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HISTORY AND TRANSLATION: A STUDY ON THE HISTORY OF TECHNICAL TRANSLATION IN TURKEY

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Hazırlayan

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Nuh Naci Atay tarafından hazırlanan "History And Translation: A Study On The History Of Technical Translation In Turkey" başlıklı bu çalışma 14.06.2012 tarihinde yapılan savunma sınavı sonucunda oybirliği ile başarılı bulunarak jürimiz tarafından Mütercim-Tercümanlık anabilim dalı Çeviri Bilimi bilim dalında Yüksek Lisans Tezi olarak kabul edilmiştir.

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CHAPTER I: INTRODUCTION

Studies on the history of translation or relation between history and translation tend to proliferate since the 'cultural turn' announced by Bassnett and Venuti in the development Translation Studies. In order to characterize this tendency it may be said that such studies are conducted to find out what history can bring to translation as a concept and as an act and also to establish a framework for a comprehensive historical picture of translation as a linguistic activity and a cultural phenomenon (Dombek, 2011). The opposite is also true; translations now are used as tools to inform us about the specific turns and domains in history : specific linguistic, social and cultural norms and situations are illuminated by means of translation in a given time and studies context. Since translation has to do with authority and legitimacy and ultimately with power (Dacier, 1992:2) translation becomes a mirror to follow what takes place in a culture and in a society in the course of history. Hence, the reasons for the growing interest in the history of translation are well situated within this background.

As a matter of fact, history of translation appeared on the curriculum in many university programmes such as the one in Canada, created by Paul Horguelin at the University of Montreal in 1970s; at the University of Ottowa school of Translators and Interpreters developed, Jean Delisle and Luis Kelly a long with Woodsworth in 1996 who have already collaborated in the book Translators Through History.

On the other hand, Translation Studies as an individual an as a multi-disciplinary scholarly field has long been in need of historical perspective in terms of methodology and theoretical model. With the developments in Translation theories which took a new turn with the initiation of a cultural outlook, strictly linguistic and purely scientific approaches have been diminished and translation in theory and practice has come to be evaluated in cultural, social and philosophical contents. According to Judith Woodsworth, since 1980's, that is after the cultural turn in Translation Studies and the adoption of a descriptive, target-oriented methodology which takes into consideration many aspects of the receiving culture and society in not only linguistically but culturally, sociologically and the like as well, translation scholars have been concerned with writing

the history of their own discipline. Anthony Berman called the construction of a history of translation the most pressing task of a truly modern theory of translation. D'hulst claims that it is time to give the history of translation the place it deserves (Woodsworth 1998:100).

A history of translation allows the Translation Studies scholar to identify the reciprocal influences of cultural norms and representations in both the receiving and the source culture. Terms put forward by post colonial theorists such as acculturation and deculturaion which describe the transference of culture in reductive fashion (Ashcroft, Friffiths and Tiffin: 2000. 213) are best be clarified and exemplified in a translation history approach , enabling the studies to gain practical as well as tangible results.

From all above inferences, one may as well need to ask what exactly is meant by the term translation history. To begin with, a definition of history in this context may be given. According to Judith Woodsworth, history has two meanings of which, one is the enquiry conducted by the historian and the second is the series of actual events in the past which are subject of enquiry (Carry 1961: 23 qtd. in Woodsworth 1998:100). A further distinction can be made between history defined as the events of the past recounted in narrative form, and historiography, which means the discourse upon historical data in certain principles and the methodology of writing history (Woodsworth 101). So far in historiography, historical domains have been divided into nations and geographical fields. Translation history has also paid particular attention to this division and, taking up countries, regions and linguistics societies. Susan Bassnett in her book *Translation Studies*, divides up her account of Translation activities using a chronological method such as Middle Ages, Renaissance etc. Nevertheless, each culture and nation has its own translation history shaped by its own circumstances. Lynne Long writes that we should discuss translation histories instead of a universal translation history (Long, L. 2007). According to Long, there are of course periods in history featuring translation that are common to many cultures. The expansion of the Ottoman Empire , The Roman Empire, the invention of printing or the Reformation all had impact on most areas of Europe and its translation activities. But, Long argues, the problem is to find way through the maze of

historical material and emerge triumphant with specific information relating to case studies in translation (Long 2007: 64).

It is exactly at this point that a history of translation in Turkey beginning from the Ottomans becomes very important for Translation Studies researchers in Turkey and abroad, since it will also allow the researcher to see and be able to accumulate knowledge about the society, language and culture in many aspects of humanities, innovation and technology. So far, studies in this respect have been increasing in number and depth as will be provided by in the Literature Review of this study; however in especially trying to map the technological developments initiated by translation movements, due attention have not been given by researchers in the Humanities. The present state of this situation in Turkey is reversible; with the development of Translation Courses and the multi-disciplinary direction these courses take are promising, academic support and opportunities for the aspiring researchers are flourishing.

1.1. Aim and Research Questions.

The principle aim of this thesis is to explore and investigate the development of technical translation in Turkey dating back to Ottoman times in order to put forward a chronological and comprehensive study as well as to see the continuity of technical translation in a historical frame. In order to carry out this investigation, a chronological study is made on the technical translation activities beginning from the Seljuks since they were the ancestors of the Ottoman state and the forerunners of technical translation in Anatolia, using Turkish or Ottoman Turkish as a linguistic medium. The research questions are focused on specifically what are translated and by whom under what conditions in the given periods since the Ottomans all the way into the Turkish Republic. The focus is predominantly on the Ottoman times since historical data about the Republic period is yet to be accumulated in a historical content. The aim, then, is to find the answers in a manner of listing the data, and to draw and present a comprehensive survey of technical translation in Turkey.

1.2. Methodology

The research questions of this thesis are explored in a historiographic and chronological manner as put forward by Woodsworth, and Delisle (1998); and earlier by Bassnett (2002). These strategies include a survey of the historiography of the Ottomans, its society, technological situation and innovations and the situation of technological developments in the Turkish Republic initiated by translations or resulted in translations in respective societies. The methodology is based on traditional textual survey and reading

1.3. Scope and Limitations

The scope of this thesis is within the boundaries of historiographical survey and, historiographical close reading. This thesis does not intend to make an assessment of why and how technical translation developed in the pictured manner. Unfortunately, the scarcity of information and lack of data in the field of technical translation in a historical perspective have prevented this study for further aspirations towards an evaluative research. It must be strongly underlined that the lack of concrete and scholarly information in the field of technical translation neither in the Ottomans and in Turkey has been the major limitation. This issue should be divorced from the situation in literary translation studies in which, more sources and academically organized studies exist in an increasing tendency.

Nevertheless, it is hoped that this thesis will provide a survey study for the researchers who want to acquire information on the history of technical translation in Turkey and will be a starting point for such an undertaking, and also will draw attraction to the scarcity of information in this field.

1.4. Review of Literature

The history and development of technical translation appear in the following publications in different contents and incorporated into the subject matter of the specific topic and

title. During the course of this thesis, the author has not come across with a special topic on the history of technical translation in all the examined literature presented below:

- *"Osmanlı Türklerinde İlim"* by Adnan Adıvar, deals with the establishment of the Ottoman Empire until the Reformation Period and it sheds light on the development of positive sciences and what sort of works was done in the field of mathematics, astronomy, physics, medicine and geography.

- In "*Encyclopedia of the Ottoman Empire",* general subjects related to the Ottoman Empire are explained briefly, alphabetically and chronologically.

- "*The Role of Translations in the Eighteenth Century in Transferring Modern European Science and Technology to the Ottoman State*" by Salim Aydüz aims at examining books translated from European languages in the field of exact and natural sciences such as astronomy, science, geography and military technology in the eighteenth century in Ottoman Empire.

- "*Osmanlı Devleti'nde Tercümanlık Ve Bab-ı Ali Tercüme Odası*" by Sezai Balcı gives information on the importance of the 'Translation Bureau' and its activities in the fielsds of Navy, State Administration and Foreign affairs

- In "*Çok Kültürlülük ve Çeviri: Osmanlı Devleti'nde Çeviri Etkinliği ve Çevirmenler"* by Sakine Eruz, general historical development of translation and the birth of translation as well as the Translation activities from the reign of Sultan Mehmed the Conqueror to the 19th century have been provided for.

- The article "*Türkiye'de Çeviri, Cumhuriyet Dönemi Türkiye Ansiklopedisi"* by Vedat Günyol draws a general frame of translation journey in Turkey in the fields of interpreter and their role in the state.

- The paper "*An Overview of Ottoman Scientific Activities*" by Ekmelettin İhsanoğlu provides an overview, with examples, of the formation and development of Ottoman science and a brief outline of scientific activities in the fields

of mathematics, medicine, astronomy and military in the light of European Science and Technology up to the end of the 19th century

- The paper "*Ottoman Educational Institution during the Reform Period*" by Ekmelettin İhsanoğlu, explains the Ottomans' revival initiatives which resulted in the education system by the help of European scientists and experts according to European standards which gave way to the transfer of Western Science and technology.

- The article "*The Introduction of Western Science to the Ottoman World: A Case Study of Modern Astronomy in Transfer of Modern Science and Technology to the Muslim World*" by Ekmelettin İhsanoğlu, gives information on the development of astronomy.

- The book "*Türkiyede Tercüme Müesseseleri"* by Taceddin Kayaoğlu points out the translation institutions founded in the Empire and explains their role and undertaking and general historical developments of these institutions

- The book "*Osmanlılarda Bilim ve Teknoloji* " by Aykut Kazancıgil gives also clear information on the developments of science and technology and the transfer of technology from the West. It is also sheds light on the type of translations in the Ottoman Empire.

- The articles "*Müteferrika's Printing Press: Some Observations*" by Hidayet Nuhoğlu and "*Formation of Ottoman Printing Culture*" by Orlin Sabev explain the establishment of the first printing house and how it turned the period into a new era in the Ottoman cultural history and the names and the number of translated works printed in the house.

- *"The Ottoman Perception of War: From the Foundation of the Empire to its Disintegration"* by Mustafa Serdar Palabıyık defines the general shape of Ottoman army from its birth to the end of the Empire and explains what kind of changes were made during the Westernization period and how translations were used to that purpose.

- *"Uyanış¸ Devirlerinde Tercümenin Rolü*" by Hilmi Ziya Ülgen points out the role of translations in the World and in the Empire in terms of creating civilizations.

- The article "*Osmanlı-Türk Tıbbı*" by İlter Uzel gives clear definition on the development of Ottoman medicine and what kind of works were translated during this process.

- The book *"The Observatory in Islam"* by Aydın Sayılı explains general development of astronomy and observatory and the prominent astronomers throughout the world and how the observatory was established in Ottomans.

CHAPTER II: BACKGROUND

2.1. THE RELATION BETWEEN HISTORY AND TRANSLATION

Translation in every phase of its production and reception moves in a historical framework which is apparent in the succession of varying methods that define it within a single culture, not only standards of accuracy, but the interpretation of the conceptual categories which that standard is based, not only discursive strategies and the very linguistic texture of translation, but the conceptual discourses that translators inscribe in foreign texts as interpretations' (Venuti, 2005: 800).

Attempts to create a link between history and translation do not specially aim to create a history of translation theory, but to track down how the course of history and the theory and practice of translation cross their ways in a chronological order.

It has been put forward by many scholars such as Herman, Venuti (2005), Long (2007) that study of the relation between translation and history combines the history of translation theory with the study of literary, social, ideological and cultural trends in which translation has played an important part. The relation between history and translation in the first place, must be taken up from the view point that regards history as recording of the past events and characters in a chronological and geographical order(Carry1961: 23 in Woodsworth 1998: 100). Within the boundaries of the above definition of history gains a deep perspective and spectrum.

Since the creation of mankind and the gradual formation of languages and cultures, translation has made possible written and oral interchange and communication. this role as bridge between languages and cultures assigns translation with the task of witnessing changes and developments taking place in the interchange and communication. Hence, translation enables the flow of development and change and yet, simultaneously it gives way to explore and investigate how they happen.

Another major importance of translation in relation with history is its capacity to contain and reproduce several ways of looking at objects and meanings. Throughout history people who were involved in the act of translation have moved along in certain contexts and conditions which may be traced in translations. Thus, translations describe situations, social and literary conditions, linguistic qualities and the translated works and authors themselves. AS it is put forward by Long, translations describe changes in literary trends, they account for regeneration of a culture, they imply changes in the society and explain the expansion and transfer of thought and knowledge in a particular era (Long, 2007: 63-77). Studying translations throughout history is necessary to many areas of technical and industrial development as well. By way of looking at the amount, content of the works translated in certain periods and in specific domains, one will be able to gain information about the features of that society and its level of developments and civilization.

With this background, it is necessary to draw a map of a specialist translation history in order to make progress in this area of research in Translation Studies. The term 'map' according to Kuhiwczak and Littau (2007: 9). is crucial since navigation in history sometimes takes place in choppy waters of issue such as politics, sociology and culture. Studying translation history involves forays into several related disciplines which may be a 'daunting' task but is also an opportunity for collaborative projects (Kuhiwczak and Littau, 10). Within this context, Long points out some issues to study in order to draw a map of history of translation such as language, literary, religious and philosophical, scientific interchange and lastly the issue of exploration and conquest (2007: 66).

Among these issues mentioned, the issue of scientific interchange studies is the core in the direction towards mapping the history of technical translation in a specific geography. This attempts deals with translation a activities in relation with the acquisition and expansion of knowledge and information on the path to development, as seen in the examples of the transfer of scientific knowledge by way of the translations from Arabic culture and civilizations in the pre-middle ages which leads one into the area of translation history, that of the Renaissance, new age and finally, our times.

The interdisciplinary nature of Translation studies in general brings forth the difficulty of making a comprehensive and ultimate study into the study of translation in any domain be it technical or literary. Nevertheless, as put forward by Long, 'defining the area of study is the first problem: after that there is much reading to be done around the subject to pick up any possible leads' (2007: 75).

2.2. THE IMPORTANCE OF STUDING TECHNICAL TRANSLATION

In general, technical translations are used as the translations of experimental and descriptive texts written in the field of science and technology. "Technical translators have traditionally been regarded as being concerned almost exclusively with matters of specialized terminology and the factual accuracy of texts" (Jody Byrne 2010: 1). Apart from other types of translations, it requires a particular study on what is going to be translated. In recent decades a rapid improvement on science and technology creates a much more complex area to be familiar with. Technical translation has been neglected by the linguists and translators in approaches to translation theory. However, with new developments in Translation Studies and in the increasing demand for the field of technical communication, studies on how to conduct technical writing and translation in this context gained importance. Studies in that field increased under the auspices of translators' associations and technical companies such as ATA, TEKOM etc. Among the researchers of technical translation, Jody Bryne comes to the fore with his book on guidelines for technical translation. In his study, Byrne puts forward that technical translation has three goals which are Clarity, Concision and Accuracy. The translator must be knowledgeable in the subject matter of the text and in the narrative norms of that technical field both in the TL and the SL. According to the Jody Byrne, aim and function of technical texts are to convey information as clearly and as effectively as possible (2010: 14).

According to, concision and correctness, the principal stylistic goals of technical writing, are simultaneously those of technical translation; an excellent technical translator is an excellent technical writer (Herman 1993:11). The primary issue in translating technical translation is to comprehend the source text and convey the information clearly to the target language readers. However it is also crucial for the translators to have the required skills in the specialist field, thus production of accurate and effective technical documentation would be available in suitable standards. It is also highlighted by Byrne that the conveyed information can also be used easily, properly and effectively in accordance with the way it is translated.

The purpose of technical translation is, therefore, to present new technical information to a new audience, not to reproduce the source text or reflect its style or language. Technical translation is a communicative service provided in response to a very definite demand for technical information which is easily accessible (in terms of comprehensibility, clarity and speed of delivery).

We can see from this however, that the stakeholders in the technical translation process are not simply the author, translator and reader. If we examine the practical circumstances surrounding the production of multilingual documentation, we can propose a number of other parties:

* Document Initiator
* Writer/Text Producer
* Translation Initiator
* Translator
* User

The information above is the stages of the formation of technical texts (Byrne, J. 2006: 12).

Jody Byrne declares in his book that considerably more attention has been devoted to issues of subject knowledge and terminology in technical translation than any other area (Newmark 1988:152), even though authors such as Wright (1993) and Herman (1993) both point out that merely being correct is not enough to ensure the quality of technical translations. Hence, to highlight only the meaning of a word may not be sufficient so a terminological research should be done. Without terminology there cannot

be a appropriate, accurate and exact translation. With the recent developments and the new innovations, a terminological database in almost every field is required.

