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Unit 6 - The Gundishapur Medical School

Reading

1. The Historical Circumstance

The city of Gondi-Shapur (beautiful garden) or Jundishapur (The Citadel of Shapur) has been funded by the Persian Sassanid King Shapur I (242-272 A.D) and was in south-western Persia (currently Iran). The city is retained the place of the birth of the modern academic medicine and has been one of the most important area of the region under the empire of Sasanian dynasty (226-652 AD).

One of the prerequisites for the success of Golden Age Islamic science and medicine (IX-XIII CE) is the conquest of Persia in 683 AD. The Gundishapur hospital was built in the 271 A.D and became the most influent scientific centre in Persia (III-VIII CE) and later a reference for the Arabian School of Medicine which reached the pinnacle later in Baghdad and Spain (Modanlou, 2011).

The most significant contribution of the Islamic medicine to the medical history of the Middle Age is the bimarestan, in the Persian Pahlavi language the “place for the sick”. The bimarestan of Gondi-Shapur has been a model for all the other hospitals in the Arabic world and subsequently exerted a great influence in the hospitals of the Medieval Europe (Elgood, 1951).

Before the 400 AD health care was performed in temple or temple’s facilities such the Byzantine Nosocomia and consisted in pre-technical medicine practices (Lain, 1978) to pray Asclepius or Imhotep or in shamanistic interventions whose effects produced patients curation (Miller, 2006). The medical School of Gundishapur is opened to support the clinical work of the bimarestan, and progressively assumes the structure of a university hospital, with a specific organization and a standard training program. The School was provided with a library of 400.000 volumes and organized the clinical teaching activities in the hospital, but other disciplines such as theology and basic sciences were thought.

Among the reasons to explain the success of the School there are factors of different nature, e.g. the location, the political events happening in the area and their social implication. The city of Gundishapur was in the Ancient Mesopotamia, for its position became the crossroad between three different cultural traditions, i.e. Persian, Greek and Indian (Ghavidel, 2008). Originally the city was the settlement for Greeks and Romans prisoners captured by Shapur I The Great during his war against Roman Empire. The place became progressively a crossroad for intellectuals coming from different regions, Greeks and Roman prisoners captured in Antioch after the defeating of Western Roman Army led by Emperor Valerian (260 A.D.), and the Syrians medical doctors coming from Urfa migrated after Shapur I conquered the city.

The birth of Nestorianism, a Christian theological doctrine denying the divine nature of Jesus, funded by Nestorius, the patriarch of Constantinople (428) ended with the banish of his followers after the Ephesus council (431 A.D.). Because of the intervention of the Byzantine Emperor Zeno they moved to Edessa, where there was a pre-existing big school of theology. When the emperor Zeno in 489 A.D. closed the Persian School of Edessa other Nestorian scholars flee to the Persian Empire in the cities of Nisibis and

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Gundishapur. 40 years later the Neo-Platonist Athenian School was closed by the Emperor Justinian (529 AD), and several Neo-Platonist philosophers and Greek physicians left Athens to be settled in Gundishapur.

During the Sassanid period an Indian community was living in the city, presumably after his vizier coming from Indie with medical books, the chess and some Indian family.

The fusion between Mesopotamian, Egyptian, Greek and Indian medicine and the plurality of confessions like Judaism, Zoroastrianism and Nestorianism contributed to a great synthesis. This patrimony passed to Arabs after the conquest of the city in 638 A.D. and provided the Arabic medicine and the Islamic culture of a universalistic character (Syed, 2002). Arab Empire token advantage of the opportunity and converted the Gundishapur in a model of reference for the capital Baghdad. This synthesis is possible through the process of universalization of knowledge implemented by the role of libraries and translations became a key factor to understand the entire Middle Age.

To understand the role of libraries in the Arabic Golden Age will help few data: in the 872 A.D. the Hospital of Tulum at the El Cairo had 100.000 volumes, in Baghdad at the Mustansyrriya hospital there were 80.000 volumes, in the city libraries of Cordova 600.000, El Cairo 2.000.000 and Tripoli 3.000.000 of volumes (Syed, 2002). Just to understand the difference with the Medieval Europe and monastic libraries, in the 14th century the largest University library in Paris consisted of 400 volumes (Miller, 2006).

