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THE INFLUENCE OF ENGLISH ON THE ARMENIAN MEDICAL VOCABULARY

As science grows rapidly, in different languages new terms are created and formed according to certain word formation and grammatical rules. The aim of the current paper is the study of word formation strategies of medical terminology in English and Armenian. The results of the survey reveal that in both languages most medical terms have Greek and Latin origin. Naturally, both languages have enriched their medical terminology by borrowing terms from German, French, in case of English, and Persian, Arabic, Russian, in case of Armenian. Recently many medical terms have paved their way into Armenian either directly from English or via English. Unlike English, where loanwords are mostly used in adapted or partially adapted forms, in Armenian native equivalents are more preferable. The results of the study show that language planning is part of Armenian language policy and government policy, the number of loan translations (calques), loan renditions, loan creations and hybrids are more than the number of loan words in Armenian medical terminology.

Key words: *medical terms, borrowings, loan creations, loan renditions, loan translations (calques), hybrids, abbreviations*

In the period of globalization and technological innovations medical science grows rapidly. This is the reason that the main focus of linguists is on this branch of science. New discovery, disease, treatment, technology appear and accordingly new terms fill medical vocabulary. That is why it is always actual and can be studied from different angles. The subject of this paper is medical vocabulary which, as a branch of scientific word-stock, has its peculiar word formation strategies. The attempt to reveal the peculiarities of the formation of medical terminology in Armenian from diachronic and synchronic aspects is the aim of this paper. Medical terminology is especially rich in borrowings which are studied and analyzed here using the comparative-contrastive, diachronic and synchronic methods of research.

Armenian medical terminology is full of borrowings from Greek and Latin, Arabic, Persian, Russian. However, in the second half of the 20th century, English has become the lingua franca of medical research and consequently English terms have been imported into many languages as well as into Armenian. Another important investigation related to borrowings is their adaptation or integration in the receptor language. Due to the fact that language planning is part of Armenian language policy and government policy, the study of loan translations (calques), loan renditions, loan creations and hybrids in Armenian medical terminology becomes of great importance.

Armenian medical science was developed under the influence of Hellenistic culture. Medicine, which was dominated by the Hippocratic tradition, saw new

advances under Praxagoras of Kos, who theorized that blood travelled through the veins. Herophilos (335–280 BC) was the first to base his conclusions on dissection of the human body and animal vivisection, and to provide accurate descriptions of the nervous system, liver and other key organs. Influenced by Philinus of Cos (a student of Herophilos) a new medical sect emerged, the Empiric school, which was based on strict observation and rejected unseen causes of the Dogmatic school.

Since the 5th century the works of these scientists as well as some researches of Plato, Aristotle, Hippocrates, Galen and others, have been translated into Armenian. Among them are Aristotle's "*Categories*", Plato's philosophical works "*Timaeus*" and "*On the Nature of Man*", Aristotle's "*On the World*" and "*On Virtue*" and many others /Arevshatyan, 1973; Vardanyan, 1999/.

Armenian physicians of the Middle Ages seriously studied the classical works of ancient medicine and greatly contributed to the development of Armenian medical science. The ancient theory of the four elements (earth, water, air, fire) and their corresponding four humours (blood, phlegm, yellow and black bile) first appeared in the work of Yeznik Koghbatsi "Denial of Heresy".

Especially favorable conditions for the development of science, medicine in particular, were created in the epoch of Armenian Renaissance (10-14th centuries), during the rule of the Bagratuni family in Ani and Rubenid-Hetumid kings in Cilicia. Schools of higher education or medieval universities were founded in Ani, Haghpat, Sanahin and Sis, where along with philosophy and natural sciences, medicine was also a subject of study.

During the 13-14th centuries the fundamentals of natural sciences and medicine were taught in Yerznka, Gladzor and Tatev, large scientific centres with ancient traditions. Of the medieval Armenian schools of higher education, the Tatev school is worthy of special mention, where the greatest scientist of that time Grigor Tatevatsi in his "Book of Questions" touched upon the problems of human anatomy, biology, psychology and embryology.

After the downfall of the kingdom of Cilician Armenia at the end of the 14th century, the classical traditions in medicine were preserved in only a few cultural centres in Armenia, the last brilliant spark of which was the works of Amirdovlat Amasiatsi in the 15th century. In his books "Usefulness of Medicine", "Akhrapatin", "Useless for Ignorants" and other works he summarized the theoretical and practical knowledge of medieval Armenian physicians. Amirdovlat Amasiatsi made his own contribution to the development of such branches of medicine as embryology, anatomy, pharmacology.

