# Intellectual Connections between Jazirat al-ʻArab and Jazirat al-Andalus

PAPERS FROM A SPECIAL SESSION OF THE FIFTY-FOURTH MEETING OF THE SEMINAR FOR ARABIAN STUDIES HELD ONLINE ON 9 JULY 2021

Edited by

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SEMINAR FOR ARABIAN STUDIES

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A map that Al-Idrisi made for Roger II of Sicily in 1154 AD

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# THE EVOLUTION OF MEDICAL ARABIC: FROM THE ARABIAN PENINSULA TO THE IBERIAN PENINSULA[1]

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## INTRODUCTION

Tracing the historical panorama of the assimilation and transmission of scientific and technical knowledge from one culture to another, from one era to another, and from one language to another is fascinating. In this process, a multitude of factors play an important role, such as language, religion and politics.

Arabic was indeed the scientific language of the Middle Ages and, when studying the history of science and philosophy, it became the third classical language along with Greek and Latin. In spite of its importance, we find no studies centered only in Arabic as a language and its role in the development of science during the Middle Ages and well into the Renaissance. We can cite several studies that gravitate around this idea,[2] but they

1 This article is part of the research fields of the following projects: "La Escuela de Traductores de Toledo y las traducciones de obras médicas: textos, transmisión manuscrita y recepción" (SBPLY/19/180501/000087) and "*Galenus Latinus*: Recuperación del Patrimonio de la Medicina Europea II" (FFI2016-77240-P) of the R&D group *Interpretes Medicinae*, which leads the Network of Excellence "*Opera Medica*: Recuperación del Patrimonio Textual Grecolatino de la Medicina Europea" (RED2018-102781-T). The participation of Dana Zaben in this article has been possible thanks to the predoctoral contract granted by the Department of Education, Culture and Sports of the Junta de Castilla-La Mancha and co-financed with the European Social Fund (Extract BDNS, Identif.: 451560. [2019/4156]). The participation of Sara Solá Portillo (pre-doctoral researcher in training at the University of Málaga, in co-direction with the University of Castilla-La Mancha) in this work has also been possible thanks to the help granted by the University of Málaga by virtue of its "I Plan Propio de Investigación, Transferencia y Divulgación Científica".

2 Such as the works by Dimitri Gutas (1998). *Greek Thought, Arabic Culture. The Graeco-Arabic Translation Movement in Baghdad and Early Abbasid Society (2nd-4th/8th-10th c.).* New York: Routledge; and Myriam Salama-Carr (1990). *La traduction à l'époque abbasside.* Paris: Didier Érudition.

are centered in describing the Graeco-Arabic and Latin translation movements and the relationship that linked Arabic to Greek and Latin, rather than in the journey of Arabic itself or in comparing different versions of the texts that were translated to see how language evolved. In other words, the focus has been traditionally put on Antiquity and how its legacy travelled through time and space, but never in the history of Arabic or in the development of medicine through language.

Therefore, we lack studies that combine the linguistic knowledge we have about Arabic with the historical context that accompanied its transformation and development. At this point, when we already know a lot about Antiquity, it is only natural to begin to study the evolution of Arabic from being a nomadic dialect in the Arabian Peninsula to the language of science and medicine in the Iberian Peninsula and Medieval Europe. To do this, apart from comparing Arabic texts with its Greek and Latin versions, we must also take into consideration the historical context of pre-Islamic Arabia, the rise of Islam, the survival of the Hellenistic culture on the borders of the Arabian Peninsula, the crucial role of medieval Nestorian Christianity in the East in the 9th century and the translation movements in Baghdad and Toledo.

Hence, this article attempts to shed a new light on this line of research, focussing on Arabic itself and tracing its evolution from its origins to the moment it served as a channel for Greek medicine to enter Europe. To analyze the role that Arabic played in transmitting the Greek legacy in the West, we can't forget to study the translations made into Arabic in the House of Wisdom by Hunayn ibn Ishaq from the Greek, on the one hand, and the survival of this Arabic medical lexicon in the Latin of Gerard of Cremona, on the other. This is why we included a brief presentation of both in this article, that aims to meet the need to elucidate the role of the translation work in this transmission and to serve as a starting point to solve the lack of comparative studies.

