual momentum; the collaboration of the Mozarab population, the Jewish scholars who remained in the city, and the new Christian elite continued what the rulers of the taifa era had initiated. Toledo thus became not a product of the *Reconquista*, but the European extension of an already functioning civilisational project.

Second, the two-phase translation method (Arabic → Castilian → Latin) was not merely a linguistic necessity, but also a process of cultural mediation and hermeneutics. The Jewish intermediaries were not passive interpreters mechanically transferring words from one language to another. Their terminological innovations – such as the Castilian adaptation of algebraic concepts and their subsequent transformation into Latin – created the conceptual bridge that enabled dialogue between Arab rationalism and Latin Scholasticism. Domingo Gundisalvi's De ortu scientiarum, which transposed al-Fārābī's hierarchy of the sciences into a Christian doctrinal framework, was not a translation in the conventional sense, but an intellectual conversion, the recomposition of a mode of thought within a different worldview.

Third, the impact of the translated corpus went beyond mere library enrichment: it initiated an epistemological transformation. Gerardus Cremonensis's translations of Ibn Sīnā's *Canon medicinae* shaped European medical education for six centuries; al-Ḫwārizmī's works introduced the Indo-Arabic numeral system and algebra, without which late medieval and Renaissance mathematics would have been inconceivable; and Ibn Rushd's (Averroes's) Aristotelian commentaries redefined Latin philosophical discourse, preparing the ground for the formation of the thirteenth-century *universitates* and – paradoxically – for the University of Paris's condemnation of Averroism in 1270. The latter shows that the European reception of the Arab philosophical heritage was not a smooth assimilation but a tension-filled appropriation, during which Latin Scholasticism forged its own identity through its engagement with "foreign" knowledge.

The retrospective testimony of Western Orientalists and thinkers (Luigi Rinaldi, Thomas Carlyle, Gustave Le Bon, Sigrid Hunke, Robert Briffault) is not merely a historical recognition, but marks a historiographical turning point. In their accounts, Arab-Islamic civilisation is no longer the "Other" or the rival of the Christian West, but its "antecedent" and "mentor": a culture that, as early as the eighth to eleventh centuries, institutionally operated the scientific infrastructure (observatories, hospitals, translation workshops) that Europe only began to construct in the twelfth century. The Toledo translation movement was the visible manifestation of this cultural continuity — not a symbol of the end of the "Dark Ages," but evidence that knowledge has never been the monopoly of any single civilisation, but is rather the product of continuous exchange and transformation.

The legacy of the Toledo School thus does not remain confined to the past: it reminds us that dialogue between civilisations, multicultural cooperation, and scientific openness remain indispensable to the progress of humanity today. Just

as in the age of Archbishop Raymond and Gerardus Cremonensis, there is a need today for translators who bridge the divides between cultures.

Key Characteristics of the Toledo Translators[61]

Translator	**Active Period**	**Language Combination**	**Principal Works**	**Field(s) of Knowledge**
Hugo de Sanctalla (Hugo Sanctallensis)	1119–1151	Arabic→Latin	Ibn al-Muṭannā commentary (al-Khwārizmī), Liber de Nativitatibus, writings of Abū Maʿšar	Astrology, astronomy
Johannes Hispanus (Jean de Seville)	1133–1153	Arabic→ Castilian→Latin	Liber Algorismi (al-Khwārizmī), al-Ghazālī Maqāṣid, Ibn Sīnā al-Šifāʾ, al-Farghānī compendium	Mathematics, philosophy, astronomy
Abraham Ibn Ezra	1140–1160	Arabic→Hebrew→Latin	Ibn al-Muṭannā commentary (Hebrew), astronomical-astrological handbooks, Hebrew grammar	Astrology, mathematics, linguistics