Today, in almost every place of the world technical translation is used almost 90 % percent of world's total translation. Countries have been investing too much money on technology and technology transfer which causes sometimes big rivalries among them and this motivate and provoke them to establish co operations and unions to follow suitable innovations. CERN in Switzerland is an example to this context and some international companies also give importance to the availability of technical translation as well as Council of European Union's Resolution C411 (1998a) and EU directive 98/37/EC (Jody Byrne 2006: 15). Nevertheless, without looking at the demand for technical translation around the world, its importance cannot be understood even in the academic environment.

Consequently, we can say that translation is not the act of just by translating the words in the dictionary equivalents. As it is true with any type translation, as well as knowing the target language very well, very important. Also to know the rules of technical writing in target language is a requisite for a successful technical translation. In addition to these, the translator should have the knowledge on the subject area and be able to reach equipments which enable to carry out research at decision making processes. Only, under the presence of these conditions a clear, concise and accurate technical translation takes place (Aksoy, B. 2005: 80).

CHAPTER III: A CHRONOLOGICAL HISTORY OF THE EVOLUTION OF TRANSLATION IN THE WORLD

The general view of translation activities will be put forth in this chapter under four headings: Translation in the Ancient Times, in the Middle Ages, in the Islam World and in the later years until the 20th century in the world by focusing what are translated and by whom under what conditions in the given periods.

3.1. TRANSLATION IN THE ANCIENT TIMES

The ancient Greek word for translator-interpreter is Hermêneus, related to Hermes, the messenger of the Gods, the God that presided over travel, trade, and communications. The verb Hermêneuo means to interpret foreign tongues, translate, explain, expound, put into words, express, describe, write about. The many further meanings of the Greek word for translator-interpreter (mediator, go-between, deal-broker, marriage-broker) suggest that interpreters almost certainly had to exist during prehistory - the period before writing was even invented. In ancient times, ideas and insights used to be transferred from culture to culture primarily through travelers and tradesmen. Gradually, translation began to play, and continues to play, a key role in the development of world culture. For example, translation has played a major part in the movement of knowledge from Ancient Greece to Persia, from India to Arab nations, from Islam into Christianity, and from Europe to China and Japan (Adams. W. P. & Thelen. D, 1999:1283).

The invention of writing is considered as the dawn of science and information revolution and played a big role on development of science. Like all inventions, writing occurred because there was a need for it. Besides, it included picture writing by which humans conveyed thoughts, feelings and the other social facts. They developed systematized symbols from the drawings on the cave walls represented words and sentences that were universally recognized for meaning. With the discovery of clay it

became possible for the early merchants to use clay tokens with pictograms for trade or shipment. These tokens date back to 8,500 B.C. Gradually, the alphabet replaced pictographs and appeared to have derived from the Proto-Sinaitic alphabet. Proto-Sinaitic first appeared in Sinai and Egypt during the Middle Bronze Age, and was adapted from Egyptian hieroglyphs and dated back 1500 B.C. in the Sinaitic world. Finally, cuneiform script was used to produce some of the greatest literary works in recorded history (Alphabet, 2012).

The first usage of Public Libraries on the other hand came into being during the era of the Roman Empire. It can be said that there were 26 libraries including the Roman Emperor's library where he established near the Apollon temple. People were entitled to make free of the libraries around the country. These books in the libraries were classified into two as Greek and Latin to preserve the existence of the previous culture. At that time knowing Greek was regarded and accepted as a prior condition for achieving knowledge and for the better education that was to be attained. But while it was supposed that the libraries were opened for the usage of people, it became difficult for the people to understand the knowledge as they were produced in Latin. Hence people became unaware of the knowledge that was produced in Latin and the libraries served for a specific group of educated people . Undoubtedly the scholars were brought up with the Ancient Greek original resources one of whom was Cicero, renowned as philosopher, linguist and translator who translated philosophical works. With his translations from Greek into Latin, he invented new Latin words which were not regarded as Greek concepts such as moral, property, individual, science, image and appetite.

First Christian libraries came into being by the church in order to spread religion. These libraries kept the tradition of keeping record of the civilization dated back to Aristotle in Ancient Greek. The translation of Bible began with the opening of the libraries. The First Bible translations were made from BC.200 to AC.700 during the dominant times of Greek-Roman culture. As a result, the translation of Bible in the libraries of Ancient Christianity had the opportunity to address a wider audience (Yazıcı 2004: 54).

3.2. TRANSLATION IN THE MIDDLE AGES

In this context, the ancient time translation activities mainly focused on the religious text in accordance with the dissemination of religion among the people. This situation went on until middle age, however translation types began to change from religious text to the scientific text and this situation peaked up in 12th century. The best example of translation activities can be seen in the school of Toledo. These schools were founded in 12th and 13th century by taking example of its predecessor Bayt al-Hikma and became a center of translation which founded one of the sources of Renaissance to happen in the West. These schools generated the sources of knowledge and activated the effectiveness of translation in the West. When Umayyads captured the Iberian Peninsula, they carried the civilization to the Andalusia which they founded. Granada became a very important science and culture center, Elhamra palace still stands as an epitome of culture and civilization in that region. During this period the translation facilities took place under the rule of Halid b.Yezid b. Muaviye generally as personal initiatives (Yazıcı 2004: 60).

It was not until the twelfth century that the first college of translators from Arabic into Latin was set up in Spain, in the city of Toledo. It was founded by Don Raimundo, archbishop of Toledo from 1126 to 1151. A Benedictine monk who had been born at Agen in south-western France, Raimundo was convinced of the importance of the Arab philosophers for an understanding of Aristotle, and he decided to make their works available in Latin. Domingo Gundisalvo, archdeacon of Segovia, was one of the most eminent of the scholars recruited by Raimundo. He translated much of the encyclopedic *Kitab al Shifa'* ("Book of Healing") by Ibn Sina (Avicenna) as well as al-Ghazali's *Maqasid al-falasifah* ("The Aims of the Philosophers") and al-Farabi's Ihsa *'al-ulum* ("Catalogue of the Sciences"). But Gundisalvo knew no Arabic. He used a Jewish or Muslim intermediary to translate from Arabic into Castilian, and then put the Castilian into Latin. The most important of the Toledan translators was undoubtedly Gerard of Cremona (1114-1187). Thanks to a brief notice left by his pupils on his life and work, we know that Gerard came to Toledo after finishing his studies in Italy, in order to learn

more about the Almagest. This vast astronomical treatise by Claudius Ptolemaeus (Ptolemy), the celebrated second-century-AD Greek astronomer, mathematician and geographer, was then only available in Arabic. In fact Gerard discovered a multitude of scientific works in Arabic in Toledo, and immediately began to learn the language so as to read them and, later, to render them into Latin. He eventually translated more than seventy of them, including the Almagest, which he completed in 1175 (Ptolemy or Claudius Ptolemaeus, n.d).

Schools of Toledo had great contribution to the dissemination of scientific and philosophical knowledge in Central Europe. Especially the reference made to Aristotle by Ibn-i Rust and Ibn-i Sina on medicine, mathematics and astronomy contributed to the establishment of knowledge in the Scholastic thinking in newly founded universities. The effectiveness of these schools in 12th and 13th centuries can be divided into two linguistically. In the12th century Arabic translations were made into Latin. The translators in this period were translating for the church in order to convey the cultural heritage of Greek and Arab world. In the light of these studies, the Western world recognizes Hippocrates and Galen in the field of medicine and also reach to the Ptolemy's works on the order of universe. They also had an access to the knowledge on medicine from the Arab world as well as on arithmetic and algebra. At the beginning, these translation activities were conducted only by religious men and scientists related to church, and from Arabic to Latin for the exchange of knowledge (Yazıcı 2004: 61).

During the Middle Ages (5th century to 15th century) the dissemination of Christianity became a driving force on the development of translation. It was believed that the spread of Christianity would be possible by the intensive translation activity. According to this point, during the 8th century the Roman Catholic Church and during the 10th century the King Alfred and later on Aelfric encouraged translation activities. In Ireland translation activities carried out by the priests in the monasteries. During the 9th century, many translations were made in the field of literature from Latin into the Roman languages. In the year of 883, the first literary text ' Eulalisequenz' was adopted to the public language. Another literary text was 'Alexius' legend which was translated to the Roman languages from Latin (Aktaş, 1996: 11).

The famous translation of Josephat's "Liber gestorum Barlaam" which was published in Toledo was translated into many European languages and gained wide readership. Although it was a complete fabrication, Barlaam had major impact on Christianists and had to be recognized as a saint by the Roman Catholic Church. At these times, the Catholic Church opposed to the translation of the Bible however the first translation of Bible was made by John Wycliffle in 1330-1384. And this was followed by Tyndale and Coverdale's translations. But their translations cannot be compared with the Bible that the Martin Luter translated into German. Because Luter translated the simplest way a person could understand so he caused to the birth of German literary language (Aktaş, 1996: 12).

Another person who engaged in translation was an Italian Poet Dante during this period. Dante did not adapt to word for word translation like most of the scholars did. In order to show how the meaning lost in word for word translation, he advised people to look at the translation of Homer's word for word translation into Latin. Word for word translation continued after the death of Dante. An Italian priest Leonzio Pilato translated Nicolas Siaeras' manuscript of Iliad from Greek into Latin with word for word translation method he could not give the original meaning. In Middle Ages, translation movement reached its peak in the twelve century with which many of the scientific works conveyed in this way and professor Haskin gave the century the name 'Renaissance of the Middle Age'. James from Venice was the first person who translated Organon, the work of Aristo, from Greek into Latin (Aktaş, 1996: 13).

Raymond the Archbishop of Toledo School of Translators and he also mentored three important translators, also Archbishops, who were Johannes, Dominicus, and Ghenardus. Johannes Avendehut Hispanus was a Hispanic Jew, translator and compiler-author (also called Johannes Hyspalensis). It's not totally certain that Juan Hispano (Ibn Dawud) and Juan Hispalense are one and the same; several critics have insisted they are not. With Mose Sefardí (Petrus Alphonsus), and Rabi bar Hiyya of Barcelona, Juan Hispano is one of the three Hispanic Jews who salvage much of the Arabic scientific learning that was in danger of disappearing with the fall of the Taifa Kingdoms. One of the most important translators, his fields include astrology, philosophy, mathematics and

medicine. In astrology he translated Masallah, al-Fargani, Aby `Ali al Haiyal, Abu Mashar, al-Kindi, 'Umar ibn al-Farruhan, Ahmad ibn Yusuf ibn al-Daya, al-Battani, Tabit ibn Qurra, al-Qabisi, etc. In philosophy he produced Latin translations of Pseudoaristotle, Ibn Sina (Avicena), Qusta ben Luqa, Al-Farabi, Ibn Gabirol (Avicebron), al-Gazali, etc. As an author, his works have the virtue of being intelligent syntheses, combined with his own observations and interpretations (the latter, particularly in astrology). He collaborated closely in Toledo with Domingo Gundisalvo from 1130-1150, although he continued to translate up until his death in 1180 (The School of Translators of Toledo, n.d.).

Dominicus Gundissalinus (Domingo Gundisalvo, Archdeacon of Cuéllar) was with Juan Hispano and their patron, the Archbishop, who was one of the founders of the Toledan School. His activity extends from 1130 to 1180. He focused exclusively on philosophy, translating Greek and Arabic works and the commentaries of the earlier Muslim thinkers in the peninsula. Less faithful to the original texts, he frequently eliminated passages and added his own commentary. Gundisalvo depended on Juan Hispano for the translations from Arabic until late in his career when he controlled Arabic sufficiently to translate for himself (ex. Avicenas, Metaphysics, Al-sifa) (The School of Translators of Toledo, n.d.).

Gherardus Cremonensis, on the other hand, came to Toledo in 1167 for the search of Ptolemy's Almagest. He did not know Arabic when he arrived and until 1175 when he finished the translation of the Almagest, he relied on Jews and Mozarabs for both translation and teaching. He was a prolific translator who produced seventy one translations (listed by disciples in an appendix to his Tegni translation) of astronomical works (Greek and Arabic), physics, astrology, alchemy, medicine, logic and philosophy. Alfred of Sareshel was another important man who was an English translator and philosopher residing in Spain towards the end of the 12th century. He translated De plantis (Pseudo-Aristotle) and part of Ibn Sina's Sifa (the part on alchemy: Avicennae Mineralia) (The School of Translators of Toledo, n.d.).

Plato Tiburtinus (Plato of Tivoli) was also significant in his activities in the field of technical translation. He was an Italian mathematician, astronomer and astrologer. Resided in Barcelona where he translated from Arabic and Hebrew into Latin, though his knowledge of these languages probably wasn't great. He was assisted by Abraham bar Hiyya (or Chijja) and translated either from 1116-1138 or 1134-45. He was interested in Astrolog. He translated independently the De Nativitatibus which includes a standard treatise on the interpretation of nativities, or birth horoscopes (The School of Translators of Toledo, n.d.).

Rudolf of Bruges was Flemish astronomer and translator (Arabic to Latin) who lived in second quarter of the 12th century. There is not enough information whether he did his work in Toledo or elsewhere, but possibly, as one of his translations on Maslama Ibn Ahmad al-Magriti's astrolabe is dedicated to his friend Juan de Seville. Another important translator in the Middle Ages. Robert of Chester (of Ketton) worked in northern Spain especially on astrological treatises. He translated a treatise on alchemy in 1144, the Koran in 1143 and on al-Huwarizmi's Algebra in 1145. He resided in Spain (Archdeacon of Pamplona in 1143) from around 1140 to 1147 (The School of Translators of Toledo, n.d.).

Although the translating activity in Toledo is less brilliant and less intensive in the decades following Archbishop Raimundo's death, it continues on into the next century, overlapping with Alfonso's School of Translators. At least one translator is known to have worked in both schools. The three most important figures from this transitional period are Michael Scot, Marcos de Toledo and Hernán Alemán (Hermann the German). The transitional period also witnessed the first translations from Arabic into the vernacular.

Michael Scot translated Aristotle's work on homocentric spheres, De verificatione motuum coelestium, later used by Roger Bacon in Toledo. He also translated Aristotle's Historia animalium, 19 books, dated Oct 21 1220, but believed to have been in Toledo with the help of a translator. He was the first Latin translator of this work (used by

Alberto Magno and others until the 14th century. He was probably the translator of Aristotle's De Anima with Averroes' commentaries. It is followed by other Aristotelian works, De generatione et corrputione, Meteora parva naturalia, De substantia orbis and others of determined authorship. A (fragmentary) treatise on Divitione Philosophiae, based on al-Farabi was translated and adapted by Gundisalvo (The School of Translators of Toledo, n.d.).

Marcos de Toledo on the other hand a Spanish physician and Canon of Toledo who made translations (into Latin) around 1191-1234. He translated the Koran (al-Qur'an), dated 1209 as well as Hunayn Ibn Ishaq's versions of four of Galen's treatises: De tactu pulsus, De utilitate pulsus, Se motu membrorum, De motibus liquidis. He also translated another work of Hunayn Ibn Ishaq's Isagoge and Tegni Galieni, a series of Muslim religious treatises, dated 1213 and a Greek treatise on biology(The School of Translators of Toledo, n.d.).

Hernán Alemán (of Carinthia, Hermannus Teutonicus or Germanicus) worked in Toledo between 1240-1256 in the service of Manfred (Naples) from 1258-66 and returned to Spain where he became a naturalized citizen of the kingdom of Castile. (Bishop of Astorga 1266-72). He translated from Arabic to Latin with the help of Muderar translators. He had a prominent Spanish translation of the Psalterio from the Hebrew text. And on the other hand he translated Aristotle's Aethica Nichomachea in 1240 (Alphonso X, el Sabio, 2012).

Consequently, the translators listed above not only helped to dissemination and distribution of the texts, but they contributed to the spread of the Islamic experimental method consisting of experience, observation and analogy; which would prove to be crucial for the later development of modern science and European Renaissance. The translations, methods and in short the philosophy of The School of Translators of Toledo laid the foundations for the Renaissance, which, helped by the invention of the press, appeared two centuries later (The School of Translators of Toledo, n.d.).

