

The Scientific Arabic Terminology in the Golden Age Period and the Modern Period

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Abstract:

During the golden Islamic period, translation caught the interest of muslim scholars who were the first translators in charge of finding new terminology using either the technique of translation **or** Arabization. It is important to note that the translation activity was mostly medical during this period. Thousands of words were introduced most of which were Arabic terms. This varied terminology was widely used to express old sciences which contributed to the promotion of the Arabic language as that of science. These translators who were in charge of coining new terms to name any discovered thing or convey any meaning became later scientific writers and editors of books.

Keywords:

Translating, Arabizing, language of science, medical translations

1. INTRODUCTION

During the first period of translation, the emphasis was put on the sentence rather than on the word. Besides, translation shifted from Syriac to Greek then to Arabic directly. Therefore, it knew the utmost activity in the golden age period and even shifted to new activities of editing books and commenting on the Greek master pieces. It should be noted that The translators travelled a lot in search of Greek original copies.

2. The translators' techniques of applying terminology:

The translation of old sciences into Arabic such as medicine, philosophy, mathematics needed scientific methodology to create

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neologisms. According to Emir Mustapha Echihabi: “Scientific terms which were embedded in Arabic in those days were thousands of thousands of Arabic terms and hundreds of Arabised words².” In medicine, many terms were created such as ‘جراحة’ [jiraha] standing for surgery, ‘تشریح’ [taʃrih] standing for dissection, and ‘سرطان’ [sarataʿan] for cancer.

As regards, philosophy many terms were introduced. Most of them were Arabic terms: for instance, from the term philosophy (a Greek word) arabised as [falsafa], terms different were derived, such as تفلسف [tafasafa] and فيلسوف [feilasuf]

[According to Merhaba ³ in Fihrist of Ibn Nadim: “There were two translation techniques at that time: the first was that of Ibn Batriq and Ibn Naima Al Hamsi it consisted of word -for word translation. However, it was not acceptable because there were not any equivalents for the foreign words. Besides, the linguistic structure varied from one language to another. «The second translation technique was that of Hunayn Ibn Ishaq and his team. involved the reading of the sentences, understanding their meanings and then putting them in a clear Arabic model. This was emphasized by Amin Assad Kheir Allah, in his book ‘El Tib El Arabi’⁴

According to Chahata EL Khouri,⁵, “the techniques that were followed to find terminology consisted of modulating the Arabic original word to give it a new scientific meaning. They Arabized the foreign words and considered them as correct. Juan Vernet in his book,⁶ revealed that Hunayn Ibn Ishaq, the most outstanding golden age translator once said In Fariq A-Tib Lil Mutaallimin,

...the book about the Sects of Galen was translated before me in Syriac by Ibn Chahata el Karth who was a bad translator. When I

² المجمع العلمي العراقي مؤتمرات تعريب التعليم العلمي في الوطن العربي بغداد 1982

³ المجمع العلمي العراقي مؤتمرات تعريب التعليم العلمي في الوطن العربي بغداد 1982

⁵ خوري شحاتة دراسات في الترجمة والمصطلح والتعريب تونس دار 1989

⁶ Vernet Juan, ce que la culture doit aux arabes d Espagne,

was twenty, I did the first translation from a Greek version but it was a bad translation. I did it for a doctor called Sirich B. Quitus. When I became forty years old, my fellows asked me to correct it and I managed to do so because I had many original Greek copies. So, I compared them with my Syriac translation and corrected them. This method is the one that I use in all my translations. Some years later, I translated into Arabic, the Syriac text for Abu Jaafar Muhammad B. Musa. I also did the second version of the book “Kitab Tulab El Bir” that I corrected with my best style because I had a good translated copy of the book.⁷

Hunayn's translations were based on two features. First, they were conducted according to the specific needs of the book and then to the purpose of the translation insisting on the importance given to his readers.