Domingo Gundisalvi	1130–1170	Castilian→Latin	De ortu scientiarum (adaptation of al-Fārābī), Ibn Sīnā De anima, al-Ghazālī Maqāṣid	Philosophy, metaphysics, hierarchy of the sciences
Gerardus Cremonensis	1140–1187	Arabic→Latin	Almagest (Ptolemy), Canon medicinae (Ibn Sīnā), al-Rāzī Liber Almansoris, al-Zahrāwī Chirurgia	Medicine, astronomy, surgery
Michael Scotus	1210–1232	Arabic→Latin	De motibus coelorum (al-Biṭrūjī), Ibn Rushd's Aristotelian commentaries	Philosophy, astronomy
Alfredus Anglicus	1220–1235	Arabic→Latin	Aristotle's De plantis, Ibn Sīnā De congelatione et conglutinatione lapidum	Natural philosophy, botany, mineralogy
Hermannus Dalmata	1240–1272	Arabic→Latin	Ibn Rushd's commentary on Aristotle's Ethics, Ibn Bājja Risāla fī l-Siʿr	Ethics, philosophy, rhetoric

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6. Burnett, Charles: "The Coherence of the Arabic–Latin Translation Program in Toledo in the Twelfth Century." *Science in Context*, Vol. XIV, 2001/1–2.
7. ʿĪsā, ʿAwaḍ Saʿd Maḥmūd: "Tarǧamat kutub Ibn Sīnā fī al-Andalus wa-aṯaruhā al-ʿilmī fī al-ḥaḍāra al-ūrūbbiyya: al-Qānūn fī al-ṭibb, wa-l-Šifāʾ namūḏaǧan" [The Translation of Ibn Sīnā's Books in al-Andalus and Their Scientific Impact on European Civilisation: *al-Qānūn fī al-ṭibb* and *al-Šifāʾ* as Models]. *Mağallat Kulliyyat al-Luġa al-ʿArabiyya bi-Itāy al-Bārūd*, 2019/32 (Part 4).
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12. Haskins, Charles Homer: "Michael Scot and Frederick II." *Isis*, Vol. IV, 1921/22.

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14. Ibn al-Ḫaṭīb, Lisān al-Dīn Muḥammad ibn Saʿīd: *Al-Iḥāṭa fī aḫbār Ġarnāṭa* [*Comprehensive Reports on Granada*]. Ed. Muḥammad ʿAbd Allāh ʿInān. Maktabat al-Ḫānğī, Cairo, 1972.

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17. Le Bon, Gustave: *La Civilisation des Arabes*. Trans. Ādil Zāʾitar, Hayʾat al-Kitāb, Cairo, 2000.

18. Fārūq Bayḍūn and Kamāl Dussūqī, Dār al-Ǧīl, Beirut, 1993 (8th edition).

19. ʿUbaydī, Saʿīd: "Ṣūrat al-ḥaḍāra al-islāmiyya al-bahhiyya fī al-dirāsāt al-ġarbiyya" [The Image of Islamic Civilisation in Western Studies]. *Fikr*, 2017/20.

20. Malkāwī Asmā' Ḥusayn, 'Arūḍ mukhtaṣarah , *Islamiyat Al-Ma'rifah*, 14 (54).

Footnotes:

[1] Al-Ḥakam II al-Mustanṣir bi-llāh (915–976) was the second caliph of the Umayyad Caliphate of Córdoba (961–976), son of ʿAbd al-Raḥmān III, and the embodiment of the Andalusian golden age of science and culture. He dispatched envoys to Baghdad, Damascus, Cairo, and Byzantium to acquire rare manuscripts, and was a fervent patron of the translation movement. Under his reign, Córdoba became the most advanced city in Europe, home to scientific institutions, hospitals, and seventy libraries.

[2] Claude Cahen (1909–1991), French Orientalist and historian, specialist in the social history of medieval Islam.

[3] Ḥunayn ibn Isḥāq al-ʿIbādī (810–873), known in Latin as *Johannitius*, was the most distinguished translator of the Bayt al-Ḥikma (House of Wisdom) in Baghdad, and a quadrilingual polyglot (Greek, Syriac, Arabic, and Persian). A Nestorian Christian physician, he revolutionised the art of translation by conveying the meaning (*maʿnā*) of texts in pure Arabic rather than rendering them word for word. He translated the majority of the works of Galen,

Hippocrates, and Aristotle, thereby establishing Arabic medical terminology; his translations were subsequently rendered into Latin.