3.3. Translation Activities in the Islam World

The first Arab-Islamic state was established by the Prophet Muhammed in 622. The Prophet started the message of Islam in Mecca and Medina and later on tried to spread the Qur'an message to the neighbor countries. The first phases of the conquest united the ancient civilizations in the area of the Nile, Tigris and Euphrates (Fırat). In this area Islamic civilization arose in history, developed and reached its Golden Age during the 9th century. The Islamic Science mainly emerged in South-West Asia and Egypt where these areas were regarded as the scientific centers of the whole world. With the rise of Islam and under the Umayyad and the Abbasid caliphates, the area remained as the scientific center of the world (Yavuz, E. n.d.).

The dates from about the 9th and 14th centuries are considered as the Arab golden ages by many historians all over the world the Umayyads possessed during the first century of Islam the lands which were the learning centers of ancient Greek. The Arabs established their culture and methods of ruling on these centers and these centers of learning had already moved from Athens to Alexandria later on to the Antioch. The culture they established was constituted with the synthesis of ideas from diverse cultures such as the Greek, Persian, Egyptian, Indian, and Chinese while on the other hand the new Islamic state expanded geographically in the 7th and 8th centuries. They were interested in translating scientific books from other cultures into Arabic and utilized them in developing Muslim knowledge. Within this context in the medieval period of Islam, extensive libraries established in Cordoba and Bagdad which consisted over 400.000 books such as Hippocrates' medicine, Ptolemy's geography, Aristotle's philosophy, as well as Persian and Indian works on astronomy and mathematics and they contributed to new improvements in science and technology (Yazıcı, M. 2004: 60).

Mona Baker writes the following about the translation activities in the Islam world:

> "Alexandria had been captured in 642 and the Arabs had begun to sample the riches of its great scholarly tradition. The first centers of education started to appear in the early eighth century in Egypt and Iraq, and early Abbasid caliphs subsequently begun to take an active interest in translation. The second Abbasid caliph, al-Mansur (reigned 754-75), commissioned a number of translations and set up a translation chamber. Al-Rashid (reigned 786- 809) similarly supported translation activity and enlarged the translation chamber set up by al-Mansur. But it was al-Ma'mun who founded in 830 the most important institute of higher learning Islam, which also became the most celebrated centre of translation in Arab history. **Bayt al-Hikma** (House of Wisdom) in Bagdat, functioned as an academy, library and a translation bureau." (Baker, M. 2001: 320).

During Umayyad and Abbasid times, Islamic civilization reached its peak and brought up many thinkers such as Farabi and Ibn-i Sina. Baghdad became one of the biggest scientific centers through 8th and 9th century where intensive translation facilities were carried out in the Bayt al-Hikma institutions. These constitutions also acted like a library which consisted works of mathematics, astronomy, medicine and philosophy.

These institutions served as an academy and a translation agency. Knowledge production initiated by the translations moved on to the production of the original information. These intensive translation activities in Arab culture show the active cultural life in this period. While Latin was an artificial language of science in the west, the translations in Bayt al-Hikma were made with living languages such as Arabic and Persian. This enabled the dissemination of knowledge to the people and combined with a common language, it caused the birth of the concept of 'nation'. From this point, since the Arab writing tradition comes from everyday life, it ensured the cultural unity between the people who share the Islamic religion (Yazıcı, 58-59).

After the conquest of Alexandria by the Arabs, the scientific activities shifted from Christian world to the Islam world. This conquest played a big role in transferring the studies especially moral sciences to the Islam world. At the beginning, the translation

movement had taken place in the biggest libraries of Alexandria, the highest education center of Greece, such as the Musaion library (BC 304-300). In early times many scientific studies had been translated from Persian and Greek in Alexandria and in Baghdad libraries. Unfortunately, the majority of the resources in Alexandria were destroyed during the war and invasions. The people who studied medicine and philosophy fled from Alexandria and settled in Antioch, Harran and Syria to carry out the tradition of translation and research (Eruz 2010: 38-41).

The Arabic translation of Greek classics and Eastern works started during the reign of Umayyads. According to the sources, the first translations into the Arabic in Islam world were rendered during the governor of Hımıs Halid b. Yezid b. Muaviye in the period of Umayyads (704) . Khalid was considered one of the pioneers of chemistry and he invited the scholars who knew Arabic to the Alexandria Academy and to Damascus to translate especially chemistry works which he was interested in and other subjects such as medicine, mathematics, physics and astronomy were also translated during that time from Greek into Coptic and Arabic. The head of these translators were Stephane from Alexandria. During the early days of Abbasids, translation activities accelerated.

The rise of Abbasid Caliphate, about one hundred and twenty years after the death of the prophet, marked the opening of a cultural and scientific era, important not only in the history of Islam but also in that of whole world. This was made possible by the great value attached to knowledge and culture. Consequently, an intense process of cultivation of knowledge constituted a veritably strong component in the very foundations of the emerging Islamic civilization. Moreover, this enthusiasm was far from being limited to religious and literary fields. The existence of rich Indian and Greek scientific and medical literature was gradually discovered, and an aggressive curiosity to gain access to and appropriate that knowledge resulted. A great stream of Greek and other ancient learning began to pour into the Muslim World through the then newly founded city of Bagdad as a result of systematic and intense translation activities. Translations were made into Arabic from Greek, Sanskrit, Syriac and from Pahlawi language (Sayılı, A. 2001).

But after a while, this center was closed soon in 862, during the reign of Caliph al-Mutawakkil, because of the opposition of hadith transmitters (hadis nakilcileri) and their gaining reputation and prestige in the state department. Instead of this, Huneyn b. İshak and his colleagues who occupied this area established stronger school of translation and copyright. This school carried on its activities until 10th century. Before long a new research center Dâru-l İlm followed Beytü'l- Hikme and many other institutions opened in different centers such as Alexandria, Aleppo, Jerusalem, Damascus and Tripoli gradually and in time, these centers weakened due to political and social reasons (Kayaoğlı İ. 1953: 215).

3.4. TRANSLATION ACTIVITIES IN THE LATER YEARS UNTIL THE 20th CENTURY

Middle Ages, especially the 13rd, 14th centuries are known as the centuries which introduced East to the West. Translation activities increased gradually up to the period of Renaissance (16th century). 16th century was a century where ancient culture was revived and spreaded though out Europe from Italy. As compared with translation activities with the 12th century movements of Middle age, a considerable change occurred in terms of quality and quantity. It is known that the religious works consisted of almost all translated works ratio and always word for word translation method was used for the respect of Holly. There was always restriction on the translation of Bible and the number of words were protected. Therefore a really meaningful translation of Bible could not be made because of such circumstances (Aktaş 1996: 20-22).

The translation movement during the time of Renaissance went on with the reformation movement in the Catholic Church by Luter, Zwingli and Calvin who managed to translate the Bible out of its word for word structure and by Martin Luter (1522) translated Bible into German and later other translators translated into other

languages with the equivalent meaning . In his translation of Bible, Luter didn't translate the words, but he tried to give the meaning and used the vernacular language the people spoke and understood.

In England, the period of Queen Elizabeth I was regarded as the revolution in translation. The interpreters worked hard to obtain the cultural treasures remained in the past by the way of translation. They emphasized on the literary skills of the author rather than the meaning they wrote. Some famous translators were: Sir Thomas Nort, Laurentius Vallon, Thomas Nicholls, Phileman Holland, Kaenophon, Livius, Suetenus and Plinius.

There were also famous French Interpreters who also leaded the Renaissance movement; one of whom was Calvin, translated the Bible into French from Hebrew and Greek in 1535 even though there was another translated version. Both of them were on the point to serve for the people as their counterpart Luter did and put forward an understandable version of Bible. Another French interpreter was Etienne Dolet who was also known with his article about 5 pillars of translation theory which comes down to today and maintains its validity. Another prominent work which was translated by Pelletier du Mans was *Odyssee* by Homer in 16th century(Aktaş 1996: 21).

As the translations accelerated with the inception of the Renaissance movement, some of Eastern scientist especially Farabi, Ibn-i Heysem, Bruni, Ibn-i Rüşd, Ibn-i Haldun, Ibn-i Sina were recognized by the West and the works of these scientists were translated into English, French, German, Italian and Spanish . The transfer of knowledge at these times was in the field of Mathematics, astronomy, geography and medicine. We can also mention translation of Ibn-i Heysem's works into all European languages on algebra, physics and geometry. The theory of Atom and molecules were mentioned by him and his book El-Menazır written on the subject of optic inspired Europe at universities for a long time. Other scholars like Biruni, Ibn-i Sina and Farabi and the prominent chemist Ebu Musa Cabir bin Hayyan were also accepted as one of the eminent scientist in the world by the Italian scholar Cardano (Aktaş 1996: 22).

In the 17th century, dating back to Cicero, the perception of freedom became dominant. The supporter of this perception was carried out by Denham, Cowley, George, Chapman who also contributed to the development of theory of translation. They claimed that the translation should be made in a free style method especially for the literary texts but should be avoided from the excessive freedom as Chapman reminded during the translation of *Iliad*. In France, XIV Ludvig attached great importance to translation and established a translation school 'Enfants de Langue' in 1669 where also intensive translation activities were carried out. There was also a previous example of this school established 1535 to carry out the diplomatic relations with the Turks. In England the most important person who engaged in translation was John Dreyden, translated Juvenalis (1693) and Vergilius (1697) and accepted the translation as an art and put forward the rules and pillars of this art. In Germany Martin Opitz made intensive translations he translated Sophokles's *Antigone* and Seneca's *Truva* and Sidney's *Arcadia* (Aktaş 1996: 23).

In the 18th century, a considerable study of translation was carried out on the method of translation and consequently the translators came to a consensus to end the discussions. Lord Woodhouselee wrote his book "trials on the principles of translation" and emphasized three main principles in translation. Like Woodhouselee, William Cowper was also engaged in translation (1732-17800) in England during these years. Cowper translated Homer's *Odysseia* into English in 1791. Likewise the famous poet Alexander Pope (1688-1744) translated Homer's *Iliad* (1720) as well as Odysseia into English. In Germany on the other hand, Johann Heinrich Voss translated Homer's *Odysseia* into German in 1781 and *Iliad* in 1793 (Aktaş 1996: 28)

In the 19th century, studies on translation focused on the issue of how this art should be carried out. Among those who were interested in this topic, the prominent translator Mathew Arnold argued that the source text should be translated the way how it affects its own readers, while translating it should arose the same effect on the target readers. Hence he supported the free style translating instead of word for word translating. He had many supporters in all over Europe, Edward Fitzgerald from Spain (1809-1883) was one of them who translated Aiskhylos's and Sophokles's works into

English and in 1859 translated Ömer Hayyam's *Rubaiyat* from Persian into English by following the new translation method. Newmann on the other hand opposed to the Arnold's translation method and argued that the translated texts are not an original work and thus the impression of translation should be given to the readers. Within this context, these two contrasting views were discussed between the translators. Among these, one of them was Thomas Carlyle who translated Goethe's *Wilhelm Meister* in 1824 (Aktaş 1996: 35-42).

It is seen that the translation activities in Europe accelerated and spreaded gradually throughout the centuries. On the other hand in a substantial and serious research on translation was not carried out in the Ottomans until the 19th century. After the Tanzimat Edict, turning to the West brought new understanding in culture and technology. Westernization efforts in the 19th century brought a necessity to accelerate translation in the fields of military, medicine, engineering and other technical fields.

CHAPTER IV: AN OVERVIEW OF TECHNICAL TRANSLATION ACTIVITIES IN THE OTTOMANS AND IN THE TURKISH REPUBLIC

4.1. Pre-Ottoman Technical Translation Activities

In the beginning of the second millennium A.D. the arrival of the Seljuk Turks in Anatolia started a new period in history. The Seljuks spread throughout Anatolia rapidly after their conquest of Mesopotamia and Iran. In 1071 Alparslan defeated the Byzantine emperor in the Battle of Manzikert which marked the beginning of Turks and that of Islam in Anatolia. Seljuk Turks were the first who conquered Anatolia completely under their remarkable leader Tugrul Bey who established the Anatolian Seljuk State as part of the Great Seljuk Empire. In 1080 Suleyman Shah founded the Anatolian Seljuk State, the capital of which was Konya and in 1082 conquered Kayseri. These cities were built as capital cities such as Nigde and Aksaray and they were reconstructed with caravanserais, mosques, Madrasas, and tombs.

Muslims in the early times during the reign of Sultan Melik Shah who was the most successful rulers of the State, experienced the most successful period in the field of military, science, medicine, art and politics. The theological schools were opened all over the country by the Vizier Nizam al Mulk, the most important of these was the Nizamiye Madrasa. Madrasas succeeded in developing and disseminating science through the country (Öncül, A. 2003: 69-69).

> The organization of education in Islam reveals some rather important contributions of the Turks to Islamic civilization. The madrasa system came into being during the period of Turkish rule, the first of such institution formally supported by the state being a creation of the Turkish Seljuks. In a more general sense, too the birth of the madrasa system owed much to Turkish initiative. It was developed in the region of Transoxiana and Khorasan where Turks constituted a significant part of the population, and Turkish kings of the Qarakhanid, Ghaznawid and Seljuk dynasties were the founders of the earliest of such schools. Turks appear, moreover, among the earliest bibliophiles and founders of libraries in Islam (Sayılı, A. 2004: 4).

Within this context, Seljuks played an important role on Turkish and world culture history and to the generation of later Turkish States education system. The Seljuks Sultans were also interested in science and scientific knowledge and gave positive support both financially and spiritually and for their educational and administrational autonomy.

Muhammed ibn Arslanshah of the twelfth century, the seventh king of Seljuks was very fond of astronomy and astrology. He possessed some knowledge in these fields and in the science of calendar. He gave unusual encouragement to the pursuit of learning and supported promising young students by giving them pecuniary rewards. In consolidating the intellectual foundations of the new society much concerted effort was expended and contact was secured also with cultures not so readily accessible. This was done through systematic translation. Learned people from Syria, Iraq, and Persia, people mostly belonging to the Nestorian and Monophysite sects made the majority of these translators. But there were also prominent Muslim Arabs as well as Jews and Zoroastrians as well. Harran, a pagan center representing predominantly the ancient Mesopotamian civilization, Jundisapur, a predominantly Nestorian medical center in southwestern Persia and Merv at the edge of the district of Khurasan and well within the borderlands of Central Asia where the Nestorians had set up a center, were foremost among such cultural centres. This brings us back to the region to the northeast of Iran, and we may say that in the matter of the first fruitful intellectual contacts, certain early scholars of this area were among the trailblazers in translations from Sanskrit. Likewise, the Jewish scholar Sahl ibn Rabban at Tabari from Merv figures among earliest translators of the *Almagest* of Ptolemy (Sayılı, A 2004: 8).

4.2. Technical Translation Activities in the early Ottoman State

The Ottoman Empire was founded in the late 13th century (1299) as a small principality and soon after the conquest of Istanbul; it turned into an Empire and became one of the most powerful states in the World spreading out on the lands of Byzantium in Anatolia and in the Balkans. After 1517 the Ottoman Empire dominated a very wide area from central Europe to the Indian Ocean in a very short time. While maintaining the balance of power with Europe, it maintained its presence until its defeat in the 1st World War and ended in 1923 (Amirutzes, G. 2005).

In the Ottoman Empire, there were over thirty languages and countless dialects spoken. Except for the Greek, Armenian, Jewish and Muslim population there were foreign merchants resident in Istanbul. The city hosted many Embassies. Besides Ottoman Turkish, numerous languages were spoken in Istanbul and in port cities such as Italian, French, Arabic, Persian, Armenian, Ladino (The language of the Jews from Spain), Yiddish (The language of the Jews from Germany and Europe). Byzantine was also a multilingual and multicultural Empire and also had been trading with Arabs. So, Arabic was also a spoken language in its capital Constantinople.

Soon after the conquest of Istanbul, Fatih education complex was founded for the first higher education system and university. In the 16th century with the establishment of the Suleymaniye Medreses by Süleyman the Magnificent, these institutions reached their last stage of the development. The first specialized medical center was also established to give lecture in medicine. The classical period of Ottoman Science Literature was formed around madrasas where scientist working here put out works of copyrights and translations on mathematics, astronomy medicine. These works were written by the most known languages of the scientists: Arabic, Turkish and Persian. During the rise period under the patronage of Mehmed II, the Ottoman Empire reached the summit of educational and cultural activities (İhasnoğlu, 1999: 18).