In fact, translation went through three steps. Once 'The editor' was a go-between, in charge of paying the translator and editing the book. According to Juan Vernet these steps⁸ are as follows:

a) preliminary translation: It is the first translation done by less specialized scholar attached to Beit Elhikma..

b) Revised translation: As soon as the primary translation had been done, it was handed to a more experienced translator for revision by checking its terminology, style and faithfulness according to the original text.

c) Final translation: A This final translation is called full Arabisation. It was done by good writer or grammarian to review the general style in Arabic.

Through time, These translators became themselves scientific writers who edited many books in different science domains such as medicine, mathematics, astronomy, physics and philosophy. As a result the Arabic language witnessed the introduction of new scientific terminology. Under the rule of the Abbasids, It developed as the language of science and

⁷ My translation

⁸ Vernet Juan (op cit)

scientists as Chehata EL khouri said in his book⁹: “Translation requires exact terminology that conveys meaning and a correct sentence that helps clarifying things. If these requirements are available, it can be a language of science”¹⁰

While editing and commenting, translators even made some corrections. To express new concepts, they created neologisms. For instance, the Greek term *geometrika* which was arabised giving ‘جبيومتريقا’ [jiumetriqa] was replaced by the term ‘هندسة’ [handasa].

2. Medical Terminology in the First Golden Age Period

Terminology translators during the golden period were faced with finding new terms..Derivation seemed to be the tool.

Scientific writing from Greek into Arabic was an obstacle that they easily overcame by either transliterating the Greek terms or Arabizing them. For instance, the transliterated term *قاراماطون* for *kramation* was replaced by [قربانين] *karbadin* to be changed into [saidana] *الصيدنة* and finally [saidala] *صيدلة*

In case of impossibility of translation the translators kept the foreign nouns for foreign diseases. For example, they kept the term [kioros] *كروز* which is a disease. Similarly for the term *nokrus* [نقروس] refers to another disease.

The translators Arabized terms from Greek, syrian, Persian and Indian.

many terms about diseases were derived according to the disease symptoms. *فاث فاث* the term [Sudaa] *الصداع* on the basis of the paradigm *فعاال* [Achakika] *الشقيقة* was named after the headache that affects one part of the head:

another disease called. *داء الأسد* *Daa Al Assad* the lion's face because the sick person's face looks like the lion's face.

⁹ خوري شحاتة دراسات في الترجمة و المصطلح و التعريب تونس دار طلاس 1989

¹⁰ My translation

Other diseases were derived from the three -lettered paradigm,[faal [فعال] such as *ruham (رحا buhah, Kusah (كساح)

Others were derived using the paradigm (faal) فعل faaL فعل such as Baras (برص), *Bahak (بهق)

Whereas medicine derives from the paradigm faoul, فعول such as saout (سعوط) kayou (قيوء)

2.1 Tranlation: The first Phase:

When ^physicians ^started to edit books about medicine, they began using their own terminology giving their texts a scientific style in Arabic. this terminology had a kind of melody, i.e., sciatica, a Greek term that they translated into ^arg anissa: it is a disease that affects the nerves of the leg. it was translated so because of the relation between the pregnant women who have pains in their feet. the medical book of Dioscorides was first translated by hunayn ibn ishaq from latin. some of the terms which were unknown were only transliterated until other specialists managed to coin appropriate equivalents.

2. 2. Translation: The Second Phase

The second phase of terminology application started during the era of the translation of greek sciences into Arabic.

The most well known medical translators were hunayn Ibn Ishaq, his son Ishaq and his nephew, Hubaich. Translation and arabisation of terminology flourished greatly thanks to them.

The translation procedures used by the early translators to find new terminology were:

-To accept new symbols from indian to Arabic

To enlarge the meaning of terms so that it would encompass the sense of new scientific concepts.