## THE EVOLUTION OF ARABIC LANGUAGE IN THE ARABIAN PENINSULA

Arabic is a Semitic language. It was first documented in the middle of the third millennium BC. It reached a diverse geographic space of the Arabian Peninsula, which extended to areas near Mesopotamia, the Syrian-Lebanese area, the southern coasts, the Red Sea and the Persian Gulf.[3] It is often defined as the language spoken by a number of nomadic and semi-nomadic tribes who used to live in the Arabian Peninsula from the first millennium BC. They were nomads, quite similar to the current Bedouins, and were living in constant small wars between themselves, for revenge, honor or food disputes. Their religion was mainly based on polytheism.[4]

Pre-classic or pre-Islamic Arabic refers to the language spoken by tribes before the rise of Islam. Different dialects were used that have been classified as Arabic in a general way.

3 Ignacio Ferrando (2001). *Introducción a la historia de la lengua árabe. Nuevas perspectivas*. Zaragoza: Universidad de Zaragoza, esp. 23.

4 Not to forget the existence of Christianity, Judaism and Zoroastrianism at the same time in the peninsula.

Despite the differences between those tribes, they shared one important thing: a common poetic Arabic language that helped to establish the base of the Arabic language and identity. Their communication was based on oral tradition and luxurious poetry. Poetry was an important element of their culture and honor; they were holding many competitions of oral poetry with other tribes. It is also interesting to mention that pre-Islamic poetry shows that Bedouins possessed some knowledge of animals, plants and minerals from its peninsula, since they were pastoralists.

In the 7th century the essential figure of Muhammad emerged, the founder of the new religion of that time, who was born in Mecca within the Quraysh tribe. At the age of forty, Muhammad began to receive the word of God, which entrusted him to transmit the Revelation to men. From 613 he began to preach and gather his first followers among his relatives. Later on, the growth of this Islamic empire led to the evolution of Arabic language, by giving it authority and supremacy. It functioned as a powerful political, doctrinal and cultural tool that represented an important pillar of the identity of the new Islamic civilization.[5] As a result of the wide expansion of Islam, Arabs came into contact with the near civilizations, so it was necessary to establish a linguistic code that would function as a normative language. The origin of the unified and normative language of the Islamic empire can be traced back to three main sources: the oral tradition, the pre-Islamic poetry and the Quranic texts. It was in the 8th century when the most important grammarian of the Arabic language, Sibawayh, wrote the earliest book on Arabic linguistics and grammar: *The Kitab*.[6]

Moreover, two administrative decisions made Arabic become one of the most important languages from the 8th onwards. Circa 696, in the Umayyad era, the caliph Abd al-Malik (r. 685-705) took the first of them: he standardised his imperial administration with Arabic, which replaced Greek in the West and Persian in the East. This had clear consequences at all levels both in the Umayyad administration and in the empire's culture.[7] On the other hand, the Abbasids revolted and took power in 750. After that, they moved the imperial capital from Damascus to Baghdad in 762. The people of Damascus were native speakers of Greek, which was also the administrative language there. Because of that, there was no need to translate Ancient Greek texts into any other language in Damascus. On the contrary, even though Baghdad population was strongly hellenized, it was composed by Aramaic, Farsi and Arabic speakers.[8]

5 Ignacio Ferrando (2001). *Introducción a la historia de la lengua árabe… Op. Cit.*, esp. 17.

6 Kees Versteegh (1997). *The Arabic Linguistic Tradition, Part of the Landmarks in Linguistic Thought series, vol.* 3. London: Routledge, esp. 4.

7 Glen Cooper (2019). Hunayn ibn Ishaq and the Creation of an Arabic Galen, in *Petros Vallianatos and Barbara Zipser (eds.), Brill's Companion to the Reception of Galen*. Leiden: Brill, pp. 179-195, esp. 180.