[4] Mōsē ben Maimon (Maimonides, 1138–1204) was one of the greatest Jewish philosophers and physicians of the Middle Ages, and court physician to Sultan Saladin. Born in Córdoba, he fled Almohad persecution and settled in Cairo. He was a rabbinic jurist (*Mishneh Torah*), a philosopher (*Dalālat al-Ḥāʾirīn* – a work written in Arabic reconciling Aristotelian philosophy with Judaism), and a prolific medical author.

[5] Muḥammad, Ašraf Ṣāliḥ: "Ḥaḍāratunā al-mutaʾalliqa fī al-ʿuṣūr al-wusṭā" [Our Resplendent Civilisation in the Middle Ages]. *Al-Waʿī al-islāmī*, Vol. LI, 2013/581, November–December, pp. 43–44.

[6] Reinhart Dozy (1820–1883), Dutch Orientalist and Arabist, specialist in Arab-Islamic history and in particular al-Andalus. His most celebrated works are *Histoire des Musulmans d'Espagne jusqu'à la conquête de l'Andalousie par les Almoravides (711–1110)* and *Recherches sur l'histoire et la littérature de l'Espagne pendant le moyen âge*.

[7] Gustave Le Bon (1841–1931), French sociologist, psychologist, and physician, a prominent Orientalist and advocate of Arab-Islamic civilisation in Europe.

[8] Naṣīr, Āmina Muḥammad: "Dawr al-Andalus fī al-nahḍa al-ūrūbbiyya fī maydān al-falsafa" [The Role of Andalusia in the European Renaissance in the Field of Philosophy]. *Ḥawliyyat Kulliyyat al-Dirāsāt al-Islāmiyya wa-l-ʿArabiyya li-l-Banāt bi-l-Iskandariyya*, 1992/8, pp. 264–267.

[9] The Taifas: the Andalusian petty kingdoms (1031–1090), which emerged following the collapse of the Caliphate of Córdoba; despite their rivalries, they maintained flourishing centres of learning.

[10] Qāsim ibn Asbaġ ibn Muḥammad (858–951) was an Andalusian Arab historian, theologian, and translator from Córdoba, who translated Latin and Greek historical sources into Arabic. His most celebrated work is the Arabic translation of Paulus Orosius's *Adversus paganos historiarum libri septem* (Seven Books of History Against the Pagans), which constitutes the first Latin historiographical work rendered into Arabic.

[11] Ḥafṣ ibn al-bar al-Qūṭī (also known as Ḥafṣ al-Naṣrānī, 10th century) was a Christian Arab physician and translator in Córdoba who served at the court of al-Ḥakam II. He contributed to the translation of a Greek manuscript of Dioscorides – received as a gift from the Byzantine Emperor – into Arabic, identifying the botanical names with Andalusian plants and thereby producing the annotated Andalusian version of the *Kitāb al-Ḥašāʾiš* (Book of Herbs).

[12] Abū Yaḥyā al-Ṭurṭūsī (c. 920–970) was a Jewish Andalusian traveller, merchant, physician, and geographical writer from Tortosa, who documented his 961–962 journey through Central and Western Europe in a report addressed to Caliph al-Ḥakam II. As a member of a delegation to the court of the Holy Roman Emperor Otto I, he visited Mainz, Prague, Augsburg, and other Frankish territories, recording observations on trade, architecture, climate, monetary circulation (Samarkand dirhams in Prague), and local customs. For more details: Gerwardus, "Al-Tartushi, A Cordoban Traveller in the Ottonian World", *Heavenfield* (blog), 25 July 2011, https://gerwardus.blogspot.com/2011/07/al-tartushi-cordoban-traveller-in.html (accessed 22 January 2026).