The translation procedures used by translators to apply medical terms lie in the relation between the medical term and life in general such as the

The Scientific Arabic Terminology in the Golden Age Period and the Modern Period

layers of the eye which are named after the things they look like

-Muchaimia مشيمية _____ it exists in the belly

-Chabakia شبكية _____ looks like the net

-Ankabutia عنكبوتية _____ refers to the web of spiders

-Karania- القرنية _____ refers to something hard

-Al itnaachar الاثنى عشر _____ refers to the intestine linked to the coccyx 12 inches long

Colon القولون _____ refers the intestine in which the disease occurs

Al auar الاور _____ is an intestine in the shape of a bag. It is called so because it has no exit.

This is how medical terminology in the great arab heritage developed from simple to general words from derived terms, to a mixture of both from derivation from foreign terms to the suggestion of new terminology

I think that the early translators developed the Arabic language by creating the scientific style: they certainly did not use the term (tarjama) translation but used the term copying (النقل) because they knew they were first transferring the Greek heritage into Arabic. But in fact, they really did more than copying. Their translations were rather creative. They were able to transmit knowledge in their mother tongue. Besides, they could create new things, invent new instruments raised important philosophical questions that made them advance. When calling a doctor hakim knowledge that they looked for everywhere in the world. They were eager of science.

Scientists, translators and linguistics worked hand in hand to give precise terminology. A specialist is a doctor who translated Greek master pieces and who found the equivalents of such terms, would send his translated book to a linguist who corrected the style. Their work was complementary. Unified scientific research seemed to be the endless target to reach in translating terminology. This golden working team of

specialists,terminologists,scientists and grammarians made translation advance from good to better.At the same time, the translators became themselves terminologists who were the founders of new terms since they started editing scientific books.

Mustapha Cherifi El Afi gave a text written by,Ishaq Ibn Hanine the famous Abbassid translator and writer who wrote: ...¹¹”There are two membranes in the brain,it is called in Greek,meninges.One of these is smooth. The other is thick and hard.the soft one looks like muchaimia because of the number of arteries and nerves in it which feed it whereas the thick one that is hard,

protects the brain serving only as a barrier against the head bone close to it.”

I think the scientist was also a terminology founder:when writing his scientific text,he applied new terms.After translating ‘diocorids’the medical Greek book, he discovered that *meninges was composed of two membanes. Later on, this discovery enabled Ibn Zuher in El Andalus to suggest other new terms in brain surgery that the Europeans translated from Arabic

I suppose that hunayn ibn ishaq did so by observing, experimenting then translating medical terms.He added or wrote his analysis of the translation by including his point ofview.while doing so he created a neologism he was the founder of term cornea القرنية chabakia قزحيةkuzahia* عنكبوتية ankabutia. These terms were equally found in Ibn Haitam s book Al Manadir.;

scientific research during the golden period was unified and complementary. Hence scientific terminology improved and developed thanks to the thinking of the early scholars who were translatorsand scientists

Therefore,they could easily find the term related to a given concept.

3 How terms were applied in Materia Medica of Pedanius Diocorides and Ibn El Baytar 's ELjamie in the Andalusian period

Under the reign of Abdel Arrahman, the First, an Umayyad prince who fled from the Abbasids' persecution, introduced an oriental culture in Southern Spain, called El Andalus. During his reign, the production of books reached a high level. The collection of books contributed a lot to the development of science. Huge sums of money were spent to gather rare Greek books to be translated. Among these books, Materia Medica, a Greek encyclopedia of five volumes about herbal medicine and related medicinal substance used for healing. It was offered by king Marianus to emir Nacer Abderrahman,

Ibn Juljul said the encyclopedia reached Al Andalus with the translation of Estephan: some terms were arabised or translated while others were left untranslated or just transliterated

A group of ethnographers guided by the the Andalusian Ibn Juljul toured al Andalus to find the plants mentioned in the encyclopedia. This huge research helped the foundation of botany. The botanists became ethnographers. They were also great translators who managed to find the new equivalent terms for plants in this encyclopedia.