In this geography, the states established before, such as Seljuks and Ottoman Principality, multilingualism reigned over the country. Hence, interpretership was one of the important occupations which would to become one of the most respected professions through the country.

> "Interpreters played a significant role in the field of diplomatic and economic relations between the Ottoman government and Western states. The Ottomans used the word "tercuman" to refer to interpreters. This word originated from Syriac language and passed into Arabic. This word was adopted as "dragomanno" in Italian, "drogman" in French and dragoman "in English" (Gürçağlar, 2003:2).

In the Ottoman period, interpreting came out as a means of communication, long before book translation, due to political frictions or conflicts. We can say that translationship was present in the 15th century starting from Sultan Mehmet the Conqueror Period. (Günyol, 1983: 324) . Until the end of the 15th century in military and scientific fields, translations were made from Arabic and Persian as summaries and adaptations. With the conquest of new lands and cities, the expansion of boundaries necessitated interpretership which would gain great importance through the administration and political phase of the State. The social structure and political developments in the Ottoman State in the 15th century created a need to record history. After the conquest of Istanbul, the society gained a consciousness of turning into an Empire. Hence, the need to record all kinds of social, economic and cultural activities in an organized written form became important (Aksoy, 2005: 72).

> In the early years, interpreting was the main mode of translating and became institutionalized during the rule of *Sultan Mehmed* the Conqueror. Interpreters were employed by the Court for mainly diplomatic contacts in the palace and in the conquered provinces, as well as for military purposes. They had a privileged position in the Court and were mostly Greeks. It is stated that *Georgios Amirutzes* who was the Conqueror's interpreter was also supposed to brief some Greek works to the Sultan (Günyol 1985: 324).

After the Ottoman conquest of Constantinople, Sultan Mehmed the Conqueror ordered cartographer Georgios Amirutzes of Trabzon to translate Ptolemaus's *Geographiae* and to make a world map by combining his translation with earlier Arabic translations. Ottoman cartographical terminology was based upon terms from European cartography and from Islamic literature. The words harta and hartı in Anatolian Turkish, meaning map, were most likely developed by renowned Ottoman mariners Piri Reis (d. 1554) and Seydi Ali Reis (İhsanoğlu, 2000: 7) .

Amirutzes was a Christian who was born in the early years of the 15th century. He was well educated and well-known on linguistics, theology and philosophy. He fell prisoner to Sultan Mehmed the Conqueror and was rescued by a Grand Vizier. Before he got to know the Sultan of the Turks, he knew them as Barbarians. He made discussions with the Sultan on Christianity and Islam. Mehmed the Conqueror asked him for knowledge on many aspects of mathematics, geometry, theology and geography.

Ottomans had a scientific background coming from Bagdad, Horosan and Samarkand which contained and trained worldwide famous mathematicians. The methods and knowledge they put out were followed by other scholars until the end of sixteenth century (Eruz, 2004: 70).

> The Ottoman scientific literature in the classical period was produced mainly within the milieu of the madrasa. Scholars compiled several original works and translations in the fields of religious sciences as well as mathematics, astronomy, and medicine, besides a great number of textbooks. These works were written in Arabic, Turkish, and Persian, the three languages called elsine-i selâse, which Ottoman scholars knew. In the beginning, the literature was mostly written in Arabic, but from the fifteenth century onwards, Turkish was used more and more. From the eighteenth century, the majority of the scientific works were written in Turkish and upon the establishment of the first printing house in Istanbul in 1727, Ottoman Turkish became the most frequently used language in the transfer of modern sciences (İhsanoglu 2000: 5).

In Bagdad, Horosan and Samarkand many worldwide famous mathematicians were educated in the science centers in Bagdat. The knowledge produced and the methods used by other scholars in the world until the end of sixteenth century. Some of most famous mathematicians among them were : *Elbattani* (nineth century), *Sabit bin*

Kurre (ninth century), *Bozcalı Ebülvefa* (940-998), *from Harzemshah Mehmet bin Musa* (ninth century), and *Tuslu Nasirüddin* (1201-1274). Elbattani discovered the plane and spherical trigonometry; Tuslu Nasirüddin established the first concepts of noneeuclidean geometry. Harzemli Mehmet bin Musa wrote the book entitled *El-Cebr vel Mukabele.* He first introduced the term algebra into mathematics. Many famous Italian mathematicians such as Fibonacci, Cardan, Tartaglia, Ferrai acknowledged that they learnt the foundations of algebra from the Italian *translation of the El Cebr* vel *Mukabel* (Oryan, M,H. 2000: 413).

Within this context, the Ottomans built their scientific background on the previous studies and works of Islamic scholars and made contributions to the development of mathematics and algebra and to some scientific developments such as astronomy.

Consequently, the most important scientist, mathematician and astronomer in Turkish-Islamic world in the 15th century is Ali Kuscu who was born in Samarqand and died in Istanbul in 1474. He was the first person to introduce scientific astronomy to the madrasah and he was the pupil of Uluğ Bey, who founded the Samarkand Observatory in 1450. He became the director of the Samarkand Observatory following the death of Kadızade-i Rumi, and helped complete the Zic-i Uluğ Bey (Uluğ Bey Chart) (İleri, İ. 2006: 178).

He wrote twelve invaluable works written especially on mathematics and astronomy which were the core disciplines of Islamic science in the Ottoman Empire. His Works on Astronomy and Mathematics are the following:

Astronomy:

Şerh-i Zîc-i Uluğ Bey: Süleymaniye, Carullah, nr. 1493, in Persian

Risâle fî Halli Eşkâli Mu‘addili’l-Kamer

Risâle fî Asli'l-HâricYumkin fî's-Sufliyyeyn:

Şerh ‘ale't-Tuhfeti'ş-Şâhiyye fî'l-Hey'e:

Risâle der ‘İlm-i Hey'e: Written in Persian in 1457. This is one of the most important works of Ali Kuşçu on astronomy. It had a course content feature in terms of style and content. Since the copy of it can be found in about 80 worldwide libraries shows that it has been used widely. A commentary was also written on this work by Muslihuddîn Lârî in 1571. His commentary was taught in Ottoman madrasas widely. Moreover it was translated into *Turkish* by Abdullah Perviz (1579) as *Mîrkat el-semâ*. The work was also represented the Islamic astronomy in India by being translated into Sanskrit.

El-Fethiyye fî ‘İlmi'l-Hey'e(Risalet-i Fethiye) : This work of Ali Kuşçu is about astronomy and written in Arabic in 1473. This book was also presented to the Ottoman Ruler, Mehmed II on the day of his victory in Otlukbeli against Akkoyunlu Ruler, Sultan Hasan. In Risalet-i Fethiye, Ali Kuşçu calculated ‘the inclination of the ecliptic’ and his calculation of ecliptic shows very little difference from the calculation of ecliptic today.

Mathematics:

Er-Risâletu'l-Muhammediyye fî'l-Hisâb: This is a book on algebra and arithmetic written in Arabic. He wrote this book on his way to Istanbul in 1472. It was presented to the Ottoman Ruler, Mehmed II and therefore was given the name *Risalet-i Muhammediye*, the exact English translation of which is ‘*Mehmed’s Book*’. The title of the book shows the deep respect that Ali Kuşçu had for the Ottoman Ruler. The book consists of an Introduction and five chapters. It has a richer content than Ali Kuşçu’s *Risalet-i fi’l-Hisab* which is a book on arithmetic and positions of the stars, because it consists of only three chapters and an Introduction and does not contain the charts that *Risalet-i Muhammediye* does.

Risâle fil ‘İlm-i Hisâb: Risalet-i fi’l-Hisab is a book about arithmetic written in Persian in Samarqand towards the end of 1472 and it consists of 104 pages. The Persian version of the book is different from that of Arabic which has 194 pages. The book deals with calculations and positions of the stars. As to the part ‘Positions of the stars’, it was of great importance for the scholars who was interested in stellar calculations Risala fi'l-Hay'a : Treatise on Astronomy **(**Ali Kuşçu’nun Eserleri n.d.)

Some other studies in the Ottomans in technical and scientific fields which were translations or were themselves translated into other languages may be listed below:

Mawdu'at-Ulum : Subjects and classification of the sciences written by another noteworthy scholar Molla Lûtfi in Arabic during the reign of Bayezid II period (1481-1512) and compiled a book on geometry titled Tad'if al-Madhbah compiled a book on geometry on duplication of Cube which was partly translated from Greek. (İhsanoğlu, E. 2000: 7)

One of the other famous mathematician before the conquest of Istanbul was Mehmet Semseddin Fenari who was the first shaykh al-islam (muslim judge) of Ottoman Empire and a religious leader of his time who became famous on rational and apocalyptic sciences. He was an outstanding scholar in mathematics and cosmology. We know from the historical records that during the reign of Sultan Yıldırım Bayezıd and Sultan Murad I, he had the right to comment on government issues after Sultan and Sheikl ul Islam. His book about intellectual sciences was translated into European languages. But there isn't exact knowledge in which languages they were translated into.

It can be said that there was some amount of influence of the Ottoman scientists on the Europeans. This was also because of the Sultans approach to science and scientific works inherited from the Seljuk and their renowned Islamic centers Horosan, Bagdad, Samarkand. There were either scholars or administrator Sultans such as Fatih the conqueror who had a say in his field of fired arms and Islamic sciences. Fatih made a big progress on art of artillery during the preparation of the conquest and supervised for patterns of large-scale siege guns and personally occupied on production and gave instructions to the artillerymen on the science of ballistics.

Fatih did his best to educate himself and understood the importance of scientists and attached importance to increase the numbers of them. To achieve this he invited the renowned scientists to his country from the neighbor countries. The famous astronomer and mathematician and the manager of the Samarkand observatory Ali Kuşcu was one of them. Moreover he encouraged them to give better works and studies and rewarded them in both spiritual and material way. In the meantime while he was collecting the scholars

and the works in Muslim world, he also tried hard to obtain the works remained from Byzantium or the works belonged to other civilizations and translated them to both Arabic and Turkish. He also paid attention to make use of foreign scholars and took their advices on some occasions (Unat, 1999: 1-4).

Another scientist *Zigetvarlı Tezkireci Kose IbrahimEfendi* was the first to mention the Copernican system in the Ottoman world. Ibrahim Efendi translated the work of the French astronomer Noel Durrent entitled *Ephemerides Motuum Celestium Riche House ex Lansbergi Tabulis.* This book was translated from Latin first to Arabic and then into Turkish with the title of *Sajanjal Al-Aflak fi Gyahat al Idrak.* It was the first astronomy translation which was about an astronomical ruler and was used for making calendars and calculation of time (Aydüz, 2000: 504).

Another translation activity that the Ottomans were active was the translations in the field of Medicine. Early Ottoman medicine found its roots in the medical traditions of the medieval Islamic world as well as those of Central Asia and the Near East. Because of its central position straddling Europe and the East, and due to its extraordinarily diverse cultural components, the Ottoman Empire benefited from a variety of medical information and practices most importantly, from those of the Seljuks. From the founding of the Ottoman imperial dynasty in the mid-14th century until the major Ottoman reform period of the 19th century, medical knowledge, education, and practice in the empire relied on Greek, Persian, and Turkic antecedents and the unique contributions of its many ethnic and religious groups by means of large amount of translation activities.

From the start of the Ottoman Empire, and for much of the subsequent 400 years, medicine was based on an understanding of the human body and human illness that was forwarded from the ancient Greeks primarily through Persian and Arabic translations. Treatment with herbal and animal products was common and widespread among the Ottoman populace. Some 600 herbal drugs were named in Ottoman medical books compiled during the 14th and 15th centuries. For their prescriptions, Ottoman physicians

would refer to the formularies (*akrabadin*) and material *medica of ancient* and medieval physicians such as Dioscorides, Galenos, Ibn Sina (Avicenna), Ibn al-Baitar, and the Hippocratic corpus, which they could have an access by way of their translations (Gunergun. F. & Etker, Ş. 2008: 357).

In the madrasas that Sultan Mehmed the Conqueror and Süleyman the Magnificent established, many scientific subjects had been thought such as science, medicine, mathematics, astronomy and philosophy. The books which were used in these madrasas were generally the original works or the translated books from Arabic and Persian. On the other hand there were libraries that the madrasas students and professors made use of it full of this kind of translated works. Mehmet from Yanya (Yanyalı Mehmet Efendi) had translated many works from different areas such as *Physique* the work of Aristo, *Sifa* from Ibn-i Sina, *Hikmet-ül Iyrak* from Suhreverdi. Besides these, other works of Ibn-i Sina such as *Metafizik* and *Kitab el-Nefs*, *Al-Qanun fi al-Tibb (The Canon of Medicine), El-Isaret ve't Tenbihat and El-Necat* were translated consecutively (Şeşen, 2002: 337).

Early Ottoman physicians adhered to the classical medical teaching of *Galenos*, mostly edited in Arabic, but these physicians also referred to other textual sources, including Turkish translations of a 30-volume medical treatise by the famed Arab-Andalusian anatomist Abul Qasim al-Zahrawi (936–1013). This treatise, *al-Tasrif*, was a significant source of anatomical knowledge for the Ottoman physician; a translation of *al-Tasrif was made* by Sabuncuoğlu Şerefeddin (1385–1468), known as the *Cerrahiyetu'l-haniye* (Gunergun. F. & Etker, Ş. 2008: 357).

Ottoman Medicine can be classified into three as classical period, recognition of west and Modernization Period. During the classical Period (1450-1730) the medical studies were carried out on the basis of Islamic medicine theories and large complexes of Darüşşifas as the same examples in the Seljuks were the main initiatives of Ottoman medicine. Ottoman Turks had either been under effect of Medieval Islamic medicine and had been the followers and practitioners since 10th century. The first pre-Ottoman

medical institution *'Niksar Darüşşifa'* was built by Danişmendoğlu Mehmet (1170) which became an inspiration for the Ottomans. This was followed by another Darüşşifa and a medicine school established by Gıyaseddin Keyhüsrev and Gevher Nesibe in 1206 in Kayseri. The Seljuk Sultans had established many Darüşşifa's in almost every cities, and after the fall of Seljuks, the Ottomans used these centers for a long time. In these days the language of science in the West was Latin, whereas in the east it was Arabic. For this reason the Ottoman Turks had written many of their works of medicine and other scientific works in Arabic and rarely in Persian. The spread of Turkish as a written language in the Anatolia was at the end of 13th century. Through the period of Seljuks there were many prominent Muslim and Turkish physicians such as Ibn Sina (930-1003) and Beyruni (973- 1948) who also inspired both the east or the west. Even the basis of military and medicine were established at this time in the army of Celaleddin Melikşah as a mobile hospital and the Ottomans continued this tradition until the end of its rise (Uzel, İ. 1999: 485).

The Ottomans built the first hospital in Bursa during the reign of Sultan Orhan as Yıldırım Darüssifa where the period's the most prominent doctor and surgeon Şerafeddin Sabuncuoğlu (1386?-1470) worked and wrote the unique work entitled *Kitâbü'l-Cerrâhiyyetü'l-Hâniyye* (1465) which gave detailed methods of healing with illustrated surgical work. The period of Fatih the Conqueror is an important period for the development of medical facilities and improvements. He established the institution of Hekimbasılık (Reisu'l Ettiba) to organize the health issues.

Ottoman medicine protected its eastern style even after the conquest of Istanbul. The first relationship between Ottoman medicine and western medicine took place in the 17th century. The close contact of Ottomans with the west starts in pharmacodynamics and iatrologja rather than physics, anatomy and diagnosis. The relations with Europe in 17th century started with the transportation of drugs and medicine first. With the translations of some medical works the relations accelerated more and more. In this century renowned doctor Salih bin Nasrullah from Halep, with the translation of Swedish Paracelsus work "*Tıbbı cedid'ül Kimya*" into Arabic, contributed to the development of Anatolian medicine. In the next century Gevrekzade Hafız Hasan Efendi by utilizing this

Arabic work translated it into Turkish and made more contribution to this field .With a gradual increase in18th century, the works of Hekim Ömer Efendi from Iznik and Hekim Ömer Şifai Dede have an important role in the development of medicine and integration with the west. Beside this especially the translation of "*Materia Medica"* from Michel Ettmüller by Ali Münşi from Bursa and other translations from Mynsiclht and translation of "*Akrabadin"and "Düstür"* from Hungarian doctor Yorgios by Vesim Abbas and translation from a Netherlander professor Booerhaave who is accepted as the founder of today's modern medical education are the evidences that how the relations with the West in technical and scientific fields developed in this century. On the other hand the translation of Ibn-i Sina's *Kanun* into Turkish by Mustafa from Tokat shows that Ottomans still continue their relation with Islamic Medicine in this century (Uzel, İ. 1999: 486).

