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Transfer of Technology and Formation of the Technical Language: The Case of Turkish Terminology of Architecture

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ABSTRACT

Turks are a moving nation that traveled around different geographies until they came to Anatolia 1000 years ago. During this move they met different societies and adopted different customs and phrases from these societies. At the point when they began to construct new settlements; they welcomed planners and architects from the neighboring countries. In this way, various professional terminology is transferred into Turkish along with new building types and building techniques. Turkish language became a medium for them which can give clues about this history, since it is a living thing affected by the changing environments and encountering diverse factors.

The aim of this study is to uncover these clues by using the etymological traces. Nevertheless, following the etymological traces of foreign terminology transferred from Persian, Arabic, or other languages in architecture from Turkish lexicons, would uncover the Asian, Middle Eastern, and European connections of Turkish architecture and construction sector.

Keywords: Language, Construction Terminology, Architectural Language, Transfer of Knowledge

1.INTRODUCTION

Language is a medium in which the entire body of not only values but also practices, thoughts, and feelings of a society are carried in time and space. A Society conveys its thoughts, beliefs,

and customs through language as a cultural tool invisibly and imperceptibly. Therefore, it is inseparable from society and its products such as literature, art, history, and architecture (Shakib, 2011, p.118). Moreover, language is a living thing that is affected by the changing environments and encountering diverse factors. The social, economic, and historical processes affected the language, hence changes in the language can be linked with the historical happenings. It can give clues about a society and its history. This is a valid statement proved in many etymological and social studies, even valid for architecture, that developments in built environment and construction history can also be traced through language.

Despite the sovereignty of different nations, encountering cultures metamorphose each other by the transfer of know-how and technology. In this way, they first learn from each other, then they adopt the transferred knowledge and finally they recycle it according to their customs. In the end, the knowledge becomes a part of a custom of the receiver society so powerfully that even the people believe it is a native custom of product. Besides, most of the transfers are two-way transactions that both sides collaborate in metamorphose and take advantage of cultural development. In this case, the transferred knowledge became a part of both nations that they both believe it is their own custom product. Under these conditions, language is the best and the most effective way to analyze the transfer of technology and knowledge in such conditions, which carries the original clues about interactions.

This research aims to try to uncover the traces of transfer of knowledge in the domain of Turkish construction and architecture by using the historical information and etymological findings since the BC 3th century. Hence, the Asian connections of Turkish architecture and construction can be discussed.

2. THE GREAT MIGRATION OF TURKS

Turkish art interacted with the geographies between the 30th and 40th north latitudes and formed its own culture. The Proto-Turks continued their lives in the middle Asian steppes in the tribes without the formation of a certain state umbrella (Can and Gün, 2004). The Hun empire (BC 244-AC 216) established the first known Turkish state by bringing these tribes together, and have spread over a wide geographical area. They captured wide geography from the Pacific Ocean in the East to the Caspian Sea in the West; Siberia in the North and China in the South. The most

important artistic data are gained from their Kurgan graves, and their tent type structures called "yurt". It is thought that "yurts" are the formal ancestors of the Turkish tombs (Can and Gün, 2004, pp. 110-114).

The Gokturk Empire (552-753), after the Huns, again brought the Turks together, the Gokturks have dominated the political boundaries of the Hun Empire. During this period, Turkish tribes moved more freely in this geography. As relations with the Chinese state have improved, the senior government executives and merchants are influenced by Chinese culture. There were bureaucrats who had been converted to Buddhism. Gokturks built small cities and necropolises where there are Chinese influences. The Gokturk monuments are one of them.

The Uighur State (745- 840) which covers the political borders of present-day China's north and Mongolia, continued the urbanism movement, that started with Gokturk. The Uighurs who converted to Manichean and Buddhism built their own temples. Altun (1988, p.65), revealed a particular link between the Manichaeism temples and the Persian Zoroastrian temples. The first examples of the Turkish triangle which is a transition element between the dome and the walls are found in these temples. Besides, religious terminology is taken from the Sanskrit. The other new building type influenced by the Chinese is the palaces and houses. During this period, Turkish art developed in two ways. On the one hand, newly initiated urban life started in East Turkestan and on the other hand nomadic Turks living in Western Turkestan (Kuban, 1993, p.23). This binary nomadic and settled period will continue throughout the long medieval age. The nomads belong to the culture of the Eurasian steppes, while the settled one's belonging to the Buddhist and Manichean culture in the East, and the Islamic culture in the West (Kuban, 1993, p.45).