8 Dimitri Gutas (1998). *Greek Thought, Arabic Culture. The Graeco-Arabic Translation Movement… Op. Cit.*, esp. 19.

## SCIENTIFIC ARABIC AND THE GRAECO-ARABIC TRANSLATION MOVEMENT

Along with the reasons stated before, the contact between Arabs and their Persian and Byzantine neighbors facilitated their access to Greek science thanks to commerce, the expansion of Islam and, most importantly, the Syriac Nestorian Christian writers, scientists, monks and translators that worked during 5th and 6th in the Persian cities of Edessa, Nisibis and Gundeshapur.[9] Their magnificent work of translation of scientific works continued under the rule of the Abbasid Caliphate. At the beginning, they dedicated themselves to translate mathematical, philosophical, medical and astronomical works into Syriac and sometimes into Arabic. Undoubtedly, the Arabic language of that time lacked the technical terms which were used by Greek scientists. For this reason, we can find many transliterations and transcriptions of the Greek medical and technical terms in the early Graeco-Arabic translations.

The 9th century was the period of the greatest translation activity. The translators, mainly Nestorians, were fluent in Greek, Syriac and Arabic, and often in Persian as well. During the reign of al-Mamun, the translation movement reached its peak and the monarch created the House of Wisdom in Baghdad. However, even though many researchers link the House of Wisdom with translation from Greek into Arabic, it now seems more evident that the House of Wisdom was more than a library where translations from Persian were stored and some activities related to astronomy and maths were performed.[10] Later on, during the reign of al-Mutawakkil, the Nestorian physician and translator Hunayn ibn Ishaq was one of the —if not the most— prolific translator of the so-called Graeco-Arabic translation movement. He translated the complete works of Galen, specifically, 129: 39 into Arabic and 90 into Syriac.[11] In addition, he translated works by Hippocrates, Plotomeo, Paulo de Egina, Dioscorides, and Euclides. In the House of Wisdom, the work was distributed depending on the specialization of each translator, who also worked as scientists and physicians. Therefore, Hunayn translated mainly medical works. He was not only the most important translator of his time, but he also had around 90 disciples under his supervision, like Hubaysh ibn al-Hasan, Ishaq ibn Hunayn, Thabit Ibn Qurra and Qusta Ibn Luqa.[12]

9 For a more exhaustive study of the role of the Syriac language in the trasmission of ancient knowledge, it is useful to read the work of Siam Bhayro (2017). «Galen in Syriac: Rethinking Old Assumptions», *Aramaic Studies*, 15, pp. 132-154.

10 Dimitri Gutas (1998). *Greek Thought, Arabic Culture. The Graeco-Arabic Translation Movement… Op. Cit.*, esp. 58.

11 Noelia Ramón García (2002). Los orígenes de la traducción científica: la casa de la sabiduría, in *Laura Cruz García, Víctor González Ruiz and Elena Pérez Ramírez, Actas de las IIª Jornadas de Jóvenes Traductores.* Las Palmas de Gran Canaria: Universidad de Las Palmas de Gran Canaria, pp. 169-178, esp. 177.

12 About the life and work of these translators, see De Lacy O'Leary (1949). *How Greek Science Passed to the Arabs*. London: Routledge and Kegan Paul, esp. 155-275.

It is likely that Hunayn, with the other translators of the House of Wisdom in the 9th century, were the creators of the scientific and technical Arabic. We can't forget that Arabic was originally an oral language of the nomadic tribes of Arabia. Therefore, there is no doubt that scientific and medical terms were lacking at that time in this language. If that is true, their work was crucial, as they found an equivalence of many Greek terms in Arabic and, in many cases, created neologisms in this area. Hence, the existence of scientific Arabic, which circulated both in the East and in the West, would not have been possible without Hunayn ibn Ishaq and his disciples. In this way, they were responsible for developing a technical vocabulary in Arabic, along with a style for scientific speech.

Apart from what has been described, the translations made in Baghdad changed not only Arabic from a linguistic point of view, but also both Islamic and Christian civilizations at the time. The language itself, as we said, was enriched with Greek terms in order to express realities that had never been a thing for Arab people. The translation movement also encouraged scholars to reflect on Arabic grammar, as they needed to teach this language to foreign people that now needed or were interested in learning it without having a religious purpose. Lastly, this new focus on language brought heated discussions about the origin of human language and facilitated the commentary of old works which were to be incorporated in the Islamic —and later also Christian— civilization.[13]