The activities of abovementioned scientists and the scientific heritage left by them have had great significance for the development of Armenian medical science. Their scientific articles as well as translations of ancient medical works into Armenian have contributed to the development of not only Armenian medical science but also its vocabulary.

Languages have always influenced one another. To meet the communicational needs of a globalizing world, the English language has come onto the stage as a global language. Globalization presupposes higher intensity of contact between languages and English has become a kind of bridge among nations. It has become an international language of science, transport, tourism, business, etc.

In the last century clinical medicine developed into many new branches; e.g. internal medicine started to specialize in cardiology, endocrinology, gastroenterology, hematology, infectology, nephrology, oncology, pulmonology, rheumatology, etc. New diagnostic devices and methods were invented, e.g. computer tomography, sonograph, mammograph, laparoscope, endoscope, magnetic resonance image (MRI), etc.; new diseases appeared such as AIDS, avian flu (virus H5N1), swine flu (virus H1N1), etc. All these new things and phenomena had to be named, documented and propagated among scientists as well as common people. As English has become the language of international medical science, these newly coined terms have penetrated into different European and Asian languages, as well as Armenian. These borrowed terms have either been assimilated in the receptor languages or have been translated.

This is the reason that most Armenian medical terms have Greek and Latin origins. However, Arabic, Persian, Russian and nowadays English have also enriched Armenian medical terminology. English has become the international language of science and many recently coined medical terms have penetrated into Armenian either directly from English or via English.

The analysis of the data has proved that Armenian medical terms are formed by the application of the following strategies:

- linguistic internal means like affixation, compounding
- loan rendition, loan creation, loan translation (calques)
- hybrid terms.

Affixation: Medical terms of Greco-Latin origin most frequently have the suffixes *-it*, *-oz/-os*, *-pathia*, *-matos* and *-oma* which denote various phenomena, pathological conditions, diseases, etc. In Armenian not only borrowed medical terms but also foreign affixes have been translated into receptor language. The examples are as follows:

1. **-it (-itis)** is translated as **-բորբ** denoting an inflammatory process:

Dermatitis – մաշկաբորբ

Kheylit – լեզվաբորբ

Nephritis – երիկամաբորբ

Osteomyelitis – ոսկրածուծաբորբ

2. **-oz (e)** has the Armenian equivalent **-ախտ** denoting viruses:

Arthroz – հոդախտ

Ornitos – թռչնախտ

Trixomikoz – մազասնկախտ

3. **-pathia (-patia)** is translated as **-ախտություն** denoting general pathological condition:

Angiopathia – անոթախտություն

Criopathia – ցրտախտություն

Psychopathia – հոգեախտություն

4. **-matos** is translated as **-նստություն** denoting pathological process which tends to spread all over the body:

Atheromatos – ճարպախտություն

Lipomatos – ճարպոտություն

Lymthomatoz – ավշային հատիկոտուցքոտություն

5. **-oma** is mostly translated as **-ուռուցք** denoting tissue cancer:

Dentoma – ատամնուռուցք

Lymphoma – ճարպուռուցք

Neuroma – նյարդուռուցք

Moreover, we can come across cases, when one and the same affix may have two translated versions in Armenian medical terminology. To be more exact, the Greek suffix *-oz/-os* is translated as *-ություն* or *-ում* referring to pathological processes, suffix *-oma* refers to various diseases besides cancer, suffix *-ia* is translated as *-ցավ*, etc. For instance:

Diphtheria – բկացավ

Psychos – հոգեգարություն

Trixoma – տրիխոմառոր

Compounding: In medical terminology derivation and compounding have a great importance in forming new terms. Armenian compound medical terms have mainly been coined by foreign influence. English compounds as well as compound terms of Greco-Latin origin have been either translated or rendered into Armenian, e.g.

Chir + urgia – վիրարություն (literal translation is ձեռք + գործ)

Operatio – վիրահատություն (actually the word means գործողություն but in the field of medicine it acquires new meaning)

Sometimes some terms cannot be translated or rendered into Armenian and they become a mixture of two languages. These multi-word units, which freely combine a source language word with a receptor language element are called **hybrids**. For example:

Anatomical pathology – անատոմիայի անատոմիա

Juvenile arrhythmia – պատանեկան արիթմիա

Nervous System Sympathic – նյարդային սիմպաթիկ համակարգ

Optic nerve damage – օպտիկ ներվի վնասվածք

It is also worth mentioning that the abbreviations which have penetrated into Armenian medical vocabulary are mainly from English. Their Armenian translations can vary in their forms, but they are mainly hybrids.