[13] Al-ʿAzāzī, Raġad Ǧamāl: "Al-Tabādul al-maʿrifī bayna al-umam (al-Andalus namūḏaġan)" [Knowledge Exchange Among Nations (Andalusia as a Model)]. *Journal of Education College, Wasit University*, 2022/47 (Vol. 2), pp. 332–333. https://doi.org/10.31185/eduj.Vol2.Iss47.3055 (accessed 25 January 2026).

[14] Al-Murābiṭūn (the Almoravids) were a Berber dynasty (1040–1147) that intervened in al-Andalus from Morocco in 1086 under Yūsuf ibn Tāšfīn to resist the Christian Reconquista,

subsequently absorbing the taifa kingdoms. They patronised the sciences and architecture, and under their rule al-Andalus enjoyed a period of political stability.

[15] Al-Muwaḥḥidūn (the Almohads, "the Unitarians", 1121–1269) supplanted the Almoravids in North Africa and al-Andalus in 1147. They grew out of the theological reform movement of Ibn Tūmart; at their zenith (second half of the 12th century) they patronised philosophy (Ibn Rushd, Ibn Ṭufayl) and the sciences, though their defeat at Las Navas de Tolosa in 1212 set in motion their decline.

[16] Zanātī, Anwar Maḥmūd: "Al-Inǧāzāt al-ʿilmiyya li-ṭibb al-asnān fī al-Andalus wa-aṯaruhu ʿalā al-taṭawwur al-ʿilmī al-ūrūbbī munḏu ʿaṣr al-ḫilāfa wa-ḥattā nihāyat dawlat al-Muwaḥḥidīn (316–640 H / 928–1244 AD)" [The Scientific Achievements of Dentistry in Andalusia and Their Impact on European Scientific Development from the Caliphal Era to the End of the Almohad State]. *Dawriyyat Kān al-Tārīḫiyya*, Vol. X, 2017/38, pp. 150–152.

[17] Burnett, Charles: "The Coherence of the Arabic–Latin Translation Program in Toledo in the Twelfth Century." *Science in Context*, Vol. XIV, 2001/1–2, pp. 249–250.

[18] Quṣṭā ibn Lūqā (in Greek: Kōnstantinos ho Loukas; in Latin: Costa ben Luca or Constabulus, c. 820–912) was a Christian physician, philosopher, astronomer, mathematician, and translator from Baalbek (present-day Lebanon), who was one of the outstanding figures of the ninth-century Greek-into-Arabic translation movement. During his travels to Byzantium, he acquired Greek manuscripts and translated them into Arabic. Alongside Ḥunayn ibn Isḥāq, he was among those who rendered the greatest service to Greek culture within Arab civilisation.

[19] Al-ʿAzāzī, op. cit., p. 336; Burnett, op. cit., pp. 249–250.

[20] Also known as John of Seville, who is the same individual referred to by various corrupted forms of his Jewish name: "Avendeut," "Avendehut," "Avendar," or "Aven Daud" (Ibn Dāwūd in Arabic). This latter name was rendered in Christian circles as the middle name "Davidus," and on account of his birth in Toledo he is frequently cited as Johannes (David) Toletanus.

[21] The monumental philosophical encyclopaedia of Ibn Sīnā (Avicenna, 980–1037), comprising four main parts: logic, physics (natural science), mathematics (geometry, astronomy, and music), and metaphysics. The work constitutes an Arabic synthesis of Aristotelian philosophy enriched with Neoplatonic elements, augmented by Avicenna's own medical and scientific experience. *Al-Šifāʾ* exerted a fundamental influence on medieval Latin Scholasticism.