This is emphasized by haidar Bammati in his book¹², many foreign derive from Arabic such as saffron, amber, hashich, kampfer, tamer Inde, muskat.

This translation scientific movement in Al Andalus gave birth to the emergence of a medical and pharmaceutical dictionary. The eminent botanist, Ibn El Byatar was the pioneer in classifying a scientific dictionary, called EL Jamie: His book embodied early people's sayings among Arabs and Greeks. He followed a smart technique to classify his dictionary as follows.

1. He linked the terms according to their first letters and classified them

¹² Bammati, Haidar, visage d islam ;ed ;A

according to the alphabetical order.

2.He defined the origin of the foreign terms and cited the equivalent terms given by the countries of origin. So the dictionary was full of loan words arabized from Greek, Latin, Indian, and other Arabic dialects as well as other Andalusian one such as *Afnoun*, *Elakta Achkhis*.

Ibn El Baytar knew these terms thanks to the previous books on pharmacy and medicine in addition to the books on expeditions that Muslim writers wrote. Besides, he knew Andalusian terms because of his scientific observation and experience in El Andalus an agricultural region. Moreover, he read previous Andalusian books on botany. He also described the plants, their colour, their places, their tastes with a precision which he considered as cure for the human body. After having defined and described the terms, he gave ways of extracting drugs from these plants as well as the dosage to be prescribed to cure such or such a disease. This dictionary seemed to be one of the basic Arabic dictionaries of all time.

3.1: scientific terminology in the modern period:

As it has been seen before, scientific terminology underwent different phases in its development during the golden era. It was the subject matter that was the basis of creativity and discoveries in various scientific fields. They were like the pearls that were found in the deep ocean, by wonderful and skilful divers.

However, this golden treasure ceased to exist in the period of decline. After the renaissance period and the industrial revolution, the western world took over the supremacy over the whole world and started creating and inventing machines and instruments. The Arabs at that time, were busy quarrelling over internal political affairs. Very soon, they were invaded by the European countries which divided the Arab world into different parts. These invaders were developing their languages through a series of inventions. Thus, they applied new terms for their inventions.

I think, the huge linguistic ocean full of pearls has no more 'divers' now who could explore its depths and bring gold metal safes. Thus, Arabic was

rather imprisoned thought political decisions. meanwhile, western scientific terminology was growing very fast.

The gap between Arabic and the other European languages such as French, English, German, Spanish and Italian, widened largely. Hence, a big crisis in scientific Arabic terminology started after the period of colonisation in the twentieth century, the Arabs were faced with either Arabising scientific terminology or translating it. They were also confronted with agreeing on unified Arabic terminology. Different schools and institutions throughout the Arab world have given different terms for the same equivalents i.e. laboratory

3.2 The Modern definition of Scientific Terminology

Science is the knowledge that man has reached through continuous practice. This science is based on observation and experimentation. thus, Scientific terminology is any term suggested or adapted by a researcher or a scientist to express the results of his work.

According to Ahmed El Hattab, scientific terminology, is a series of words suggested by the researchers whose function lies in the consolidation of the research results and its application in a linguistic model which reassures efficient practical communication among various categories of users.

However, this precise definition cannot be applied to Arabic if the latter is not unified. In fact, every Arab institution suggests a term for a specific scientific term. so how can it? be efficiently communicative among various categories of users

Since every term carries a historical background of studies, experiments of years of hard work, it is, therefore, the result of research. It is either named after the components of nature or the elements that encompass these components or the components or the means used by the researchers. for instance, hydrolysis, photosynthesis are terms that scientists have created to express their scientific thought. They are concepts or notions.

Scientific terms are conceptual images that the researcher has agreed to name in order to enable the reader to understand his idea. the researcher looks for the term that expresses best the relation between the concept and the phenomenon.

The arabs in this modern period,are faced with this neologism,that they have either to translate it or arabise it. The concepts are totally new.