The knowledge on pharmacology passed on to the Ottomans from the following resources:

• The translation of *Materia Medica* from Greek by Dioscorides as "*Kitab al Haşayiş*". Pedanius Dioscorides an ancient Greek physician, botanist and pharmacolist was born in Anazabus (present near Adana,Turkey) and lived between 40 AD and 90 AD in the time of Roman .emperorsNero and Vespasian. He is well-known for his five-volume book in Greek, translated as *De Materia Medica* in Latin in which Dioscorides described the drugs of his time and explained their effects.

• The translations of Galinos's works of which the names have not been identified in the sources.

• And the works of prominent Muslim doctors: Ebubekir Razi (Rhazes, 854-932), Ebul Kasım Zehravi (Abulcasıs, 936-1013), Ebu Reyhan Biruni (Al-Biruni, 937-1048), İbni Sina (Avicenna, 980-1037), İbni Vefid (Ibn Wafid, İbni Zühr (Avenzoar, 1094-1162), İbni Rüşd (Averroes, 1126-1198) and İbni Baytar (Elbeithar, 1197-1248). The names of these people's translations have not been tracked down in the sources.

During the Ottoman period prominent doctors of medicine and pharmacology (the science of medicine) appeared and contributed to the Ottoman medicine by way of translations and manuscripts, as listed below depending on İ.Uzel (1999) as the source:

- Bahaddin Umur Paşa: Translated the works of Ibn-i Baytar "*Camiul-Müfredatül Edviye and Ağdiye*" into Turkish in the 14th century. This translation is accepted the first medical work which includes the knowledge of pharmacology
- İshak bin Murad (Geredeli) wrote the first Turkish work "*Havassül Edviye*" in 1389 which listed the medicines and explained how they could cure the diseases.
- Ahmedi (doctor and poet): In his work of "*Tervihül Ervah*", emphasized the treatment of diseases and gave information on pharmacology. This work is a summary translation of Ibn-Sina's work of "*Kanun*"
- Şerafettin Sabuncuoğlu : Lived during the reign of Fatih the conqueror. He wrote the practical treatment book of "*Mücerrebname*"in 1469. He was the first pioneer of experimental pharmacology applications. Moreover, He translated the related parts of the work of Ebül Kasım Zehravi's "*Et-tasrif*" into Turkish as *Cerrahiye-i Haniye*. In addition to this, the translated work "*Akrabadin*" from Zahirei Harzemşahi was used as a pharmacopoeia during this period
- Ali Munşi (doctor from Bursa): Translated many works in 18th century. But there is no certain information on these translations.
- Ömer Şifai (from Sinop) : He translated Paracelsus's "*Tıbbi Kimya*" from Arabic into Turkish

During the Ottoman Empire the following two books were widely used in the field of Medicine.

1) "*Edviye-i Müfrede*": Refers to substances used alone as a medicament

2) "*Akrabadin*": The meaning was treatise in Arabic, graphion in Greek and to some authorities it meant formulas, today used for pharmacopoeia. The most prominent of Akrabadin was prepared by İbn-i Sina and this part constituted the fifth volume of his

book 'Kanun'. He gave information on 800 medicine. Şerafettin Sabuncuoğlu translated the work of Zahirei Harzemşah into Turkish as '*Akrabadin*' during Fatih the Conqueror.

As the political domination of the Ottoman Empire increased and gained power gradually, most works were copyrighted on behalf of the Ottoman rulers directly. Some of them that are recorded are the following:

1. Translation of Lubab-ın Nuhab from Arabic as *Hulasa* and *Tabiatname* (given the name Tuhfe-i Mubarizi)by Hekim Bereket on behalf of Danişment Gazi

2. Translation of *Camiü'l Müfredat'ı Edviye vel-Agdiye* from Arabic by Ibn-i Baytar on behalf of Bahattin Umur Pasha (1340-1348)

3. Translation of *Kamilü's-Sına* from Persian by Ali bin Abbas el-Mecusi

4. Translation of Kitabü'ş Şifa fi ahadisül-Mustafa from Arabic as *Tıbbı Nebevi* on behalf of Umur Bey Çelebi,the grand vizier of Sultan Murat I

5. Translation of Persian *Kitab-ı Bahname-iŞahi* as *Bahname* by Nasr-ı Tusi on behalf of Germiyanoğlu İkinci Yakup Bey.

6. Translation of *İlyasiye* from Arabic by Şirvanlı Mahmud oğlu Mehmet on behalf of Menteşeoğlu İlyas Bey (1403- 1421).

7. Translation of *Bahname* from Persian by Musa bin Mesud on behalf of Sultan Murad II

8. Translation of *Hülasa-tüt Tıb* from Persian on behalf of Isfendiyaroğlu Kasım Bey

9. Translation of *Cerrahiye* from Arabic by Zahravi dating 15th century present in Manisa Library

10. Translation of Zahire Harzemşahi's *Akrabadin* from Greek by Serafettin Sabuncuoğlu in 1454 at the time of Bayezıd II and the works he wrote on behalf of Mehmed the Conqueror in 1465 as *Cerrahiye-tül Haniyye* and *Mücerrebname* in 1468. (Uzel, İ. 1999: 486-487).

4.3. Technical Translation Activities In The Later Ottoman State Until The 20th Century.

After the end of the rise period, Ottoman state became a gigantic empire which spreaded out three continents holding the most important ports from east to the south Mediterranean Sea. Showing the greatest improvement starting from the 16th century, interpretership played an important role in the domestic relations as well as the State's foreign relations. Interpreting mainly consisted of following four routes:

1. Divan-ı Humayun interpreting
2. State interpreting
3. Institution interpreting (soldiers and interpreters working in education institutions in 18^{th} century)
4. Foreign ambassadors and consulates (Günyol, 1983: 324-330).

Divan-ı Humayun was a kind of institution like today's council of ministers which gathered in the palace to carry out the important affairs of the country and accepted the petitions as a high court. The relationship between the Ottoman Empire and the Western World was carried out by the Divan-ı Humayun interpreters. The mission of this institution began in the 15th century with the rule of Sultan Mehmed the Conqueror. Until the late 18th century although the Ottoman Empire won almost all of the battles, it did not give much emphasis on diplomacy. Even until 1836 the State's external relations officer Reisulkuttab was not accepted as a member of the council and was considered as 'Rical-i Devlet' which means states man (Bilim 1990: 29).

Ottoman's first interpreters were the Christians like Georgios Aminutzer in Trabzon who had translated of some Greek works to the Mehmed the Conqueror. Since the beginning of the 16th century Divan-i Humayun interpreters who accepted Islam were given 'tımar' as salary. This situation continued until the middle of 14th century and the interpreters of Divan-ı Humayun was chosen from the Ottoman Greeks who spoke foreign language. State interpreters transferred language during correspondence and

negotiations with Jerusalem, Egypt, Peloponnese, Tripoli, Damascus, Crete, Cyprus, Belgrade, Budin and played important role especially in courts and the rights of civil proceedings.

In the Ottomans, until the beginning of 18th century, cultural relations with the West were weak. According to the Sakine Eruz, this was because of the military and political superiority against Europe, as well as considering Islamic culture as being able to meet all the needs of society which led to the feeling of self-sufficiency and self-confidence (Eruz, 2010: 57-60).

The institution interpreters were also the translators to those who were brought to Istanbul for the establishment of military and educational institutions in Western style and method at the end of the 18th century. Those interpreters worked with the French experts who were in charge of training the Nizam-i Jadid soldiers in Levet Farm Quarters, and the interpreters were called either Levent Interpreters or Levent Farm Interpreters. These Interpreter translators were often chosen from Greeks (Günyol, 1983: 325).

In the Empire, interpreting as a career appears to pass on from father to son. Those who were sent to get education in Europe from the Ottoman Muslim families brought up as interpreters and they worked as statesman especially in the negotiations with the West. The oral and written translations were done within the scope of the State relations.

The translation activities began primarily in 18th, 19th and 20th century along with the modernization initiatives carried out in every field of society. Hence, in later centuries, as the education began to corrupt in Madrasas where religious subjects were considered to be taught, Sultans (beginning from Mahmud II and Selim III) had to enact rescripts to improve the education (Balcı,2008). Hence, during the second half of the eighteenth century the new high schools and schools were founded. In order to produce the course books, texts and materials for these new schools, new translation activities started.

According to Ekmelettin İhsanoğlu, Tezkireci is an important scientist and tranlator in the 17th century Ottoman Empire. his efforts can be summed up as the following:In 1663 Tezkireci Köse again worked on the translation during his time with the Ottoman army at the winter quarters in Belgrade, this time with the encouragement of the Kâdîasker (chief judge) Ünsî Efendi (died: 1664). Tezkireci recalculated all the solar, lunar, and planetary mean motions of the zīj (originally compiled according to the meridian of Paris) and used the sexagesimal system; Tezkireci further abbreviated the tables and arranged them according to the signs of the zodiac (abrāj). He presented a copy of the work to Kâdîasker Ünsî Efendi. Later, Tezkireci Köse translated most of the introduction of the work from Arabic into Turkish, leaving a few explanations in Arabic. This became the final form of the work. In the introduction, after a brief account of the history of astronomy, Tezkireci presents explanations, arranged in 24 subchapters (talīm), which are followed by tables. In 1683, Cezmî Efendi (died: 1692), a judge in Belgrade, found a copy of the Sajanjal that had probably been given to Ünsî Efendi, and prepared another edition of the work.

From the introduction to the Sajanjal, we learn from Tezkireci that he had written another work about which he states: “For the proofs I compiled a different and new treatise (risāla), containing all operations that are easier [to use] than the Almagest, as well as compiled a work for ephemerides that are used internationally and that are more graceful and succinct than all others (İhsanoğlu,1992).

When Tycho Brahé, who improved upon Copernicus’ revolution in astronomy (In his book “De Revolutionibus Orbium Coelestium – On the Revolutions of the Celestial Spheres” Copernicus had declared that the sun was at the center of the solar system), founded the Uraniborg Observatory in Denmark in 1576. On the other hand in the Ottoman Empire the studies in this field were suspended for a long time. However, the first observatory was established almost simultaneously (1577) by Takiyüddin, a teacher from the Madrasah of Egypt, upon the permission of Murad III. Born in Damascus in 1521, Takiyüddin came to Istanbul in 1571 and was appointed the chief astrologer in the same year. Following his personal studies on the Galata Tower under unfavorable circumstances, he established one of the most significant observatories of

that century on the Pera Hill behind Tophane ("a place the color of Turqouise, towards the French palace…"), next to the French Embassy. A simple observatory building was erected on this piece of land, in addition to housing for his previously-built instruments. The observatory also had a library. In addition to reproducing available instruments in smaller size, Takiyüddin also invented several new instruments, and made observations on the Moon, the Sun, and other planets. He designed sundials and mechanical clocks, and used the clock as an instrument for observation. The comet which appeared on the sky for about a month beginning from 11 September 1577 was observed by Takiyüddin and took its place among the initial scientific studies at the observatory.

Takiyüddin made studies on almost every field especially on mathematics and astronomy. 16th century famous astronomer Copernicus (1473-1543) did not use sine function but Takîyüddîn mentioned about sine, cosine, tangent and cotangent and gave their definitions and showed their proofs and prepare their rulers in his works. His studies were translated almost all European languages and inspired many western scientist (Unat, 1999: 413).

Another astronomer, astrologer, timekeeper (muwaqqit), translator and astronomical instrument maker was Khalifazade Çınari Ismail Efendi ibn Mustafa. Mukabele-i piyade was an office under the Treasury that enlisted infantry and handled the paper work for their salaries. This was also Khalifazade Ismail's first position, and it required mathematical skills; he worked in the same office as a şakird (apprentice) in 1755, and then was promoted başhalife. Probably the earliest work of Khalifazade is a sundial that he most likely completed as an apprentice.

In 1767, Khalifazade was appointed as *muwaqqit* to the Laleli Mosque (also called the Sultan Mustafa III Mosque) and remained there until 1789. During this period he compiled or translated a number of works on astronomy, astrology, and mathematics. In 1767, Khalifazade constructed a horizontal sundial engraved on marble that is no longer extant, but which partially existed until the end of the 19th century.

The Ottoman Sultan Mustafa III (reigned: 1757–1774), who was particularly fond of astrology, asked Khalifazade to translate two studies on astronomy from French to Turkish; this indicates that he had some knowledge of French, but we have no information on how he acquired this knowledge. The first translation, *Rasad-i qamar* or *Terceme-i Zīc-i Clairaut*, was related to the movements of the Moon and was probably based on Alexis Clairaut's (1713–1765) astronomical work entitled *Théorie de la lune*. Two copies exist: The first is Istanbul, Kandilli Observatory Library MS 244 (which is the author's copy), completed in 1767 and dedicated to Mustafa III; a second copy is Kandilli Observatory Library MS 190, completed in 1767 (Hockey, T. 2007: 625).

Khalifazade 's second translation, also at the request of Muṣṭafa III, was of Jacques Cassini's (1677–1756) *Tables astronomiques du soleil, de la lune, des planètes, des étoiles fixes et des satellites de Jupiter et de Saturne* (Paris, 1740). Completed in 1772, it was named *Tuhfe-i Behīc-i Rasīnī Terceme-i Zīc-i Cassinī*. (Copies include Istanbul, Topkapı Palace Museum Library, Hazine MS 451, copied by F. Karatay in 1772 and dedicated to Mustafa III; and Kandilli Observatory Library MS 228.) This work, known as Cassini's *Zīj*, was significant for two main reasons. First, it introduced logarithms to the Ottomans; furthermore, Khalifazade added tables to the translation giving the logarithms for sines and tangents of arcs from 0° to 45° to the level of minutes, and he also provided logarithmic tables for integers from 1 to 10,000. Second, this *zīj* influenced Ottoman timekeeping. Ulugh Beg's *zīj* was abandoned during Sultan Selim III's reign (1789–1807) due to its errors (as much as 1 hour) and replaced with calendars and astronomical calculations based on Cassini's *zīj* beginning in 1800. This *zīj* was then used for almost 30 years (Hockey, T. 2007: 625).

Lasting from 1718 to 1730, the Tulip Era was a transitory period in the Ottoman Empire that was marked by cultural innovation and new forms of elite consumption and sociability. The Tulip Era (in Turkish, *Lâle Devri*) coincides with the latter half of the reign of Sultan Ahmed III (ruled 1703–1730), specifically the twelve-year grand vizierate of Ahmed's son-in-law (*damad)*, Nevşehirli Ibrahim (d. 1730). The period is known for

several breakthrough achievements, including the first Muslim printing press in the empire, various innovations in the arts and urban design, and the first cultural embassies to Europe. It is also remembered for the extravagance of the imperial court and the emergence of a Western-inspired, elite pleasure culture. The period gets its name from court society's passion for tulips, which were especially prized as a cultivar and artistic motif. Grandees imported tulip bulbs at great expense, experimented with hybridization, and, planting them by the thousand, celebrated their blooms in candlelit "tulip illuminations" in gardens throughout Istanbul (Madeline C. Zilfi 2004).