DNA – deoxyribonucleic acid – ԴՆԹ / դեօքսիռիբոնուկլեինաթթու
ECG – electrocardiogram – ԷՍԳ / էլեկտրասրտագրություն
RNA – ribonucleic acid – ՌՆԹ / ռիբոնուկլեինաթթու

Loan rendition: The term is coined by Weinreich in 1970 which is an approximate loan translation. For example, the term *peritoneum* (peri + teinein + um) is of Greek origin: *peri* means ‘around’ and *teinein* means ‘to stretch’. In Armenian medical terminology it is not a word-for-word translation but a loan rendition – *որովայնային բորբոքում*.

Loan creation is another form of borrowing. If a new word is created in a language, and there is some sort of influence from other languages, even if only to a small degree, it is called a loan creation. In other words, a term is applied to new coinages which are stimulated not by cultural innovations, but by the need to match designations available in a language. For example, for the terms *urethra* and *ureters* Armenian equivalents are loan creations: *միզանցք* denoting *urethra* and *միզածորան* – *ureter*.

Loan translation (calque): Calque is a French word denoting a new word modeled after a word in other languages. In other words it is a word-for-word translation. Like loanwords calques are formed in the language because of the foreign influence. But the measure and character of influence are different. If, in case of loanwords the foreign element is imported fully, in case of calques only the inner form, i.e. semantic form is borrowed /Barlezizyan, 1997: 78/. Sometimes the same structure is borrowed and expressed in native components. For instance:

Oste + o + logia – ոսկրա + բանություն (Greek *osteon* means ‘bone’ + combining ‘o’ vowel + Medieval Latin *logia* which stands for ‘theory, practice’)

Dermat + oma – մաշկի ուռուցք (both components are of Greek origin: *dermato* means ‘skin’ + *oma* stands for ‘tumor’)

Our analysis of medical terms has revealed that in medical literature Armenian equivalents are used, e.g.

Degenerative disease – քայքայիչ հիվանդություն
Inflammation of the eyes – աչքերի բորբոքում
Pulmonary edema – թոքերի այտուց

However, sometimes loanwords that are internationally admitted words, or old borrowings which have already been assimilated in the receptor language, are more preferable in professional speech. Examples are as follows:

Cardiogram – սրտագրություն – կարդիոգրամ
Glaucoma – ներակնային ճնշման բարձրացում – գլաուկոմա
Neurosis – նյարդայնություն – ներոզ

As seen from the abovementioned examples, borrowed medical terms have undergone graphic, phonetic, grammatical as well as semantic assimilation.

- *Phonetic assimilation* comprises changes in sound form and stress. In case of Armenian, borrowings undergo graphic assimilation as well, i.e. they are transliterated.
- Most borrowed words lose their former *grammatical categories* and acquire new ones.
- During *semantic assimilation* either the whole semantic structure of a word is transferred from the source language to the receptor one, or the loanword gets one or two new meanings in the borrowed language. Polysemantic words are usually adopted only in one of their meanings.

Phonological integration: Widespread loans which entered the receptor language at an early date are often realized with borrowing language pronunciation, whereas the pronunciation of more recent and less widespread ones is often more similar to the pronunciation in the source language. The difference in phonetic structure between English and Armenian is great. Unlike English, in the Armenian language the stress is fixed and usually the last syllable of the word is stressed: for instance, the term *bronchiole* is pronounced [bró ŋg-kee,owl] in English, whereas in Armenian the stress is on the last syllable: բրոնխոլի. As seen from the example the loanword has undergone both phonetic and graphic assimilation.

Grammatical assimilation: Grammatically assimilated loanwords acquire Armenian grammatical categories and paradigms. Let us analyze the Armenian borrowed term *հայրուցիւսացիա*, which has undergone not only graphic, but also phonetic and morphological assimilation. The corresponding plural form of the term is formed by the help of Armenian suffix *-ներ* [ner] – *հայրուցիւսացիաներ*. In Armenian the category of number is expressed by the opposition of the plural form of the noun to the singular form. In Armenian the plural forms are framed by suffixes *-եր* [er] and *-ներ* [ner]; the latter being added to polysyllabic nouns, whereas monosyllabic words form the plural by adding the suffix *-եր* [er]. Thus, many loanwords have either added Armenian suffixes or replaced native plural endings with the Armenian ones.