If we see diagram 1 and diagram 2, that Abdelrahmane Ben Allal suggests, we would understand the confusion and ambiguity that arab scientific terminology witness.

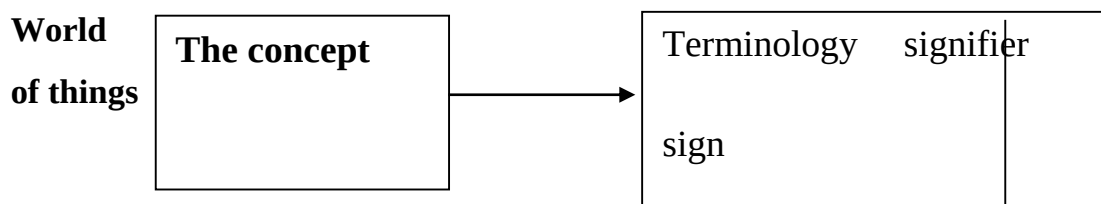


Diagram 1

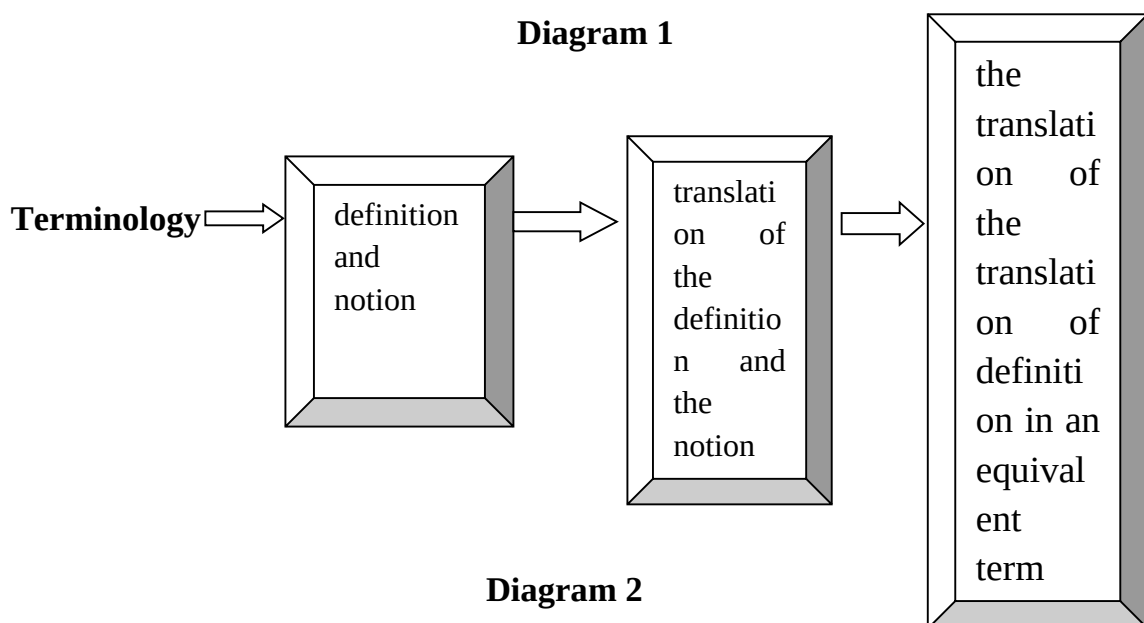
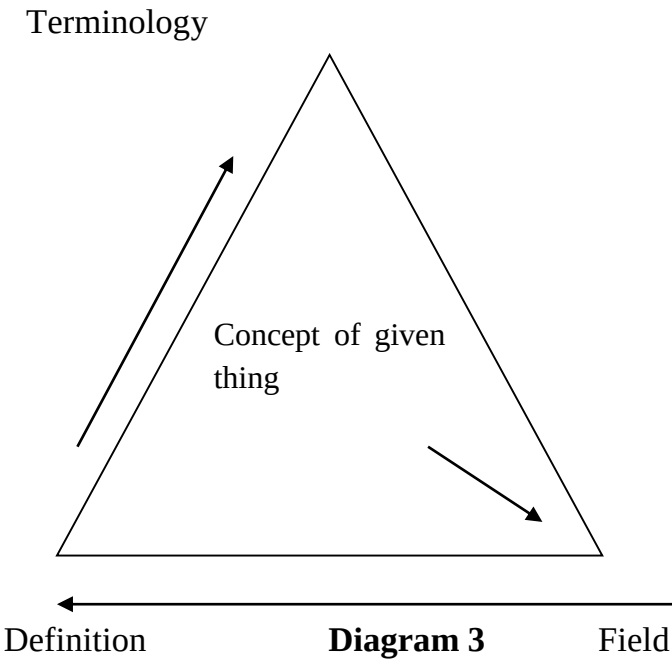