First mass translation movements began under the rule of Sultan Ahmet III under the above mentioned conditions when he came to the throne. Ottomans first attempts to contacts with Europe and serious innovation had been made which were the first examples of contacts with the cultural styles of Europe during Grand Vizier Ibrahim Pasha who was in office for about 10 years. He set up ‘Translation Committee' and had many scientific works translated into Arabic which was considered as the scientific language at that time. Also the translations of medicine, history and physics from Arabic, Persian, and Ancient Greek were translated into the Ottoman language including "*İkd-ül Cüman fi Tarih-i Ehl iz-Zaman*" from Bedreddin Mahmud Ayni, "*Habib-üs Siyer*" from Huvandmar as well as "*Şifa*" from Ibn-i Sina translated by Yanyalı Esat Efendi grandfather of Ahmet Vefik Pasha who was the favorite translator of that time. For the first time an original source from Ancient Greek "*Physica*" translated into Arabic as *Kitab-us Semaniye.*

After 1718, the sultan promoted various construction projects, including fountains, playgrounds, palaces, pavilions, and gardens along the Golden Horn and the Bosporus inspired by the example of the palace and pleasure grounds at Versailles. The plans for palaces and gardens were brought by the Ottoman ambassador to Paris, Yirmisekiz Celebizade Mehmed Efendi, who was sent there to observe diplomacy, military arts, and high culture in Europe. More than 120 such palaces were constructed under Ahmed. This era, nevertheless, was more a revival of interest in classical Islamic

culture than westernization. The sultan, himself a poet and an accomplished calligrapher, established at least five libraries- the Sultan Ahmed Library in the Topkapı Palace (1718) being the most significant prohibited the export of rare manuscripts, and founded a bureau for the translation of Arabic and Persian works to be published by the first Turkish printing house, established in Istanbul by the Hungarian convert, Ibrahim Muteferrika, in 1727 (Şaku, K. 2009: 26).

The earliest uses of printing technology in the Ottoman Empire occurred in urban centers such as Istanbul and Salonika. Printing in the Ottoman capital reflected the myriad languages and alphabets used by the diverse populations under Ottoman rule. The first book printed in the Ottoman Empire was published in 1493 in Istanbul by the brothers David and Samuel ibn Nahmias. It was a four-volume edition of the code of Jewish law in Hebrew. The Nahmias brothers were part of a wave of Jewish refugees that had been welcomed into the Ottoman Empire by Sultan Bayezid II (r. 1481–1512) after their expulsion from the Iberian Peninsula in 1492 (Ghobrial J.& P. 2008: 471).

In December 1727 the first printing house directed by Muslims was established in Istanbul by its director, Ibrahim Muteferrika (1674-1745), a Hungarian convert to Islam. Officially called the Imperial Printing House, the Muteferrika press – as it is known today printed 16 books between 1729 and 1742, making several important contributions to graphic history . The Ottoman envoy to Paris, Yirmisekiz Mehmed Çelebi Efendi, was the driving force behind the press, which was established by Müteferrika. While its books were predominantly Islamic, the Müteferrika press also produced J-B Holdermann's Grammaire Turque ("Turkish Grammar"; Istanbul, 1730), the first work in in the Latin script printed by Muslims (The Müteferrika Press, n.d).

In fact, Jewish, Armenian and Greek-Orthodox printing houses had been established during the sixteenth and seventeenth centuries but it was during the Tulip Age that printing technology with movable type was introduced to the Ottomans themselves (Sabev O. 2004: 293).

The establishment of Ibrahim Muteferrika's printing house can be considered as the beginning of a new era in our cultural history. As a result of this development, 22 volumes were printed under 17 different titles. 500 copies of each were printed on the average. Some were illustrated with drawings and maps. It seems unlikely that they reached the readers for a 'low price' as was planned. These books are listed below according to dates of publication and title.

The first published book was Vankulu Glossary (1729) in this printing center. The publications were in the fields of geography, history and literature as listed below depending on H. Nuhoğlu (2000) as the source :

1. *Tercümetu's Sıhabi'l Cevheri* (Vankulu Lügatı), Author: Ebu Nasr İsmail bin Hammad el Cevheri, *Translator:* Muhammed bin Mustafa el-Vani Efendi (32 Jan. 1729)

2. *Tuhfetu'l Kibar fi Esfari'l Bihar (on history and navigation),* Author: Katip Çelebi (29 May 1729)

3. *Tarih-I Seyyah der Beyan-ı Zuhur-ıAğvaniyan ve Sebeb-I İnhidam-I Bina-yı Devlet-i Şahan-ı Safeviyan,* Author: Judas Thaddaeus Krusinsky; *Translated* from Latin by Ibrahim Muteferrika, 26 August 1729

4. *Tarih-I Hindi Garbi el Müsemma bi-Hadis-I Nev* (Kitab-I Cedid-i İklim), Author: Emir Muhammed bin Hasan el Mesudi. 5 April 1730. The first illustrated book in Turkish to give information on the American continent.

5. *Tarih-i Tümur Gürkan* (Acaibu'l Makdur fi Navaib-i Timur), Author: Ibn Arabşah Şihabuddin Ahmed bin Muhammed, translated from Arabic from by Nazmizade Hüseyin Murtaza Bağdadi, 18 May 1730. An important reference on Timur and his conquest.

6. Tarih-i Mısır-I Kadim ve Mısır-ı Cedid, Author: Süheyli Ahmed bin Hemdem Kethüda. 17 June 1730. History of Egypt.

7. Gülşen-I Hulefa, Author: Nazmizade Hüseyin Murtaza Bağdadi. 16 August 1730. A chronology of the history of the Muslim world between 738-1721 AD.)

8. *Grammarie Turque ou Methode Courte et Facile pour Apprende la Langue Turque,* Author: Halderman P. Jean Papriste. 1730. A grammar and conservation book to teach Turkish and French students.

9. *Usulü'l Hikem fi Nizami'l Ümem,* Author: Ibrahim Müteferrika. 13 February 1732. A valuable work of political science.

10. *Füyüzat-ı Mıknatisiye,* translated from Latin in summary by Ibrahim Muteferrika. 27 February 1732. It gives information on the magnetic sphere of the earth and its relation with the compass.

11. *Cihannüma,* Author: Katip Çelebi. 3 July 1732. Geography in general and geography of countries.The number of maps changes in each copies.

12. *Takvimü't Tevarih,* Author: Katip Çelebi. 14 June 1733. An early reference on Ottoman history where events are cited chronologically.

13. *Tarih-i Naima,* Author: Mustafa Naima. 18 June 1734. Ottoman history between 1591-1659.

14. *Tarih-İ Raşid,* Author: Mehmet Raşid.Ottoman history during 1660-1721

15. *Asım Tarihi (Tarih-i Çelebizade),*Author: Çelebizade İsmail Asım Efendi. 17 February 1731. Annex to Raşid Tarihi covering history during 1721-1728

16. *Ahval-i Gazavat der Diyar-ı Bosna,* Author: Ömer Bosnavi. 19 March 1741.History of Ottoman-Hungarian war of 1736-1740

17. Lisan'ül Acem, Author: Şuuri Hasan Efendi.1 October 1742. (Nuhoğlu,H. 2000: 88)

Ottomans often sought for the solutions of practical and intellectual problems in the light of Islamic culture and science. But as a result of the Industrial and Scientific Revolution in Europe (1789), a distance occurred between Ottoman and the West. For this reason, Ottomans started to make selective quotations from Western science. Thus in course of time a transition occurred in science from Islamic tradition to the Western

tradition. For this reason the Ottoman Science is regarded as two sections: 1.Classical Period 2. Western Scientific Tradition. As the increase in the contacts with the western science and transfer from European languages, separation of the two periods became apparent.

19th century was the period when the westernization movements spread to wider areas and gained acceleration under the leadership and support of the Sultans. Generally the reforms include economic, political and cultural area together with the establishment of European institutions.

During the reign of Sultan Mahmut II, with the westernization movement, the palace intended to produce its own statesman full of competence without the aid of the Greeks. In this context many students were sent to the West including the translators' children who became multicultural statesman and scientists. Ahmet Vefik Pasha is a good example who undertook many important missions and translated many valuable works (Eruz,2010).

The translations that were carried out since the beginning of 19th century a step forward to contemporary civilization level. As a first step, these translations were made in the military area for the desire to win victories in the battles. This shows that Ottomans accepted the increased strength and political power of the West unlike the previous centuries and lost its confidence to win battles against West. In order not to lose its military superiority, with defeats in the battles, the state realized its insufficiency in the military area. As a result, the Sultans considering that science constitute the basis of knowledge, decided to bring experts from the West in order to transfer the technological opportunities (Eruz, S. 2010: 100).

Through this westernization and modernization effort first Engineering School opened in the second half of the 18th century. In the school the French and Hungarian-born translators became teachers for a long time. Most parts of the education subjects in these schools were taught via translation including medicine as after several intervals. The education was given by the foreign origined teachers until the Turkish teachers were brought up. The regular systematic military education was materialized during 1830s.

Thus these developments led to the establishment Bab-ı Ali Translation Bureau where many scientists and writers as translators would teach with the improvements occurred in the education system and contributed to and pioneered the modernization efforts with the translations and works they carried out (Eruz, S. 2010).

Bab-ı Ali was a kind of Ottoman institution serving more as a school than as a translation bureau for diplomats and government officials. This Bureau especially directed and managed the correspondence between Bab-ı Ali and foreign consulates. Sultan Selim III established Bab-I Ali which was under the monopoly of Fener Greek families and interpreters under the control of foreign affairs. Yahya Efendi a Greek origined subject was made the Chief Interpreter and he was also a teacher in the engineering school. However with the rebellion of the Greeks, the Fener Greek families lost confidence in the Palace and during the reign of Mahmut II, the last Greek translator was dismissed. Muslim teachers in engineering schools undertook this responsibility from 1821to 1833. Many well-known intellectuals of these times like Ahmet Vefik Pasha, Namık Kemal and Sinasi worked in this modern bureau where a new way of world view and political ideal developed and gave rise to develop a class of bureaucrats under a more confident basis during Tanzimat period (Yazıcı, 2004: 89).

In the nineteenth century, the importance of the role of translators increased due to the rise of the international relations and the balance policy followed mainly in the foreign affairs. From the beginning of 1838 with the reign of Sultan Mahmut II westernization initiatives grew gradually until 1908 and focused on a series of military, educational, and administrative reforms based on Western models.

Westernization followed up the rescript of Gulhane Royal Edict (Gülhane Hatt-i Humayun) which included many reforms in many areas as well as education which aimed to solve the problems that had ongoing for 150 years. It was declared on the third of December 1839 by Mustafa Resıt Pasha under the rule of Abdulmecit in Gulhane Park. This rescript aimed at modernizing and ensuring freedom of religion and human rights by the law enacted in the Criminal and Civil Procedures Code. During these reformation

steps, Ottoman junior high schools (Rüşdiye: right way to follow) were decided to be established to brought up students for the Ottoman University (Daru'l Fünun). The first official newsagent (Takvim-i Vekayi) was published on the first of November 1831 aimed to address people who were talking in different languages such as French, Arabic, Persian, Greek and Armenian. Although the most part of the people living in the Ottoman area were using a common language, they were using their own alphabet for their articles and books. It was the first official Turkish newspaper published weekly for a couple of years for the purpose of teaching the society and to announce the decision of the state (Türk Basını'nın ilk adımı Takvim-i Vekayi, 2009).

On the other hand the first Turkish Academic Board (Encumen-i Danis) was established in the middle of the 19th century between 1851 and 1862, to prepare text-books for the institution of higher education 'Darülfünün'. It was also an official scientific academy consisted of 33 domestic and foreign members who carried out the translation of many works and the production of manuscripts within the framework of the reforms. The aim of the organization was to do studies in the field of education and culture and to follow up scientific works and innovations. It was hoped that the translations or manuscripts would contribute to develop sciences, eventually spreading awareness and knowledge among citizens. On the first of July in 1951 Encümen-i Danish was established during Meclis-i Maarif-i Umumi meeting which would also take its place among the scientific institutions. Ahmet Cevdet Pasha played a big role in the opening of the institution. Among the leading members those were Ottomans such as Ahmet Vefik Pasha, Hayrullah Efendi, Hoca Ishakl Efendi as well as foreign orientalist historians such as JV Hammer, Redhouse and Bianchi. According to the information given by the institution, the number of published books were 21, 15 of them were translations and 6 of them were copyrights. The distribution of translations according to the languages were; 7 of them were in French and 3 of them in Arabic. The works generally covered the subjects which would be suitable for the higher education institution such as encyclopedic knowledge, history, geology, policy and economy but the materials prepared for the higher education was not adequate and insufficient.

The most important success of the Encümen was to translate 24 volumes of *İkd ül-Cuman fi Tarih-i Ehl-i Zaman* into Turkish. In addition, a history book of *Habib üs Siyer* from Hodmirl, a general history of *Cami-üd Düvel*, another history book about Ilkhanid state history *Matla Usn'deyn* were among the translated books. However the most interesting study of Encümen-i Daniş was the translations of the works of Aristo. 12 volume of *Tarih-i Cevdet* was another prosperity of the council by Cevdet Efendi who was the member of Encümen-i Daniş. There were some other studies of Hayrullah Efendi such as translation of *Malumat-ı Fenniye* (1851) and the history of *Devlet-i Aliye-i Osmaniye* (1864) during the first periods of the council. Suphi Pasha was another member who was assigned to translate the preface of the Ibn Haldun. Cevdet Pasha had already translated and published it in Istanbul in 1860. Moreover the translation of Ahmet Eğribozi's *'Tarih-i Kudeman Yunan ve Makedonya'* , translation of *European History* by Todoriki Efendi, translation of *Beyan ül-esfar* by Aleko Efendi about Napoleon'wars and some materials for the higher education were also conducted this council. Ahmet Cevdet Pasha prepared a report for the opening of the Encümen-i Danish in which its aims were told and presented it to Sultan Abdulmecid. This report was published in the official newspaper Takvim-i Vekayi on the first of June in 1851which was an example of a first written document in the history (İlk Türk Bilim Akademisi,2012).

This rescript addressed three important articles which focused on reformation of education system and prepared a report as follows:

1. The schools should be built and opened in suitable places to eliminate the illiteracy and to foster education which is the source of science, technology and industry.

2. The commission members and people of merit on education should come together and discuss the reforms.

3. For education of people around the country, what is required should be done immediately.

Daru'l Funun-i Sultani and Istanbul Dar'ul Muallimi started their education in 1874 with departments such as Law School, Military School, Engineering School and Literature School and first civil engineering school. During the last decade of 19th century and the early years of the 20th century the construction of railways accelerated and through this process, intensive interaction between the foreign experts and the Ottomans came to being which necessitated a large amount of translation and interpreting which unfortunately have been not recorded (Meclis-i Mebusan Tecrübemiz, 2012).

Althoug modernization initiated in the fields of medicine, law, education, military and administration couldn't continue at the same speed because of the circumstances, a considerable improvement had been achieved in these areas. These developments forced the administration to do studies on the simplification of the Ottoman language for the people to understand it easily. Encumen-i Danish took the responsibility of this issue, which was further developed by the Translation Society (Tercüme Cemiyeti). One of the mission of these committees were to develop the Turkish Language, thus they wrote up studies for this purpose and translated works of Ottoman history and science from West and East into Turkish Language.

There has been little information on the translation of physics during the first half of the 19th century. The first physics course book was translated into Turkish to be taught at Mekteb-i Tıbbıye-i Şahane and Mekteb-i Tıbbıye-i Mülkiye. The original book was P.B. Adolphe Ganot's *'Traite elemantaire de physique experimentale et de meterologie'* and published in 1876 with the name *İlm-i Mekteb-i Tabiiye* (Akbaş,2008: 94).

Another important technical translation in the later Ottoman State was on the *pharmacopoeia* which Dr. H. C. Bernard (1808-1844): wrote the first official pharmacopoeia in Ottoman Empire as "*Pharmacopea Militaire Ottamane or Pharmacopea Castrensis Otomana*". Along with the definition of the substances, the French and Latin names were added as well as the Turkish names. Another pharmacopoeia was the translation of French Codex (farmakope) , it was translated into Turkish by the lecturer of 'Fenni İspençiyari' squadron leader Hüseyin Sabri as "Düstür-ül Edviye" in 1874.

Modernization in the medical education institutions began on 14th of March in1827 by head doctor Mustafa Behçet of Tıbhane Amire (given the short name Tıbhane later) which became Mekteb-i Tıbbiye-i Adliye-i Şâhâne in 1839 in order to meet the needs of the increased surgery during the wars. Dr. Behçet became the founder of modern science education institutions and established their regulations (Uğurlu, 1997: 1).

The relationship in the field of Medicine with the West reached its peak in the 19th century with doctor Şinasizade Mehmed Ataullah (1771-1826) and the head doctor Mustafa Behçet Efendi. Especially their translations from Buffon, Plenck, Guiseppe Marshal on the treatment of syphilis, smallpox and vaccine contributed to the therapeutic area of infectious diseases. He also contributed to the opening of new modern institutions like medical and surgical institutions. They were supposed not to be for the army, but also intended to meet the needs of the physicians (doctors) of the Empire by disseminating the knowledge of medicine and surgery.