Karahan State (840- 1212) was the first Muslim Turkish state which was established around the cities of Kashgar and Balasagun and later expanded its land in the south to the Uighur country, in the west to Maveraünnehir and the west in China. In 920, the Karahanid ruler converted to Islam and supported important cultural and scientific developments for the Islamic world. Turkish is used as an administrative and public language in this period; nevertheless, the terminology of Islam is Persian because it comes from Iran. In this period, Kashgarli Mahmut wrote the first Turkish dictionary. There were also important developments in the field of architecture. The usage of the adobe was replaced with a new building material; the brick. In addition to new

building types like the madrasa, traditional buildings such as the tomb also took place in the vocabulary of Turkish Islamic architecture. Moreover, caravanserai buildings were built due to the passage of the silk road from Karahan geography.

Ghaznavid State (963-1187) was located in the present territory of Afghanistan, Pakistan, Western India, and East Iran. Although the government bodies and army were Turkish originated, the people were mainly Persian, Afghan, and Indian; and they continued the architectural development.

Later, the Great Seljuks (1040- 1307) had their political existence in an area covering Western Turkestan, Iran, Iraq, Syria, and Anatolia. But, most of their architectural edifices were built on Iranian land. After the loss of the war against the crusade and the Mongols, the Anatolian Seljuk State (1092- 1307) which was the western wing of the Great Seljuk Empire, turned into a state under the control of the Mongols. During the Anatolian Seljuk period, a significant change in buildings was observed in material use. The use of bricks which was widespread in the wide geography from Western Turkestan to Iran turned into the usage of stone in Anatolia. Another important development was about the usage of timber (Altun, 1988, p.67).

When the Ottoman Empire (1299- 1918) became a political power dominating the Balkans, Anatolia, Middle East, and North Africa; it interacted with Western culture in the western border and with Central Asian culture through Iran in the eastern border, while with the Middle East and North African cultures in the southern border.

3. TURKISH LANGUAGE IN THE LONG RUN

Cultural and historical heritage is mainly transferred by language to further generations; and language is something like a logbook of history. Therefore, to understand the richness and weaknesses of a language, as it depends on that of culture to a great extent, it is necessary to study it in relation with history. As mentioned above, Turks had many connections with diverse cultures during their long run from Asia to Anatolia. They had encountered many societies, cultures, and religions living in the immense geography they passed through during the great migration, hence, the Turkish language has carried the vestiges of Eastern and Western cultures historically and linguistically (Tosun, 2005, p.138). After all, the influence of such diverse sources that believe in different religions, have separate cultures, lifestyles, administrations, and

economies had inevitably created a hermeneutical richness in Turkish culture. As the Turks spread to large geography by migrations, they encountered many cultures, so as many languages; as a result of these contacts, there have been mutual effects and interactions between Turkish and these encountered languages.

Turks in their early periods interact in the south with the Chinese under the name of Mongols, Manchus, and Tungus[1]. Then they spread to the west and southwest, got acquainted with the Indian, and Iranian and Byzantine civilizations.

Afterward, they had met with Islam and had a close relationship with the Arab and Iranian lands. Many words from Arabic, Persian, Chinese, and Sanskrit[2] languages have entered the Turkish language at this period, but these languages do not have a structural relation with Turkish. Unlike these, Finn-Ugric, Mongolian, Tungus, Korean and Japanese languages have important structural similarities between Turkish languages. Therefore, these languages are gathered under the Ural-Altaic language family (Özyetgin,2006). During the Ottoman ages, the Turkish language was affected first with the local languages such as Greek, Roman, Armenian, etc., then after the 18th century, interactive connections were set with European languages Venetian, French, and German.

Nevertheless, such kind of immense interaction could lead to the loss of the original if the host-culture did not establish a controlling mechanism and institute for this transfer of knowledge. Therefore, on July 12, 1932, by the initiative of Atatürk, the Turkish state established an institute for the regulation of the Turkish language. This institution (Turkish Language Institute: TDK) acts as the official authority on the language (without any enforcement power), aimed to meet these problems and make editing and corrections according to a national basis. The Institution contributes to linguistic research on Turkish and other Turkic languages and is charged with publishing the official dictionary of the language (url1, 11th of August 2020). Turkish Language

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1 Early Turkish states in Central Asia.