[22] ʿĪsā, ʿAwaḍ Saʿd Maḥmūd: "Tarǧamat kutub Ibn Sīnā fī al-Andalus wa-aṯaruhā al-ʿilmī fī al-ḥaḍāra al-ūrūbbiyya: al-Qānūn fī al-ṭibb, wa-l-Šifāʾ namūḏaǧan" [The Translation of Ibn Sīnā's Books in al-Andalus and Their Scientific Impact on European Civilisation: *al-Qānūn fī al-ṭibb* and *al-Šifāʾ* as Models]. *Maǧallat Kulliyyat al-Luġa al-ʿArabiyya bi-Itāy al-Bārūd*, 2019/32 (Part 4), p. 4227.

[23] In Latin: *Summa theoricae philosophiae*.

[24] Al-ʿAzāzī, op. cit., p. 336.

[25] In English, *The Book of Nativities*: an astrological work of Arabic origin containing methods for casting horoscopes and birth forecasts.

[26] Aḥmad ibn al-Muṯannā ibn ʿAbd al-Karīm (10th century), an Andalusian astronomer who wrote a commentary on al-Ḫwārizmī's astronomical tables (*zīj*), which played a significant role in the dissemination of Arabic astronomical methods in Europe.

[27] Abū Maʿšar Ǧaʿfar ibn Muḥammad al-Balḫī (787–886), known in Latin as *Albumasar*, was a Persian astrologer and astronomer who worked in Baghdad. His principal work is the *Kitāb al-Madḫal al-kabīr ilā ʿilm aḥkām al-nuǧūm* [*The Great Introduction to the Science of Astrology*], which became one of the foundational sources of medieval European astrology. Among his other important works is *De magnis coniunctionibus* [*On the Great Conjunctions*], which deals with the historical and social effects of planetary conjunctions.

[28] Abū ʿAbd Allāh Muḥammad ibn Ǧābir al-Battānī (854–929), Arab astronomer and mathematician, known in Latin as *Albategnius*. Through his astronomical work (*Kitāb al-Zīj*), the concepts of the sine and trigonometric functions entered European mathematics.

[29] Šīḥa, Ǧumʿa: "Dawr madrasat al-tarğama bi-Ṭulayṭila fī naql al-ʿulūm al-ʿarabiyya wa-bi-l-tālī fī nahḍat Ūrubbā" [The Role of the Toledo School of Translators in the Transmission of Arabic Sciences and Thus in the European Renaissance]. *Dirāsāt Andalusiyya*, 1994/11, pp. 41–42.

[30] This work is essentially an adaptation of al-Ḫwārizmī's arithmetical treatise, and discusses in detail such operations as the extraction of square roots — a procedure that later authors frequently presented as an innovation.

[31] Abū Ḥāmid Muḥammad al-Ġazālī (1058–1111), Muslim theologian, philosopher, and mystic. His work *Maqāṣid al-falāsifa* [*The Intentions of the Philosophers*] is a compendium of Greco-Arabic philosophy.

[32] Ibn al-Ṣaffār (Abū al-Qāsim Aḥmad ibn ʿAbd Allāh ibn ʿUmar al-Ghāfiqī, d. 1035, Córdoba) was an Andalusian Arab astronomer and mathematician. His work, translated into Latin by Johannes Hispanus in the twelfth century, became a foundational manual for the practical use of astronomical instruments and contributed to the transmission of Arabic astronomical knowledge to Latin Europe.

[33] Abū al-Ṣaqr ʿAbd al-ʿAzīz ibn ʿUṯmān al-Qabīṣī (10th century): Andalusian-Arab astrologer. The Latin translation of his astrological introduction (*al-Madḫal ilā ṣināʿat aḥkām al-nuǧūm*), rendered as *Introductorium in Astronomiam*, became one of the standard European handbooks of astrology.

[34] Abū al-ʿAbbās Aḥmad ibn Muḥammad al-Farġānī (9th century): Arab astronomer and engineer. His principal work (*Ǧawāmiʿ ʿilm al-nuǧūm*) is a compendium of Ptolemaic astronomy.

[35] Šīḥa, op. cit., p. 43.