In order to expand the Western medicine in Anatolia, another renowned doctor Şanizade Mehmed Ataullah Efendi made efforts to translate the "*Miyarü'l Etibba*" from Italian and Latin on the field of Anatomy and physiology and tried to implement the application and usage of Jenner's smallpox vaccine in Anatolia. Through these efforts and some of the Turkish doctors' initiatives on the acquisition of Western medicine from the famous European doctors like Pasteur, Claude Bernard and Sappey, Ottoman Medicine was carried to a more modern position with the contributions of the doctors' acquired new methods (Uzel İ. 1999: 485-489).

Military Translation activities started in second half of the 18yh century in the Ottomans. In the years of foundation, the Ottoman Empire did not have regular troops. During the period of Osman Gazi, anyone could use a weapon would join the combat, and go on to his profession afterwards. The first regular troops were established during the period of Orhan Bey. Those forces of infantry and cavalry were formed by Turkish young men. They were comprised of troops, each of which was formed by one thousand

cavalry. They were only paid during the course of war, and would do their business during the time of peace. When those temporary soldiers with commanders having the titles of corporal, captain and major, could no more meet the needs of continuous growing state, it became inevitable to establish a permanent army which could be ready when necessary (Özcan A. 2000: 716).

The new technique "tüfeng" which was produced mainly in Bosnia and Serbia in the mid-fifteenth century aroused great interest in Ottomans. They brought this "tüfeng" from the armies they faught during the wars in Balkans and continued the production of them in their homeland factories. Naturally the first technical staff working in these factories were the Serbians. Another indicator that Ottomans could follow the warfare techniques were the experts they brought from the West and the literatures they translated mainly on these subjects. An Italian noble man Comte de Marsingli noticed the Turkish translation of Pierre Sardi's work on canonballs in Istanbul. The transfer of western technique to the Ottomans continued with the experts coming far away from the European states as well as the Christian Serbs and Bosnians (İlgürel, M 2000: 727).

Beside this, in the first half of the 15th century, Ottomans made striking advances in artillery. In the early times there was a parallelism between Ottoman artillery and other European states until the 15th century. Thanks to entrepreneurship of Sultan Fatih the conqueror, Ottomans made great developments in artillery in accordance with their own battle tactics and natural sources. It can be said that the reason of this improvement took place with the ingenuity of caster masters as well as the interests of Fatih the conqueror on ballistic of ball and his ability to understand the importance of new firearms techniques.

The Ottomans did not have an access to Renaissance and its outcomes. They also could not evaluate and follow the improvements and developments in science and technology which started in Europe in the 15th and 16th centuries. While the Western world was taking great strides in developments. Ottoman society remained behind the innovations. This situation changed the perception of the Ottomans in Europe and forced

them to follow new technical developments in Europe and to bring them into their own lands without losing much time (Kazancıgil, 2000: 309).

The sudden defeats of 1774 and 1792 against Russia, after half a century without major wars, meant that the Ottomans became acutely aware of their military inferiority. The disastrous defeat at the hands of Russia in 1829, which led to a huge number of Muslim refugees from the Black Sea littoral entering the country, made military modernization even more of a priority. Modernizing the army remained the driving force behind the whole complex of reforms, at least until 1856. The transition to an army dressed, equipped and commanded in the European manner was made from 1826 with the founding of the "Well-trained Victorious Soldiers of Muhammad" (Muallem Asakiri Mansureyi Muhammadiye). Conscription on the Prussian model, with a standing army, an active reserve and a militia, was introduced in 1844 (Zürcher, E. J. n.d.).

Although periods of reform, such as the Tulip Era and the early years of Sultan Selim III (1789 - 1807), were followed by conservative reaction, a new era of reform began between 1808 and 1826, in part because the Ottoman Empire felt threatened by rebellious European provinces and by Egypt under Mohammad Ali. In 1826, mercenaries (or janissaries) were suppressed and a regular army with an official code of regulations was established. A medical school and a military school were established in 1834. By 1840, the first grammar school and music school were opened. During the early 1840s, texts began to be translated into Turkish. The government also began to centralize with a bureau being appointed to survey the Empire. The first census was taken in 1831, and a land survey was consequently conducted. Other reforms involved transportation and communication. Between 1830 and 1850, The Ottoman modernized its roads, started to construct railways, and began to encourage newspapers. The first newspaper (in French) was established in 1831. A Turkish language paper was founded in 1832, followed by other newspapers in the 1840s (Rothman, N. C. 2007: 82).

In this context Ottomans had opportunity to follow the developments in the West closely because of the close boundaries. It is obvious that this geographical proximity made the transfer easier, besides this other diplomats and those who accepted Islam, travelers, merchants, sailors, prisoners, refugees and especially those who escaped from religious persecution in Spain and Portugal found salvation under the auspices of the Ottomans such as Jews and Moresks. These people enabled the entry of new scientific and technical knowledge into the Ottomans. This occurred in the 15th and 16th century via different methods and ways mainly in terms of translations on warfare technology, firearms, mining, cartography and compass. This direct geographical contact with Europe was an important factor that enabled the transfer of technical knowledge in the 16th century.

During the reign of Sultan Mahmut, Hüsrev Pasha began to collect military experts and translators. He secretly trained a naval infantry battalion according to the Napoleonic era French system by making use of a renegade ex-French NCO named Sardunyalı Hursid (Gaillard of Sardinia), while the administration itself was desperately looking for a model and experts. His translators rapidly translated European military manuals and regulations even though he was not well versed in reading. After nearly a year-long preparation, he staged a magnificent war game with his battalion in the presence of the Sultan and other dignitaries. Mahmud was more than amazed and immediately ordered the introduction of Hüsrev's training system, known as Hüsrevi, and soon followed the reorganization of all Mansure units according to Hüsrev's model (Yıldız, G. 2012 :4).

The first military training institutions according to Western examples were the "Humbarahane" and "Hendesehane". These were established to train the soldiers in artillery class with technical knowledge imported by way of translations. The establishment of the first engineering school in the history of the Empire took place in 1742 with the initiatives of Bonneval. Claude Alexandre Comte de Bonneval was an unusual personality. Because of this volatile combination he had to take refuge first with the Habsburgs in 1706 and then with the Ottomans in 1729. In order not to be handed back to the Habsburgs he converted to Islam and took a new name, Ahmed. His presence

was immediately noticed and Osman Pasha took him under his protection, invested him with the rank of governor general (Beylerbeyi), and tasked him to reorganize the Humbaracıs into a modern European-style technical corps (Uyar 1999). He also carried out the task of the translation of some books into Turkish such as works on trigonometry and geometry. He also encouraged some works to be produced by the Turks in those fields.

The *Hendesehane* (Mathematical School) was the first institution that was assigned separately for modern military technical education in the Ottoman Empire. The Hendesehane, which was called the *Ecole des Theories* or the *Ecole des Mathematiques* in French, was established at the Imperial Shipyard on 29 April 1775. Baron de Tott and another French expert besides the Ottoman teachers taught courses and this institution had ten students and later assumed the name of the *Mühendishane* (School of Engineering). A great number of French experts and officers came to Istanbul between 1793 and 1788, with the renewed closeness between the Ottomans and France (İhsanoğlu,2004: 3).

This education process did not go long because of the Ottoman-Russia war (1787-1788), behind the scene there occurred an alliance formed between Russia and France so all the French experts left Istanbul and the theoretical courses began to be given by the Ottoman scholors, such as Gelenbevi Ismail Efendi and Palabiyik Mehmed Efendi, the famous mathematicians (İhsanoğlu, 2004: 4).

4.4 Technical Translation Activities In Turkey

The Turkish Republic was established in 1923 following the World War I defeat of the Ottoman Empire. After the constitution of the new Republic, the new government under the leadership of Ataturk carried out drastic reforms to attain modern civilization that could develop the society. These reforms were intended to open a new world for Turkish people and to bring the society closer to the contemporary. Ataturk did his best to establish democratic institutions for the people who had been ruled by an absolute monarch for 600 years. For the integration and communication with the West, the Arabic Alphabet was replaced with the Latin alphabet for written Turkish. This reform opened a new way through West on the transfer and production of Science and Technology (Yalçın, S. 1999).

In order to attain full development and modernization several innovations began to be carried out in technical fields. Students were sent abroad by Ataturk's request under the patronage of state. For this purpose, Nazım Terzioğlu went to Germany to carry out mathematics education on behalf of the Ministry of Education. He finished his Higher education in the universities of Göttingen and Munich and completed his doctorate under the consultation of the famous mathematician Prof. Dr.Constantin Carathéodory (1873-1950). After finishing his education, Terzioğlu started his career at Istanbul University, faculty of science, Institute of Mathemathics as an assistant of Riyazı Mihanik and Higher Hendese (1937). After his becoming the Dean at Faculty of Science, he was elected Head of the Chair of the Analysis at the same faculty of the Institute of Mathematics (1953).

One of his contributions to mathematics culture and the history science was to scan the Islamic mathematical literature under his directory with a program at the Research Institute for Mathematics and brought the information of ancient mathematics about conic from the ancient world into the scientific world of today. At the end of these studies, he published two mathematical texts; one was about conic from Apollonios (MÖ

262-190), the other was the foreword of the Arabic translation of Mecmuâtü'r-*risâil* by Benî Mûsâ b. Şâkir. This work was published with the name *'Das Vorwort des Astronomen Banî Mûsâ b. Şâkir*' and it shows the transition of the work to the Islamic World.

Another important work of Terzioğlu was to get translated Salih Zeki Bey's book entitled *Asâr-ı Bakiye* and its printed version of two volumes and manuscript of its 3rd volume into Latin alphabet. He was the President of Turkish Mathematical Society. *Asâr-ı Bâkiye* was translated by the Professor. Dr.Hüsnü Hamit Sayman who was the Dean at the Faculty of Science. It's copyright belongs to the Turkish Mathematical Society.

Terzioğlu had many articles published in the field of Mathematics which can be listed as follows:

- Über Finslersche Raeume (Munich 1936). PhD Thesis.
- The start of the Theory of Functions. (Translation from Konrad Knopp, Istanbul, 1938-1939)
- Exercises in Algebra for High School (Translation from P. Aubert, Istanbul, 1960).
- Differential and Integral Calculus. (Translation from Edmund Landau İstanbul 1961).
- Translation of the work of Ibn-Al Haysem into German as *Das achte Buch zu den Conica des Apollonios von Perge re*-konstruiert (İstanbul 1974).
- Translation of *Kitâb al*-Mahrûtât into German *Das Buch der Kegelschnitte des Apollonios von Perge* (İstanbul 1981). (Terzioğlu, N. (n.d).) .

Turkey's orientation to the modern sciences and technology starts with the republican period. The opening of some research institutions date back to late 19th century: sericulture research institution in Bursa in 1888, trial and generation station in Istanbul in 1889, veterinary control and research institute in1915. With the proclamation of the Republic, in order to increase and develop productivity in agriculture, new research facilities and institutions opened rapidly. These are:

- Adana regional cotton research institute (1924)

- Bilecik trial and production station (1924)

- Rize tea research institute (1924)

- Eskişehir agricultural research institute (1926)

- Adapazı agricultural research institute (1926)

- Middle Anatolia agricultural research institute (1927)

- Tekel institute (1927)

- Malatya zootechnical veterinary research institute

- Ankara Refik Saydam central sanitation institute (1929)

In 1930s, The Republic made major breakthroughs in public sectors and in higher education. The first and fundamental step was taken for the establishment and development of scientific environment that would produce knowledge and an industry based on modern technology. The policies and decisions guiding towards the development were created and conducted by the state (Belge, 1983). In these efforts one can infer that translations played an important role but unfortunately there are accessible records of the works translated in any of the works and studies carried out on the innovations and modernization initiatives of the young Turkish Republic.

The first step for the orientation of contemporary science starts with the higher education reforms in1933. The European academics especially German academics had effect on the establishment of new universities. They were Jewish origined academics such as *Hans Ritsel* who had escaped from Hitler regime and took refuge in Turkey and they contributed to the Turkish scientific life in several departments (1983: 265). They had recognized the need to modernize its society while Germany and Austria were regressing into Fascism. As Nazis came to power, these émigré professors and professionals who were notable in their fields, but were mostly Jewish and were opposed to Nazism, left an indelible mark on Turkey on their way to their ultimate destinations in the west (Reisman, 2006: 5).

Germany's loss proved to be a gain for the new Republic of Turkey. German-speaking Europe's grievous developments followed the creation of the Turkish Republic by no more than one decade, ten years after the end of Turkey's prolonged War of Independence. The Ottoman Empire's rule was abolished and in July 1923, the *Lausanne Treaty of Peace* with Great Britain, France, Greece, Italy, Turkey, and others was signed. In mid-October, Ankara became the capital of the new Turkish State. On October 29, the Republic was proclaimed. These developments were followed in short order by radical social and economic reforms championed by modern Turkey's founder and its first president, Kemal Atatürk. He was a career military officer turned revolutionary and statesman. However, for its system of higher education, the Republic of Turkey inherited around three to four hundred Ottoman vintage (Islamic) madrasas, the Dar-ül Fünun ("house of knowledge" in Arabic), a fledgling state university model using Turkish and French professors. It also had three military academics. Toward the end of the 19th century, due to the urgency of wars, the military academies were upgraded to include instruction in western science taught for the most part in French by expatriate French military officers, the empire's lingua franca. One such academy became a civil engineering school in 1909 and early in the Republican era it evolved into the Istanbul Technical University (Reisman, 2006: 7).

Within this context, for the purpose of opening new modern universities, Atatürk planned to take advices of foreign experts and wanted to receive a report including the possible framework of the new higher education institute. 'Darülfünun' remained from the Ottomans had still been operating at that time. Darülfünun, was the first and unique higher education institute during the Ottoman period and the first ten years of Turkish Republic. Based on the report by invited Swiss Professor Albert Malche and by Ataturk's order, the first higher education reform was made. The 2252 Code aimed at building a modern university in 1933. In accordance with Malche's report and Ataturk's reform, European model of administration and education was accepted in the Turkish universities (Namal, Y. & Karakök, T. 2011).

Altogether, approximately 300 academicians and 50 technicians and supporting staff went to Turkey. Including family members, this meant more than 1000 persons. Most thrived in Turkey. Most were given university positions as Ordinarius professors and as professors both in Istanbul and Ankara. Some received appointments at the Academy of Fine Arts. These refugees included leading professors, research scientists, physicians, dentists, attorneys, architects, urban planners, engineers, artists, librarians, conservationists, and laboratory workers as well as hundreds of lesser-status professionals. At the outset, Turkey's government attempt to give the émigrés every possible facility to carry out their work. Great sums were spent on equipment for laboratories and for hospitals (Reisman, 2006: 9).

Consequently, universities became an excellent venue for the transfer, expansion and circulation of technical and scientific knowledge and laid the foundations for the establishment of technical innovations and advances throughout the country by way of translations such as the following in various fields depending on Istanbul University Library records as the source :

The translation of Prof. Dr. E.Finlay Freundlich and Dr. W. Gleissberg's *Astronomy* by Assoc. Prof. Dr. Fahir Yeniçay in 1937, Istanbul University Publication,

The translation of Weiland Gattermann's book *Organik Kimya Laboratuvarı* (The original title does not exist) by Dr. Naci Bekir Ortabaşı-Assoc.Prof.Dr. Cemil Dikmen-Lütfi Ergener in 1940, Istanbul University Publication,

The translation of Prof. Maunice Gignoux's *Stratigrafik Jeoloji* (no original title)by Prof. Dr. Hamit Nafiz Pamir in 194, Istanbul University Publication,

The translation of Prof. Dr. Otto Hahn's *Atom Enerjisi ve Atom Parçalanması by Prof. Dr. Rasim Tulus and Assoc. Dr. Sait Akpınar in 1951,* Istanbul University Publication,

The translation of Prof. Dr. Alfred Heilbronn's *Nebat Biyolojisi* by Assoc. Dr. Sana Akdik in 1943, Istanbul University Publication,

The translation of Prof. Heinrich Remy's *Anorganik Kimya* by Assoc. Prof. Baha Erdem in 1948, Istanbul University Publication,

The translation of John Ainsworth H. *Asırlar Boyunca Kağıt* by Prof. Dr. Savni Huş in 1962, Istanbul University Publication;

The translated works of science and technology which paved the way for the development of similar sciences in Turkey are concrete examples of the enormous weight played by translations in recording the history of the development of science and technology in Turkey. Another important feature that comes to the fore about the role played by translations in this direction is the translation manuals prepared by Istanbul University in various subjects such as the following:

Tınaz, Rasin: Fen ve Kimya Fakülteleri için Çeviri Kursları Çalışma Kılavuzu, İU Publications, 1980 Reprint 1982;

Tınaz, Rasin: Tıp, Eczacılık ve Dişcilik Fakülteleri için Çeviri Kursları Çalışma Kılavuzu, İU Publications, 1976.