## AL-ANDALUS AND LATIN TRANSLATIONS

After being translated into Arabic in Baghdad, Greek medical works arrived to the Iberian Peninsula —al-Andalus at the time—. This meant two things: (1) That Ancient Greek medicine arrived in Europe first in al-Andalus and through Arabic, directly from Baghdad. This implied that Arabic, after becoming the scientific language of the East, took an even more critical role in the development and transmission of both medical language and medical knowledge in the West. (2) That, in this situation, we can consider Arabic to be the first medical language of Europe in the Middle Ages. Before it, there was no medical production in Europe apart from the Ancient Greek works. This is true not only because all the knowledge from Ancient Greece was transferred in Arabic rather than in Greek, but also because some translations into Arabic were done in al-Andalus, following the trail of the House of Wisdom in Baghdad. One of the first ancient medical works to be translated into Arabic in al-Andalus was *De materia medica* by Dioscorides around the middle of the 10th century.[14]

Andalusian medicine combined Greek doctrines, which made the most part of it, with hints of other medicines such as Indian, Persian and Chinese. Al-Andalus was also innovative in pharmacology, where Arabs got to surpass Greeks.[15] Some physicians from al-

13 Myriam Salama-Carr (1990). *La traduction à l'époque abbasside*, *Op. Cit.*, esp. 81-85.

14 Silvia Nora Arroñada (2008). «Algunas reflexiones sobre la medicina andalusí», *Iacobus*, 23-24, pp. 121-140, esp. 124.

15 Peter Pormann (2011). «The Formation of the Arabic Pharmacology: between Tradition and Innovation»,

Andalus with great works of pharmacology are Ibn Wafid (11th c.), Ibn al-Kattani (11th c.), Ibn Zuhr (12th c.) and Ibn al-Baytar (13th c.). All of them got to read Greek medical works thanks to the translations that had been made in Baghdad, which circulated among them at the time. They encountered a fully structured doctrine in their own language, which also happened to be the scientific language of the world at the time. Thanks to translators like Hunayn ibn Ishaq, Hubaysh ibn al-Hasan and Thabit ibn Qurra, many of whom were also brilliant physicians and got to publish original works in Arabic, intellectuals of al-Andalus had the problem of terminology solved and were able to actually express every medical condition and bodily function in a fairly systematic way from the very first moment they came across the greatest medical works of Ancient Greece, such as those by Hippocrates, Dioscorides and Galen. In some disciplines they used more Greek terms, as in pharmacology, but in others they got to create a terminology system only composed by Arabic roots, as in anatomy.[16]

From the 9th century onwards, Arab physicians started to write their own medical works after having assimilated Greek, Persian and Indian medicines. Overall, they followed the Galenic doctrine in every discipline, especially anatomy and surgery, where they made few advances compared to the Greek physician. Above all, they wrote recipes, regulations for hospitals and books on simple drugs.[17]

At the same time, the contact between Arabic and Latin in the Iberian Peninsula gave a new dimension to Arabic, as it became the original language for translators into Latin in the Iberian Peninsula. This new translation movement can be considered as the last step in the transmission of knowledge from Ancient Greece to Medieval Europe. The first translations into Latin were done in the 10th century in cities like Vic and Santa María de Ripoll, in current Catalonia. However, it wasn't until the 12th century when the translation activity into Latin bloomed in Toledo. From there, texts about all disciplines, from philosophy and astronomy to medicine and pharmacology, travelled to other cities in Europe and made their way to the curricula of the first European universities. In the very early stage of this translation movement medical texts were translated but then, from the 12th century onwards, other subjects were also taken into account.[18]

Toledo was the center for the translation into Latin of Arabic scientific and philosophical texts due to several reasons: firstly, the linguistic mix of its population, as many of them were Mozarabs and spoke Arabic and a Romance dialect, Arabic being the language of religion

*Annals of Science*, 68 (4), pp. 493-515, esp. 493.

16 Camilo Álvarez de Morales (ed.) (1998). El cuerpo humano en la medicina árabe medieval. Consideraciones generales sobre la anatomía, in C. *Álvarez de Morales (ed.)*, *Ciencias de la naturaleza en al-Ándalus. Textos y estudios v.* Granada: Escuela de Estudios Árabes del Consejo Superior de Investigaciones Científicas, pp. 121-136, esp. 131.

17 *Ibidem*: 127-132.