Semantic adaptation: It is a conformation of a borrowed term to the semantic system of the receptor language. It means that a borrowed term may develop its semantic structure in the receptor language. It has been mentioned that scientific terms are generally borrowed either by the necessity to fill a gap in the vocabulary or by a chance to add a synonym to an old concept. Our analysis of the data has revealed that most medical terms are monosymentic and they do not get new meanings in Armenian, i.e. a term denotes only one phenomenon, disease, theory, etc. For example, the term *metastatic* is of Greek origin where a prefix *meta-* means ‘change’. It identifies with a Late Latin word *methistanai* standing for ‘shift of disease from one body part to another’. The Armenian medical term *մետաստատիզ* is a loanword which has undergone phonetic, graphic and

morphological assimilation but has not changed its semantic structure in the receptor language. This implies that in medical language there is mainly one word for a specific meaning and concept.

The examination of Armenian medical terminology from both diachronic and synchronic aspects enables us to conclude that Armenian medical terminology has been influenced by two main languages: Greek and Latin, though other influences can also be mentioned: Arabic, Persian. The internalization of the English language has made it the main language influencing other national languages. This is the reason that many elements of the English medical vocabulary have penetrated into different languages as well as into Armenian.

As there is a difference between Armenian and English alphabets, borrowed terms are always transliterated. Borrowed medical terms being mainly mono-semantic words, have not undergone semantic assimilation in Armenian. Many foreign medical terms have been translated into Armenian, hence we find many loan translations, loan renditions, loan creations and hybrids in Armenian medical vocabulary. It is worth mentioning that the use of loanwords is more preferable by most Armenian medical workers than the usage of their Armenian equivalents.

Understanding medical terminology is like learning a new language. If one knows the origin of a word and its meaning, it is easier to remember terms than just learn them by heart. As the scientific field, in this case medicine, grows rapidly sometimes the native word stock of a language is not enough to name new phenomenon. In this case loanwords and their corresponding equivalents are of great importance in Armenian medical terminology.

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Ա. ԳԱԼՍՏՅԱՆ, Ք. ԱՐԲԱՀԱՄՅԱՆ – Անգլերենի ազդեցությունը հայերեն բժշկական բառապաշարի վրա. – Տարբեր լեզուներում գիտության զարգացմանը համընթաց ստեղծվում են նոր եզրեր, որոնք ենթարկվում են այդ լեզուների բառակազմական ու քերականական կանոններին: Սույն հոդվածի նպատակն է ուսումնասիրել բժշկական եզրերի բառակազմական առանձնահատկությունները անգլերեն և հայերեն լեզուներում: Ուսումնասիրության արդյունքները վկայում են, որ բժշկական եզրերը հիմնականում ծագում են հունարենից և լատիներենից: Վերջին ժամանակներում փոխառությունները հայերեն են ներթափանցել անգլերենի ազդեցությամբ: Սակայն, ի տարբերություն անգլերենի, հայերենում հաճախ են հանդիպում մայրենի միավորներով նորակազմություններ և բառապարճենումներ, քանի որ հայերը էպետս կարևորում են լեզվի անաղարտությունը:

Բանալի բառեր. բժշկական եզրեր, փոխառյալ եզրեր, ազատ թարգմանություն-նորակազմություններ, բառապարճենումներ, խառնածին եզրեր, հապավումներ

А. ГАЛСТЯН, К. АБРААМЯН – Влияние английского на армянскую медицинскую лексику. – Целью данной статьи является исследование особенностей словообразования медицинской терминологии в английском и армянском языках. Результаты исследования свидетельствуют о том, что медицинские термины в обоих языках, в основном, имеют греческое и латинское происхождение. В последнее время в армянский язык проникли заимствования под влиянием английского языка. Однако, в отличие от английского, в армянском языке часто встречаются термины, образованные, при помощи единиц родного языка и калькирования, что объясняется общей тенденцией сохранения чистоты языка.

Ключевые слова: медицинские термины, заимствованные термины, свободные переводы-новообразования, кальки, смешанные термины, сокращения