[36] Langermann, Tzvi: „Abraham Ibn Ezra". In Zalta, Edward N. (szerk.): The Stanford Encyclopedia of Philosophy. Fall 2021 Edition. Stanford University, Stanford, 2021. https://plato.stanford.edu/archives/fall2021/entries/ibn-ezra/ (Letöltés ideje: 2026. január 27.)

[37] Abū Naṣr Muḥammad al-Fārābī (870–950), Arab philosopher and scholar, known as the "Aristotle of Islam".

[38] Fidora, Alexander:"Dominicus Gundissalinus and the Introduction of Metaphysics into the Latin West." *The Review of Metaphysics*, Vol. LXVI, 2013/6, pp. 691–712; Šīḥa, op. cit., pp.(38-39).

[39] *Mathēmatikḗ Sýntaxis* [Mathematical Treatise], commonly known as the *Almagest* [The Greatest]: the monumental astronomical work of Claudius Ptolemy (c. 85/90–168/170 AD), which in thirteen books summarises the entire system of ancient Greek astronomy. The original Greek title (*Megálē Sýntaxis* – Great Treatise) was adopted by the Arabs in the form *al-Maǧisṭī*.

[40] Burnett, op. cit., pp. 250–269; Šīḥa, op. cit., pp. 42–43.

[41] Isḥāq ibn Sulaymān al-Isrāʾīlī (c. 832–932), known in Latin as *Isaacus Iudaeus*, was an Egyptian Jewish physician and philosopher who served at the court of the Fatimid dynasty. His medical works (*Kitāb al-Ḥummayāt* [On Fevers], *Kitāb al-Bawl* [On Urine]) were translated into Latin by Gerardus in the twelfth century. His Neoplatonic philosophy also exerted an influence on medieval thought.

[42] *Kitāb al-Manṣūrī fī l-ṭibb* [The Book of al-Mansur on Medicine]: a comprehensive medical encyclopaedia by Abū Bakr Muḥammad ibn Zakariyyā al-Rāzī (Rhazes, 854–925), dedicated to the Samanid emir al-Manṣūr ibn Isḥāq. It was translated into Latin by Gerardus under the title *Liber ad Almansorem*, and encompasses ten branches of medicine: anatomy, the theory of temperaments, diseases, health preservation, cosmetics, dietetics, surgery, toxicology, fevers, and pharmacology.

[43] Abū al-Qāsim Ḫalaf ibn ʿAbbās al-Zahrāwī (936–1013), an Andalusian Arab physician and surgeon who practised in Córdoba. His principal work is the *Kitāb al-Taṣrīf li-man ʿağiza ʿan al-taʾlīf* [A Compendium for Those Unable to Compose Original Works]. Its surgical section revolutionised European surgery and contains the first illustrated catalogue of surgical instruments. See further: Al-Zahrāwī, Abū al-Qāsim Ḫalaf ibn ʿAbbās: *Kitāb al-Taṣrīf li-man ʿağiza ʿan al-taʾlīf*. Ed. Al-Saʿīd, ʿAbd Allāh ʿAbd al-Razzāq Masʿūd. Ministry of Culture, Amman, 2001.

[44] Banū Mūsā [The Sons of Moses]: three Persian-Arab scholar brothers – Muḥammad, Aḥmad, and al-Ḥasan, sons of Mūsā ibn Šākir – who were active in ninth-century Baghdad at the court of Caliph al-Maʾmūn. They worked in the fields of mathematics, astronomy, and mechanics.

[45] This work describes one hundred mechanical inventions, including an automated flute player and self-operating irrigation systems.

[46] Burnett, op. cit., pp. 250–269.

[47] Haskins, Charles Homer: "Michael Scot and Frederick II." *Isis*, Vol. IV, 1921/22, pp. 250–275; Šīḥa, op. cit., p. 43.

[48] The abbreviation *fl.* derives from the Latin *floruit* (he flourished, he was active), used when the exact dates of a person's birth and death are unknown.