Ernst Reuter was one of the refugees who lived in exile in Turkey for more than 12 years, taught at Ataturk University on city and town planning. Consequently, the invitation of Ataturk, approximately eight hundred scientists, artists and politicians came to Turkey. Alfred Heilbronn ve Curt Kosswig established the Botanic Institute in Istanbul and Turkey's first national park. Paul Hindemith ensured the rehabilitation of Turkish conservatories entirely. The Lawyer Ernst E. Lawyer, took part in the preparation of Law Faculty at Istanbul University and Turkish Commercial Code. On the other hand Fritz Neumark prepared the Income Tax Act and architect Bruno Taut built the Turkey Grand National Assembly in Ankara. Many of the scientists returned to Germany after the war but they never forgot Turkey's support during the German's darkest period. Today the name of German school in Ankara is "Ernst-Reuter-School" (Zuckmayer, E. (n.d)).

Because of longstanding ties between Turkey and Germany and recognizing the opportunity that presented itself, Turkey invited Philipp Schwarz to Ankara for meeting with representatives of the government. Schwarz had brought with hi a list of names from the Notgemeinschaft, and provided these names to his Turkish counterparts. Their mission was to select individuals with the highest academic credentials in disciplines and professions most needed in Turkey. Minister of Education Reşit Galip arrived with a complete list of professorship at the university of Istanbul. In his memories, Fritz Neumark, one of the émigré professors who went to Turkey, describes the day when Schwarz sat down with his Turkish counterparts as "the day of the German-Turkish miracle". However the German professors were meant to stay only until their Turkish pupils, their assistants and lecturers, could take over these positions. Therefore, five-year contracts became the rule. Courses were to be taught as soon as possible in Turkish, using textbooks which had been translated into Turkish as well (Reisman, 2006: 9).

On the other hand, the economy and financial situation were terrible in the very early years of the Republic and there was not enough source for the reconstruction. The

country needed to be reconstructed with its all departments including trade, agriculture, cities, villages, bridges etc. In all that work carried out, translations had an important place in terms of investigating, processing and manufacturing knowledge and information. As it has been constantly emphasized in this study, we have been unable to have access to a comprehensive research or record of works translated within this framework. Hence, inferring the role and weight of the translation can be made by means of the method of deduction after examining the events of those years.

Within this context some reconstruction program applied in the 1920s as follows:

- Nationalization of infrastructure facilities, development of transportation network

- Renovation of the cities that damaged during the war

- Building up the capital and its foundation initiatives

- Settlements of the Immigrants

In addition to the financial problems, the building industry inherited from the Empire consisted of one or two lumber, cement and brick factories. The construction and building methods were dependent entirely on imported materials. The reconstruction of Anatolian cities and towns was closer to almost %0 percent. During the 5 years of postwar period except Ankara, there were not many investments. The major examples of the first republican works of official construction activities were seen in Ankara, Izmir and Konya because of the budget deficit. The institutions which were built by the foreigners were the following :

1. Building of the General Directorate of Ziraat Bank, Ankara, 1927; architecture: G. Mongeri

2. Building of Ottoman Bank, İzmir and Ankara, 1926/1927, architecture: G. Mongeri

3. Building of the General Directorate of Tekel, Ankara, 1928, : G. Mongeri

4. Building of the General Directorate Is Bank, Ankara: G. Mongeri (Batur, A. 1983).

The representation of well-known early example of modern architecture building is the building of ministry of education in Sıhhıye in Ankara (1926-1927) by architect Teodor Post. The other official constructions followed. Modern tendency of architecture accelerated after H.Jansen's winning the master plan of competition in Ankara in 1928. The first applications in Architecture were done by foreigners. There are not enough information on the architects who worked for civil architecture. For the establishment of Ankara as the capital and two names come forward:

Those were Clemens Holzmaister and Ernst Egli.

Both of them had an important role on the development of the architecture. Clemens Holzmeister developed his Yansen plan. Holzmaister's plan started in 1928 in the 'Yönetim' street constructing the following buildings:

- Ministry of Defence (1927- 1931)

- Head of General Staff (1929 - 1930)

- Presidential Palace (1930- 1932)

- Ministry of the Interior, General directorates of Police and Gendarmeri (1932)

Ministry of Public Works, Supreme Court, Ministry of Trade and Central Bank were also part of Holzmaister's project. The Holzmaister's great building of Turkish Grand National Assembly was his most important achievement. The Presidential Palace that he designed for Ataturk is the most modern of his works.

On the other hand, *Ernst Egli* became an academic staff, consultant and architecture between 1927-1940 and 1953-1955. His major works are:

-Conservatory (1927-28)

- Court of Account (1928- 1930)

- Trade School (1930)

- Political Science School (1936)

The most significant effect of his architecture was originated from his being an academic at the school of fine arts. He contributed to the formation of contemporary Turkish architecture in line with Turkish culture.

Technical translation activities in Turkey developed and accelerated along with the developments in science and technology in the country. With the establishment of institutions of science and technology and the opening of the universities, the formation of disciplines and the applications and production in industry necessitated vast amounts of translations for the transference of information and knowledge; as well as for having an access to the innovations in the west. Universities and institutions such as Tubitak, Atom Enerjisi Kurumu and all the state run industry offices (MKE, TÇS etc.) carried out extensive translation activities which were either published or not published in their own domain.

The present state of translation activities in technical field is prosperous and an immense amount of publications are available in that respect. Nowadays translations of such kind are being carried out mainly in private companies. The abundance of technical translation in Turkey in the present times and initiatives in the fields of towards setting down standards in technical writing and technical translation promise the future researcher in the field of technical translation history a large number of data for studying an account of the accumulation of scientific and technical knowledge in Turkey and will bring the study of a general history of translation a step forward.

CHAPTER V: CONCLUSION

Translation Studies has taken a distinctive turn towards multidisciplinary nature in the late 20th and early 21th centuries. Translation scholar have been discussing terms to describe Translation Studies multidisciplinary and inter-disciplinary qualities that have had influence on the formation and development of disciplines such as literary studies, post colonial studies, socio-linguistics and history as a result of understanding something of what happens when translation takes place has come to be seen as necessary and important (Bassnett 2009:4).

The relation between history and translation, in the content of this thesis, seems to be twofold: one is the historical task of translations as a source of inspiration and a standpoint to dive into a historical survey of scientific and technical developments and innovations in a society in a specific domain, the other is its capacity as a driving force to ignite progress and change in societies through transferring knowledge and information.

Within this context, the flow of translation activities starting from the very early periods (Ancient Times), increased during the Roman time with the translation of Bible. The translation method at that time was word for word because of rigid pressure of the church for the purpose of protecting the divine expressions in Bible. On the other hand big libraries were established (26 libraries) in order to spread religion following the Cicero's translations from Greek into Latin until Middle Ages.

The translation activities accelerated in the year of 830 with the establishment of Bayt al-Hikma in Alexandria which were regarded as the higher learning centers, an academy and a translation agency served through 8th and 9th centuries. In this period Islamic (Arabic) civilization reached its peak and Baghdad became one of the biggest scientific centers where many thinkers were brought up such as Farabi, Ibn-i Sina, Gazali, Ibn-i Rüşd, Harezmi, Biruni and Ibn-i Haldun. The Greek classics and Eastern works

were translated into Arabic and Coptic mainly in the subjects of medicine, mathematics, physics and astronomy.

Another scientific center, Toledo School was established in Granada in the 12th century (1126-1151) as an example of Bayt al-Hikma where translation activities were carried out and knowledge produced under the leader of archbishop Don Raimundo. In this period the Arabic philosophers's works were translated into Latin and this scientific movement activated effectiveness of translation in the West and influenced the Renaissance as well. Schools of Toledo had great contribution to the dissemination of scientific and philosophical knowledge in Central Europe. Especially the reference made to Aristotle by Ibn-i Rust and Ibn-i Sina on medicine, mathematics and astronomy contributed to the establishment of knowledge in the Scholastic thinking in newly founded universities in the west.

In the special case of studying the relation between history and translation focusing on history of technical translation beginning from the Ottomans all way into the early 21st century in the Turkish republic, the twofold nature of translation becomes more clear.

We have come to see that Ottoman society inherited science and knowledge from Islamic civilizations and consequently from the Seljuks by way of translations mainly from Arabic into Ottoman Turkish. While studying the types of translations and translators the fact that the translation schools established by the Arabs in different peninsulas have also paved the way not only for the Ottoman science and technology, but also for the innovations of the Renaissance period in Europe. We have also seen that, although limited quantitatively and qualitatively, technical translations have resulted in the production of some of similar technical information and innovations especially in the 19th century Ottoman state.

As mentioned above, by making similar changes to the learning centers (madrasas) that the Seljuks Sultan Nizam-al Mulk established, Ottomans tented to protect their structure and format and spreaded to all over Anatolia. Besides, Fatih education complexes (Enderun) also made big contribution to the production of science and for the bringing up statesmen. As it is mentioned in chapter 4, in the early years of the Ottomans Sultans were interested in science and paved the way for the development of learning centers. Fatih the Conqueror is a good example who did his best to improve the scientific level of state and gathered many scientist living in neighbor countries and translated some valuable works. Ottomans did not contact with the West primarily until the first half of the 18th century. Whereas the date from 1718 to 1730, the Tulip Era was a transitory period in the Ottoman Empire that was marked by cultural innovation and new forms of elite consumption and sociability and initiated the close relations with the West.

The Ottomans did not have an access to Renaissance and its outcomes. They also could not evaluate and follow the improvements and developments in science and technology which started in Europe in the 15th and 16th centuries. While the Western world was taking great strides in developments. Ottoman society remained behind the innovations. This situation changed the perception of the Ottomans in Europe and forced them to follow new technical developments in Europe and to bring them into their own lands without losing much time. The translation activities began primarily in 18th, 19th and 20th century along with the modernization initiatives carried out in every field of society. During the second half of the eighteenth century the new high schools and schools were founded. In order to produce the course books, texts and materials for these new schools, new translation activities started. In the nineteenth century, the importance of the role of translators increased due to the rise of the international relations and the balance policy followed mainly in the foreign affairs. From the beginning of 1838 with the reign of Sultan Mahmut II westernization initiatives grew gradually until 1908 and focused on a series of military, educational, and administrative reforms based on Western models. Although the modernization initiated in the fields of medicine, law, education, military and administration couldn’t continue at the same speed because of the circumstances, nevertheless a considerable improvement had been achieved in these areas

and military training institutions according to Western examples were established as "Humbarahane" and "Hendesehane".

Translations on the other hand, in technical fields were not organized, systematic or methodological at that time. Especially during the Middle Ages and the centuries until the 19th century, they seem to be carried out inspirationally and scarce. However 19th century marks the period as an age of initiatives for reconstruction and for transfer of western scientific information into the society by way of partly through translations as exemplified in this thesis. History and translation become important at this point. By looking at what has been translated when and by whom sheds light on mapping a picture of technical development. The same situation is true for technical translation activities in the Turkish Republic as well. We have come to the conclusion that after the establishment of the Turkish Republic, a large scale and well-organized, state-led translation activity started in many scientific and cultural fields. When we look at the early publications of the first university in Turkey, that is Istanbul University, we see that many faculties of sciences have produced translations and even manuals for translating well.

Doubtlessly, these translations are the forerunners of technical translation in Turkey which developed in parallel with the developments in many fields such as construction, architecture, medicine and agriculture.

The present situation of technical translation in Turkey has been discussed by and large in the university departments of translation and interpretation in a standardized content. It goes without saying that technical translation has increased enormously in line with global technical activity and international communication in Turkey in a predominantly European content. This situation necessitates standardization and terminology - based research. On the other hand, historiographic data have also increased through research conducted in University graduate programmes which enable the researcher to probe into a survey of relations and result of technical translation in the wide spectrum of history.

Consequently, it is hoped that this thesis will be contribution to the story of technical development in our country beginning from the Ottomans way into the 21st century. Turkish Republic in a frame of chronological and historical point of view.

RECOMMENDATIONS

After a comprehensive analysis of sources, the following recommendations are hereby made:

1. This research study suggests that a more comprehensive history of translation should be carried out with a historian who can understand Ottoman and Arabic in order to make an evaluation of the translated texts.

2. The Ottoman archives can be revised and identified in line with the translated text, especially the military text which were intensively translated during the later Ottoman ruling but the current knowledge is insufficient, yet they are still present in Ottoman archives in Istanbul,

3. The Technical Translation lessons taught at the translation departments of universities should be supported with the terminology lessons.

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ÖZET

ATAY, Nuh Naci, Tarih ve Çeviri: Türkiye de Teknik Çeviri Tarihi üzerine bir Çalışma, Yüksek Lisans Tezi, 2012.

Küreselleşen dünyada, teknolojinin gelişmesi ve teknolojik iletişime olan talebin artmasıyla birlikte, teknik çeviri oldukça büyük bir önem kazanmıştır. Günümüzde, dünya genelinde yapılan çevirilerin büyük bir kısmını teknik çeviri faaliyetleri oluşturmaktadır. Bundan dolayı teknik çeviri konusuna çok boyutlu bir bakış açısıyla önem verilmesi gerekmektedir.

Bu bağlamda, geçmiş olayların ve karakterlerin kronolojik ve coğrafi olarak kayıt altına alınması açısından tarih ve çeviri arasındaki ilişki, teknik çeviri çalışmalarına önem verilmesi anlamında, ön plana çıkmıştır. Diğer taraftan çeviri araştırmaları korpusunda teknik çeviriye yeteri kadar önem verilmemiştir. Akademik çalışmalar ve araştırmalar sayesinde, teknik çeviri ve teknik yazıma olan talebin gittikçe artması dolayısıyla tüm tarihi ve dilbilimsel yönleri ile teknik çeviri geniş anlamda ele alınmaya başlanmıştır. Böylesine bir arka plan ile çerçevesi belirlenmiş olan tezimiz, Türkiye'deki teknik çevirinin tarihi ve gelişimi üzerine bir çalışma yapmayı hedeflemektedir. Kuramsal arka planı ortaya koymak için, Osmanlı'lardan başlayıp tarih ve çeviri arasındaki ilişkiye odaklanılmış ve buradan hareketle teknik çevirinin Selçuklu ve Osmanlı'dan itibaren Türkiye Cumhuriyetini de kapsayarak ülkemizde nasıl geliştiği ve yer aldığı üzerine bir araştırma yapılmıştır.

Anahtar Sözcükler

1. Çeviri Tarihi
2. Teknik Çeviri
3. Osmanlılarda Teknik Çeviri
4. Türkiyede Teknik Çeviri
5. Çeviri Faaliyetleri

ABSTRACT

ATAY, Nuh Naci, History and Translation: A Study on the History of Technical Translation in Turkey, Master's Thesis, Ankara, 2012.

In the globalized world, with the advancement of technology and increasing demand for technical communication, technical translation gained a significant importance. Today, in the world, technical translation comprises almost 90 % percent of the world's total translation and this situation necessitates attention to be given to the context of technical translation from a multi-dimensional viewpoint.

Within this context, the relation between History and Translation come to the fore in terms of recording of the past events and characters in chronological and geographical order in terms of making a study on the workings of technical translation. On the other hand technical translation has been of secondary importance in a Translation Studies corpus. Thanks to academic studies and surveys, and the growing demand for technical translation and the technical writing, technical translation with all its historical and linguistic aspects has began to be taken up by and large. Framed by such a background, this thesis aims to make a study on the history and development of technical translation in Turkey. It begins from the Ottomans and focuses on the relation between History and Translation for a theoretical background and moves from there to make a survey of how technical translation developed and took place in Turkey dating back to Seljuks and the Ottomans, and all the way into the Turkish Republic.

Key Words

1. History of Translation
2. Technical Translation
3. Technical Translation in the Ottomans
4. Technical Translation in Turkey
5. Translation Activities