18 Daniel König (2019). Latin-Arabic Entanglement: A Short History, in *Daniel König (ed.)*, *Latin and Arabic: Entangled Histories*. Heidelberg: Heidelberg University Publishing, pp. 31-121, esp. 88.

and culture; secondly, its importance as a scientific center even before being conquered by Christians, who found many books stored in the city when they arrived; and thirdly, the existence of a group of people related to the cathedral of Toledo that didn't speak Arabic but were interested in reading all the literature available translated into Latin.[19] However, in general, we can say that the idea was to export translations to other European cities where universities were placed and the majority of the population could read Latin.[20]

At this point, we would like to note that what has been traditionally called the Toledo School of Translators was not actually a school, as no translation techniques were taught there nor do we have evidence of any place or building that served as the center of the translation activities that were performed in Toledo. However, the use of the term *school* is somehow justified because of the relationships that linked together the translators of that time.[21]

The translation process at Toledo included Romance as an intermediate language: first, a Jewish person translated the text from Arabic into Romance orally and word by word; at the same time, another translator translated whatever he heard from Romance into Latin. Then, the text was proofread and corrected.[22]

In this context, Latin was enriched by a huge number of Arabic terms to describe Greek concepts. At first, these terms were part of specialised texts but, as the Renaissance arrived, all of these lexical and syntactical arabisms were erased. However, some of them stayed in the colloquial language and are alive in Spanish even today, such as *alcohol*, *azufre*, *bórax*, *jaqueca*, *jarabe*, *nuca*, *zaratán*, etc.[23]

## ARABIC FOOTPRINT IN LATIN LANGUAGE AND EUROPEAN MEDICINE: THE CASE OF HUNAYN IBN ISHAQ, GERARD OF CREMONA AND ON *SIMPLE DRUGS* BY GALEN

As we said in the previous section of this article, the lively translation activity from Arabic into Latin had some consequences: first, that Greek medicine arrived to Europe; second, that Arabic doctrine got known among European physicians; third, that Latin got enriched with many loanwords from Arabic or other languages through Arabic; and fourth, that all of this content was the base of textbooks and curricula in the first European universities teaching medicine. One of the clearest examples of this process is the pharmacology treaty

19 Charles Burnett (2001). «The Coherence of the Arabic-Latin Translation Program in Toledo in the Twelfth Century», *Science in Context*, 14 (1/2), pp. 249-288, esp. 249-250.

20 *Ibidem*: 253 and 269.

21 On this idea, see Ahmed Kamal Zaghloul and Adel Mohamed Nasr (2020). «El movimiento de traducción en la Casa de la Sabiduría de Bagdad y la Escuela de Traductores de Toledo», *Entreculturas*, 10, pp. 57-68, esp. 64.

22 Bertha María Gutiérrez Rodilla (1998). *La ciencia empieza en la palabra. Análisis e historia del lenguaje científico*. Barcelona: Península, esp. 54-55.

23 Meaning *alcohol*, *sulfur*, *borax*, *headache*, *syrup*, *nape* and *cancer* respectively. *Ibidem*, esp. 63-64.

*De simplicium medicamentorum facultatibus* or *On simple drugs* by Galen. Let's review the history of its transmission.

*On simple drugs* is a pharmacology treaty and is composed of 11 books. The first five are theoretical and the last six are practical. Galen wrote it in the 2nd century in Greek, but it wasn't until the 6th century when it was translated for the first time into Syriac by Sergius of Reshaina. The treaty was to be translated twice more into Syriac: one by Yusuf al-Khuri al-Qass and other by Job of Edessa.[24] Then, moving onto the Graeco-Arabic translation movement, *On simple drugs* was first translated into Arabic by al-Bitriq[25] and then Hunayn ibn Ishaq.[26] This latter translation was the one that served as a model to Gerard of Cremona, the main translator of the treaty into Latin.

In general terms, researchers affirm[27] that the Gerardian translations are faithful in the style of translation of the Arabic versions. It seems that Cremona maintains features similar to those of Hunayn, such as using many arabisms, expanding the text and adding annotations, explanations, or context.[28]

Some Andalusian physicians also based their works in the content of this treaty. For example, Ibn Wafid's (11th c.), Abu al-Salt's (11th and 12th c.) and Ibn al-Baytar's (13th c.) treaties on simple drugs contain many references to the original book by Galen. One

24 John Lamoreaux (2016). *Hunayn ibn Ishaq on His Galen Translations.* Provo: Brigham Young University Press, esp. 66-68.