2 Sanskrit (/ˈsænskrɪt/; IAST: saṃskṛta, Sanskrit: संस्कृतम्, also [sə̃skr̩t̪əm]) is a language of ancient India with a documented history of about 3,500 years. (Date of access: 10.08.2020 Retrieved from: http://www.wikizeroo.net/index.php?q=aHR0cHM6Ly9lbi53aWtpcGVkaWEub3JnL3dpa2kvU2Fuc2tyaXQQ)

Institute (TDK) published the first lexicon in 1944. Before that, there were private attempts such as Şemsettin Sami's Kamus-ı Turki in 1901, Şeyhülislâm Mehmed Esad Efendi's Lehcetü'l-Lugat in 18th century, Hinduşah Nahcivanî's Sihâh-ı Acemiyye in 13th century, and Divan-ı Lugat-i Türk in 11th century by Kaşgarlı Mahmut (Yavuzarslan, 2004), but that was the first state-driven attempt in defining what is Turkish.

4. MULTICULTURAL TRACES IN ARCHITECTURAL TERMINOLOGY

As a nation who had encountered many cultures, Turks adopted many customs, practices, and values to their life and also their language throughout their long run from Asia to Anatolia. Architecture is one of the encountering areas in which contagions and adaptations from other cultures are visible to educated professions such as art and architectural historians. The historians can see the traces of incomparable building elements, related construction techniques, similar decoration motifs, etc. The analogies and homologies in visible edifices are clearer when compared to other tacit traces; nonetheless, relatedness is not only limited to concrete edifices such as buildings and built environments but also in language. As language is a living thing that is affected by the changing environments and encountering diverse factors, architectural language is also a medium of this interaction. Hasol (1976) who is the writer of "Dictionary of Architecture and Building", the first technical lexicon in the Turkish language, creates the term architectural language and defines it as "the language which the architect uses during his/her professional life". In a broader view, it can be stated that architectural language is the terminology for communication used by the architects and builders, during their professional activities.

Starting from the early cultural encounters with Chinese and Indian nations, the Turkish language got many technical terminologies from Persian, Arabian, Roman, Greek, Armenian, and French, American respectively. In its early ages, Turkish was affected by Chinese culture during the BC 3th century and 9th centuries. However, as language is a living thing and opened to outer interactions, Chinese effects were replaced with Indian ones by the movement of Turkic tribes to the southwest. The Sanskrit originated terminology in architecture such as "sütun[3]" which means column derived from Sanskrit word sthūnā स्थूणा, "çadır" which means tent- the main building

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3 Sütun(tr): Originally from Sanskrit sthūnā स्थूणा.

typology of nomadic Turkish society from çhattra छत्त or "çintemani[4]" a famous decoration pattern was the remaining of this period. Afterward, Turks migrated from central Asia, spread to the west, and they got acquainted with the Persian and Byzantine civilizations. After they had met with Islam in the 10th century, they had a close relationship with the Arab and Iranian lands. Since then, the effects of intercultural influences and exchanges on the architectural language are mainly based on Arabic and Persian languages, (Eker, 2013). There are many architectural and construction terminology last from this period such as space names, for instance, mutfak (mutbak[5] - مطبخ) which means kitchen transferred from Arabic, while "pencere[6]" window is from Persian bādgīra or bādcīra بادگیره which is derived from bād "wind" and gīr "catcher"(url2 11th of August 2020 and3 11th of August 2020).

After the establishment of the Ottoman Empire as a cosmopolitan state, the Turkish architectural language developed rapidly under the Hellenistic coexistence of various nations. In this long period last for 600 years, the Turkish architectural language is flourished under the cultural mosaic of the empire including Western identities such as Roman, Greek, Armenian, Slavic, and Eastern ones as Arabic, Aramaic, and Persian. During these periods, many architectural styles and techniques are adopted and re-created so do terminology. Armenians were famous for their stonemasonry architecture, therefore many terminologies were transferred from Armenian to Turkish architectural language such as "kagir[7]" and "murç[8]", while terminology about brick masonry is from the Greek language such as "tuğla[9]" and "kiremit[10]" as brick making technology

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4 Çintamani(tr): Originally from Sanskrit Çintāmani चिन्तामणि "stone that brings luck/ a mythical gem". It is Sanskrit noun, compound of word çintā "wish, fear" and mani "crystal, gem".

5 Mutfak(tr): Word with an Arabic root, maṭbaχ مطبخ "cooking place, kitchen", root was based on Arabic verb ṭbχ.

6 Pencere(tr): Originally from Persian bādgīra or bādcīra بادگیره "vent hole". It is a compound noun of two Persian words bād "wind, breeze" and gīr "cather".

7 Kagir(tr): Originated from Armenian k'argir քարկիրmeans "masonry". It is a coumpound noun of two Armenian words k'ar քար "stone" and gir կիր "lime".