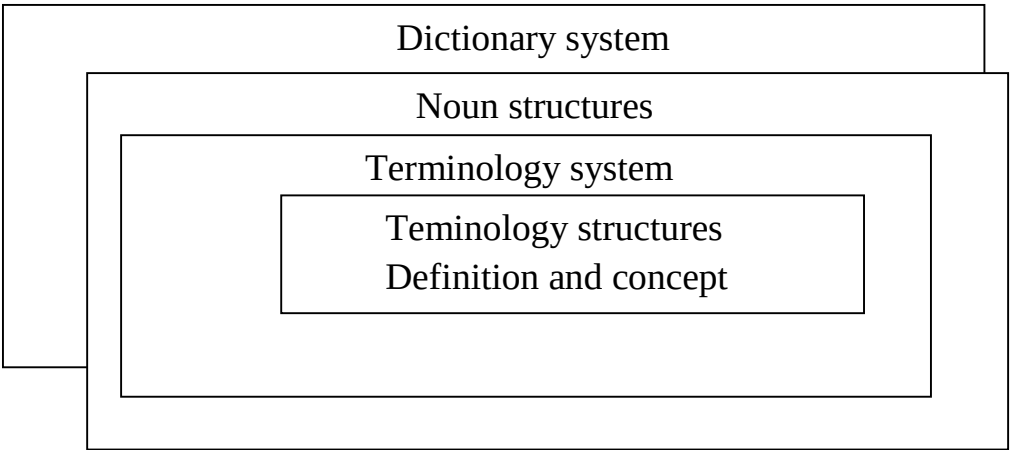
Diagram 2

According to Halam Al Djilali who says the definition of terminology stars from the imagination to the sign since it is considered as an understood definition which focuses on one field among the defined fields.

In diagram 3, which is world-wide we could understand the relation between the elements that compose a given terminology



Whereas, Othmane Ben Talmeb in diagram 4 defines terminology in relation to the system of dictionaries.its structures, its definitions its concept. It is shown as follows:



4. CONCLUSION

In summary, the major purpose of this paper indicates the role of early golden age translators in transmitting knowledge in different scientific domains. These outstanding translators became themselves scientific thinkers who not only applied new equivalents for their translated work but improved some of previous Greek and latin copies. They did remarkable work because they worked hand in hand with linguistic reviewers before submitting the translated work. They managed to train other less experienced translators by making them do the preliminary translation.

Thanks to translation Islamic civilisation flourished greatly and so did the Arabic language. Translation works were the basis of science enabling other thinkers to invent tools and find neologisms.

Medical translators were the first pioneers of transmitting the knowledge of the

The ancient Greek and latin doctors. Thus medical translation served as the basis for medicine in Europe during the renaissance period. Many medical terms of Arabic origin were used by the European doctors.

However in the modern era, since the decline of Islamic civilisation, the muslim thinkers have not been able to invent things as they used to do. Thus Arabic is now more a language of science. Arabic terminology is either arabised or translated creating a linguistic chaos where **it is still unified**.

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