25 On al-Bitriq's life and work, see Douglas Dunlop (1959). «The Translations of al-Bitriq and Yahya (Yuhanna) b. al-Bitriq», *Journal of the Royal Asiatic Society*, 91 (3-4), pp. 140-150.

26 Manfred Ullmann [(2002). *Wörterbuch zu den griechisch-arabischen Übersetzungen des 9. Jahrhunderts.* Wiesbaden: Harrassowitz Verlag] discovered that al-Bitriq's version is available today in a manuscript kept in Istanbul and compared it to Hunayn's translation. Also, Hunayn's version of book vi is currently being edited, translated into Spanish and compared to that of al-Bitriq's by Sara Solá Portillo as part of her doctoral thesis, «*Kitab al-adwiya al-mufrada*: la versión árabe del *De simplicium medicamentorum facultatibus* de Galeno: edición crítica, traducción y estudio del libro vi».

27 Danielle Jacquart (1989). *Remarques préliminaires à une étude comparée des traductions médicales de Gérard de Crémona*, in *Geneviéve Contamine (ed.), Traduction et traducteurs au Moyen Âge. Actes du colloque international du CNRS organisé à Paris, Institut de Recherche et d'Histoire des Textes, les 26-28 mai 1986*. Paris: Éd. du CNRS, pp. 109-118; and Danielle Jacquart (1992). Les traductions médicales de Gérard de Crémone, in *Pierluigi Pizzamiglio (ed.), Gerardo da Cremona. Annali della Biblioteca statale e libreria civica di Cremona XLI* (1990). Cremona: Libreria del Convegno editrice, pp. 557-70; Iolanda Ventura (2019). Galenic Pharmacology in the Middle Ages: Galen's On the Capacities of Simple Drugs and its Reception between the Sixth and Fourteenth Century, in *Petros Bouras-Vallianatos y Barbara Zipser (eds.). Brill's Companion to the Reception of Galen*. Leiden/Boston: Brill, pp. 393–433; and Marina Díaz Marcos (2021). *De simplicibus medicinis liber VI. Edición crítica y estudio de la traducción latina de Gerardo de Cremona*, tesis doctoral, Universidad de Castilla-La Mancha, http://hdl.handle.net/10578/28679 [19/11/2021].

28 On Hunayn's translation technique, see, for example, Glen Cooper (2016). «Hunayn ibn Ishaq's Galen Translations and Greco-Arabic Philology: Some Observations from the Crises (De crisibus) and the Critical Days (De diebus decretoriis)», *Oriens*, 44, pp. 1-43; and Uwe Vagelpohl (2018). The user-friendly Galen: Hunayn ibn Ishaq and the adaptation of Greek medicine for a new audience, in *Petros Bouras-Vallianatos and Sophia Xenophontos (eds.), Greek Medical Literature and its Readers: From Hippocrates to Islam and Byzantium.* Oxon: Routledge, pp. 133-130.

of the manuscripts containing book VI even states the relation of famous physicians and pharmacologists who owned a copy of it around the 12th and 13th centuries.[29]

As for the influence of Arabic in the Latin version of the treaty, it can be seen mostly in plant names. In the following table there are some examples of plants that were transliterated directly from Arabic by Gerard of Cremona:[30]

Table 1. Plant names

| **Arabic (Hunayn ibn Ishaq)** | **Latin (Gerard of Cremona)** | **Scientific name**[31] |
|---|---|---|
| كبيكج | kebikeg | *Racunculus* L. sp. |
| كرم أبيض | carm abiat | *Bryonia alba* L. |
| عرعر | haharrar | *Juniperus oxycedrus* L. |
| صبر | sybar | Aloe vera L. |
| حيّ العالم | heialaalem | *Sempervivum* L. sp. |
| الكرم الأسود | alkarm alsued | *Dioscorea communis* (L.) Caddick & Wilkin |
| الأقحوان | alchohen | *Tanacetum parthenium* (L.) Sch. Bip. |
| الوجّ | oegi | *Acorus calamus* L. |
| خانق النمر | canich alnemer | *Aconitum anthora* L. |

29 Matteo Martelli and Lucia Raggetti represent this relation in a schematic way: (2016). «Stone by Stone: Building the Graeco-Arabic Edition of Galen's On Simple Drugs, Book IX», *Comparative Oriental Manuscript Studies Bulletin*, 2, pp. 48-58.