2. Healthcare System and Medical Education

Bimarestan originally are mobile military hospitals of the Persian army, as the valetudinaria in the Roman Empire, which become progressively sedentary for strategic reasons. Shapur I opened the hospital of Gundishapur in 271 A.D. for strategic reasons. The building of the hospital involved Persian, Greek and Roman architects (Gilavand, 2016) the last ones probably war prisoners. The exact date of the School foundation is unknown, but there are reasons to guess it was established during the kingdom of Sahpur II (309-379 CE). The school has been led for two centuries by the members of two Christian Nestorian families, the Buhktishu and Masuyeh (Azizi, 2008). One of its members leading the Gundishapur Hospital in the 765 CE was called in Baghdad to treat the Abbadsid Caliph Al Mansour. The Caliph decided to build a new bimarestan in Baghdad and one member of the Buhktishu family was called for this (Miller, 2006).

In this way the academic tradition of the Gundishapur School and the organizational structure of its hospital is transferred to Baghdad and progressively extended to all the other hospitals of the Arab Empire. The bimarestan were organized in separated wards and attended by nurses and auxiliaries of the same sex of the patients, they included units for surgery, fever, wounds, mania, cold disease, diarrhoea, female disorders and eye diseases. The Gundishapur School had different sections: the medical school and the hospital, the pharmacology lab, the library with a translation house, a lecture theatre and an observatory. Hospital had a mosque and a chapel for Christians, a pharmacy, supplied by the medicinal herbs of Islamic garden in the hospital (Soylemez, 2005).

Medical training was the most innovative aspect of the School, medical students accompanied their teacher on patients visits and practiced what they learned in the classroom through rotations in the clinical units, opened 24 a day. Written medical records were used for teaching and patient care, medical students had in charge the writing of medical records which were edited by clinicians and formatted in way defined

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"treatment based on repeated experience" (Miller, 2006). Teaching was assigned with small groups of students guided by experienced instructors into ward rounds, discussions, lectures and reviews (Kump, 1972; Miller, 2006). The education program covered 3 years, the first one was dedicated to the study of mathematics, geometry, logic (Soylemez, 2005) and other basic science courses (Miller, 2006), in the following years students worked on anatomy through lectures and dissections and the study of medical books, the Hippocrates's, Galen's and Dioscorides books. After the 3 years medical program an exam habilitated the medical students to practice medicine and a certificate was proving this qualification. The multicultural character of the school offered teaching activities in different languages, such as Aramaic, Greek, Pahlavi and Sanskrit, even than there's s not a full agreement about it (Sami, 1970). Teachers were coming in large part from Edessa and medical students number varies in reason of the sources from 800 to 5000, (Soylemez, 2005).

Translation was part of the methodological approach of the School, the common language of translation was Pahlavi until the Arabic conquest when became Arabic (Soylemez, 2005). A big library containing books in different languages was annexed to the school and available for students and teachers, class of scribes were dedicated to copy books on medicine, astronomy and philosophy. The astronomic observatory was used by students to learn astronomy and observe astral body and make measurements, which influenced the activities of other observatories in Baghdad and Damascus (Soylemez, 2005).

The Gundishapur library model is exported to Baghdad to the "House of Wise", books in Pahlavi, Sanskrit, Indian, classical Greek, Syriac are progressively translated to Arabic at the Baghdad Hospital, where many students and scholars contributed to this task. The Sassanid King Khursaw I started the translation program at the School of Gundishapur and supported intensively the project, the chair of the School was at the same time the director of the hospital (dorostbed) reported only to the emperor. Nestorian Christians started the translation of all the texts form Greeks to Syriac in Edessa, subsequently in Gundishapur the Persian kings promoted the translation of Greeks, Syriac and Sanskrit texts to Pahlavi.