[49] Thābit ibn Qurra al-Ḥarrānī (826 or 836–901) was a Syriac-origin Arab mathematician, astronomer, physician, and philosopher who worked in Baghdad during the Abbasid Caliphate as a member of the Banū Mūsā scholarly circle. He translated numerous Greek works into Arabic (Euclid, Archimedes, Apollonius) and achieved important results in algebra, geometry, astronomy, and mechanics. He is regarded as the founder of statics in Arab science.

[50] *Kitāb al-Maʿādin* [*Book of Minerals*]: a work by Ibn Sīnā (Avicenna) on the formation of minerals and rocks.

[51] Šīḥa, op. cit., pp. 43–44.

[52] Ibn Bājja: Abū Bakr Muḥammad ibn Yaḥyā ibn al-Ṣāʾigh al-Tujībī al-Andalusī al-Saraqusṭī (c. 1085–1138/9), known in Latin as *Avempace*, was an Andalusian Arab philosopher, natural scientist, and musician who was active in Zaragoza and Granada.

[53] *Risāla fī l-Siʿr* [*Epistle/Treatise on Poetry/Rhetoric*]: a work by Ibn Bājja connected to Aristotle's *Poetics* and *Rhetoric*.

[54] See further: Šīḥa, op. cit., pp. 43–44.

[55] In addition to Toledo, other Andalusian centres (Seville, Murcia) also contributed to the Arabic-to-Latin transmission of knowledge, particularly through the translation of al-Mubaššir ibn Fātik's *Muḫtār al-ḥikam wa-maḥāsin al-kalim* (*Selection of Wise Sayings and Fine Utterances*). These workshops thus became key links in the chain of knowledge transmission running from the Bayt al-Ḥikma in Baghdad, through the Castilian courts, to the European universities. See further: Al-Ṣafadī, Ṣalāḥ al-Dīn Ḫalīl ibn Aybak: *Al-Wāfī bi-l-wafayāt* [*The Complete Obituary*]. Ed. Aḥmad al-Arnāʾūṭ et al. Vol. 2. Dār Iḥyāʾ al-Turāṯ al-ʿArabī, Beirut, 2000, p. 410; Ibn al-Ḫaṭīb, Lisān al-Dīn Muḥammad ibn Saʿīd: *Al-Iḥāṭa fī aḫbār Ġarnāṭa* [*Comprehensive Reports on Granada*]. Ed. Muḥammad ʿAbd Allāh ʿInān. Maktabat al-Ḫānğī, Cairo, 1972, p. 368.

[56] Rinaldi, Luigi: *Le parole italiane derivate dall'arabo* [Italian Words Derived from Arabic]. Libreria Detken & Rocholl, Naples, 1906, pp. 9–10.

[57] Al-Ḫarrāṭ, Ḥudayfa Aḥmad: "Ṣuwar musriqatun min tārīḫinā al-islāmī" [Radiant Images from Our Islamic History]. *Alukah.net*, 28 April 2021. https://www.alukah.net/culture/0/146591/ (accessed 23 January 2026).

[58] Le Bon, Gustave: *La Civilisation des Arabes*. Trans. Ādil Zāʾitar, Hayʾat al-Kitāb, Cairo, 2000, p. 26.

[59] Hunke, Sigrid: *Allahs Sonne über dem Abendland: Unser arabisches Erbe*. Trans. Fārūq Bayḍūn and Kamāl Dussūqī, Dār al-Ǧīl, Beirut, 1993, p. 150. (8th edition).

[60] Robert Briffault, cited in: ʿUbaydī, Saʿīd: "Ṣūrat al-ḥaḍāra al-islāmiyya al-bahhiyya fī al-dirāsāt al-ġarbiyya" [The Image of Islamic Civilisation in Western Studies]. *Fikr*, 2017/20, pp. 48–51.

[61] *Notes on the table*: **Active periods**: the period of each translator's scholarly activity; exact dates are frequently unknown. **Language combinations**: the fundamental translation chain, with intermediary languages (Castilian, Hebrew) indicated. **Principal works**: only the most significant translations are listed. **Fields of knowledge**: ranked by frequency and impact.