8 Murç(tr): Originated from Armenian murc մուրճ "hammer".

9 Tuğla(tr): Originated from old Greek toúgla τούγλα "brick".

was developed in Greek island since the Roman era and brick construction was a wide-spread building technique of Roman and Byzantine empires. On the other hand, the terminology about adobe masonry and wooden constructions are derived from Turkish, Arabic, and Persian origins, such as "duvar[11]", "ahşap[12]", "çekül[13]", etc.

After the 18th century Ottoman Empire establish a new relationship with its European counterparts based on modernization and reform. Hence the interactions were much more powerful with European countries such as France, Germany, England, Italy, etc. By developing relations with European countries, Turkish architectural terminology was affected especially by French and German the best allies of the Ottoman Empire in the 19th and 20th centuries. Some of these words are newly discovered terminology related to European inventions such as "karkas[14]" which means skeleton structure is a French originated word adopted in the period especially after the transfer of reinforced concrete know-how through the Hennebique System[15]. Besides reinforced concrete is the same word in French "betonarme[16]". "Fayans[17]" which means ceramic tile and "vitrifiye[18]" sanitary ware is from French. Some of the other 19th-century architectural terminologies are the ones that replaced the previous words for the same term, but this time

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10 Kiremit(tr): Originated from old Greek kéramos κέραμος "potter's clay, pottery, brick".

11 Duvar(tr): Originated from old Persian word divār دیوار/دوار, evolved from Indo-European tongue deγa- adobe and dheigh-"knead" which becomes doing mudbrick with kneading the mud.

12 Ahşap(tr): Originated from Arabic word aχşab [plural] and χaşab خشب "timber".

13 Çekül(tr): Orginated from Arabic word şāḳul شاقل "plummet".

14 Karkas(tr): Orginated from French carcasse which means "dead animal, carcass, skeleton".

15 The Hennebique system was one of the first appearances of the modern reinforced-concrete method of construction, pattented by François Hennebique in 1892. (Date accessed: 10.08.2020 Retrieved from: https://en.wikipedia.org/wiki/Fran%C3%A7ois_Hennebique).

16 Betonarme(tr): Orginated from French béton armé which means "reinforced concrete".

17 Fayans(tr): Originated from French faïence "a kind of glaze processed on pottery and articles". manufactured by this method". The French word derived from private name from "a city in Italy, Faenza".

18 Vitrifiye(tr): Originated from French word Vitrifié which means "glassy, glazed"

having a connotation about Westernization. For instance, the word "banyo[19]" derived from Italian "bagno" replaced with the word "hamam[20]" from Arabic origin, both used for the bath but banyo is a Westernized bath where hamam is an oriental place.

5. CONCLUSIONS

As the study conveyed, the architectural terminology is a reflection of the long-run history of the Turkish nation, interact with many cultures both from East and West, Asia, and Europe. Since the first interactions with Chinese nations but the Chinese traces were the most faded ones since it is the oldest. following Sanskrit traces in the architectural terminology is still visible, they were mostly unrelated words changing from a name of a decoration (çintemani) to a building type (çadır). The following interactions were with Persian and Arabic language after converting to Islam, therefore many architectural words related to Islamic lifestyle such as "cami[21]"(mosque), "minare[22]" (minaret) are from these languages. Nevertheless, the main architectural feature of Turkish mosques the dome is "kubbe[23]", a term from Aramaic language and "tonoz[24]" which means vault is a term from Greek. This is because the main transfer of knowledge and development of architectural terminology was realized under the Ottoman cultural mosaic. In this period various construction techniques, building types, building elements, or building materials were entered in Turkish as they were used in source culture such as "kagir, tuğla, ahṣap" etc. In recent centuries, architectural terminology is affected by European building terminology due to modern developments in building technology.

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19 Banyo(tr): Originated from Italian bagno which means "bath, spa".

20 Hamam(tr): Originated from Arabic word ḥammām حمّام which means "heated, spa".

21 Cami(tr): Originated from Arabic word cāmi جامع"collecting people, bringing people together".

22 Minare(tr): Originated from Arabic word manāra(t) مَنَارة which means "lantern, light tower, all kinds of tower".

23 Kubbe(tr): Originated from Aramaic / Syriac word ḳubbtā קבתא which means "globe".

24 Tonoz(tr):Originated from old Greek word tholós θολός which means round building with dome.

As Tosun (2005, p.136) quoted from Edward Sapir, something existed as substance and concept in a society is reflected likewise in its language. Indeed, the existing concept of the nomadic lifestyle, following the Hellenistic empire and Westernization in recent centuries are the notions powerfully reflected in the Turkish language.

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