30 To know more about the transliteration system used by Gerard while translating this treaty, see Marina Díaz Marcos (2021). *De simplicibus medicinis liber VI… Op. Cit.* , esp. 73.

31 The scientific names showed here respond to the Arabic terms as used in *On Simple Drugs* book vi by Hunayn ibn Ishaq and always taking into account the original Greek plant names they go back to. The works by Antonio López Eire (dir.) (2006). *Dioscórides de Salamanca*, https://dioscorides.usal.es/ [18/11/2021]; and *Euro+Med PlantBase - the information resource for Euro-Mediterranean plant diversity*, http://ww2.bgbm.org/EuroPlusMed/ [15/11/2021] were of great help in the task of assigning a scientific name to each Arabic term.

| | | |
|---|---|---|
| قاتل الذئب | catil adib | *Aconitum napellus* L. |
| آذان الفأر | edhen alfar | *Thelygonum cynocrambe* L. |
| البلنجاسف | albeneguesit | *Artemisia vulgaris* L. |
| الكرم البرّيّ | karm alberri | *Vitis vinifera* subsp. *sylvestris* (C.C. Gmel.) Hegi |
| بذاورد | bedeoard | *Picnomon acarna* (L.) Cass. |

## CONCLUSIONS

Through this article we have reached some interesting conclusions concerning Arabic and its role in the transmission of knowledge and more specifically medicine all the way from Ancient Greece up until the Renaissance. Moreover, we have seen the phases of the evolution of Arabic language: from being a nomadic dialect in the Arabian Peninsula to the language of science and medicine in the Iberian Peninsula. This strong relationship that ties together both territories made it possible for humanity to preserve the Greek legacy not only in Medicine, but also in other disciplines.

As a consequence of what has been stated in the article, we can affirm that the translations of Hunayn ibn Ishaq and his disciples during the Graeco-Arabic translation movement in the 9th century in the House of Wisdom reflected the sociological and sociolinguistic circumstances of that time. The Arabic language reached its peak as a scientific language, since they developed the Arabic medical lexicon. In the same way, as translators, they have the merit of having developed Arabic and having turned it into a scientific and technical language, at the same level as the Greek and Syriac of that time.

As a result of that Graeco-Arabic translation movement, the Greek legacy of science, philosophy and medicine were accessible to the East and the West. This Arabized legacy began to be translated into Latin in the West between the 11th-12th centuries, mainly, through the *Corpus Toletanum* in Toledo. The translations of Gerard of Cremona, the Head of the so-called Toledo of Translators, are faithful to the translation style of the Arabic versions. It seems that Gerard of Cremona maintained features similar to those of Hunayn. Because of this, many aspects of Arabic survived in the Latin versions of medicine and pharmacology; such as arabisms.

We hope that this article has served as a highlight of the importance of Arabian-Iberian exchanges in the Middle Ages as part of human history. We also encourage other researchers to focus on Arabic itself and take their analyses back to the pre-Islamic era. As for us, we will continue our comparative study between Greek texts and medieval Arabic and Latin translations in order to better understand the role of translation in the development of

science as well as the evolution of Arabic from different points of view.

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## ABSTRACT

This paper aims to trace the evolution of medical Arabic from the Arabian Peninsula to al-Andalus and Medieval Europe. We will describe the historical context behind this evolution, tracing the reasons and factors behind the development of Arabic from being a nomadic dialect to the language of science and medicine in the Middle Ages. Thus, in this article we will focus on three points: (1) the evolution of Arabic inside the Arabian Peninsula, (2) the Graeco-Arabic translation movement of the 9th century, and (3) its impact in al-Andalus and the Latin translations of the 12th century. Finally, we will present a lexicological study of the pharmacology treaty *On simple drugs* by Galen, which is a paradigmatic example of the Arabic-Latin versions of Greek medical works and thus illustrates perfectly the role played by Arabic in the transmission of Ancient science to the Medieval world.

## KEYWORDS

Arabic, Medicine, Middle Ages, Translation, Arabian Peninsula, al-Andalus