The head of the Hospital of Baghdad Hunayn Ibn Ishaq (Johannitius 809-873 A.D) followed the tradition to collect and purchase Greek texts from Byzantine Empire territories and translate them into Arabic. The translation became a norm of the Islamic Medical Schools and an essential aspect of their teaching method, which will be entirely reproduced in the monasteries of the Medieval Europe and will be converted in the Scholasticism of the incipient European Universities.

3. The Toledo School of Translators

From the death of Charlemagne (814 CE), the decline of European culture became progressive and affected the progress of science and medicine. The European cultural decline produced by the political turmoil determined the ban of Medieval thinkers and relegated any cultural production into the monasteries (Campbell, 1926).

Meanwhile, Spain and Sicily experimented a political and cultural renaissance, the first one because the Arab Empire hegemony and the second one for the conquest of the Southern Italy by Normans (XI-XII CE). Both circumstances became important for the progress of medicine and because created a condition of relative independence from the monasteries authorities for those doctors and humanists working there. This progress consisted essentially in the recovery of Greek medicine through the mediation of Arabic

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translations, in a world where experimental science was banned it was the only opportunity to assure some advancement (Campbell, 1926).

The crusades converted Europe in a field of battle and the Port of Salerno in the Southern Italy became a route for the Holy Land and a base hospital for all the military Christians coming back from the Crusades. From the 1076 when the Norman Duke took possession of the city, Salerno became the most important cultural centre of the Christian Europe. Crusaders became progressively influenced by the medical and philosophical doctrines of the Arabs and spread in the Latin West of Arabic science was due to the influence of Western Califate (Friend, Hist of Physick).

The conquest of Latin Europe was essentially produced through the absorption of the Arabs' method, and one key aspect of this methodological influence was the translation. Translations and Arabian method boosted European culture to recover some prominence at the end of the High Middle Age, and influenced the Universities and the Scholasticism, a European elaboration of the Arabic legacy.

Along with Salerno, another cultural flourishing area was the Cordovan Caliphat in the South of Spain, Arabic culture compared to the Christendom bigotry (Campbel, 1926) represented for the European intellectuals a great opportunity to make progress and consolidate their way until the foundation of the independent European Universities. The influence of Arabic culture became more evident in Salerno through the writing of Constantinus Africanus (1020-87) and the work of the translators at Toledo, after his capture by the Christian King Alphonse VI who assigned to the city the title of capital of the Kingdom of Leon and Castile, and fostered the translation of Arabic science and the medical system of Europe (Campbell, 1926).

The three main European sources of the Arabic Alexandrian medicine were Sicily, Toledo and Cordova, among them Toledo offered the best version of the Arabized medicine (Campbell, 1926). The translating movement grew progressively around the Medieval Europe since the X century in some cities of Spain, but it is from the conquest of Alphonse VI in 1085 that the city acquires a central role in Europe for the great number of manuscripts circulating introduced by the Arabs since the 10th century.

Toledo was a city where the Jew community was coexisting with Christian Mozarabs (Christians who accepted to live under the Muslim rule) and Muslim communities. In an environment of tolerance and respect for the plurality of ethical codes inspiring the different religious confessions, the translations movement at Toledo became progressively more intense in the early 12th century.

Even than literature uses the expression "Toledo School of Translation" the term school is used to represent two common aspects characterizing the work of translators: the aim to recovery the classical tradition through the study of science and philosophy, and the methodological approach applied to translate the manuscripts (Menendez-Pelayo, 2006; Arraez-Aybar, 2015). The lack of Arabic translators was a barrier and the only available translations in Latin were possible through the work of Jews translators. The translation method was a word for word oral translation of the Arabic or Hebrew text, by a Jew or Mozarab translator, the Latin text after the oral translation was written by a clerk or a philologist who often signed the manuscripts (Campbell, 1926). When an Arabic word had not the equivalent in Latin was transcribed literally, and this is the reason why some Arabic worlds are currently used in our languages.

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The Christian King of Castile Alphonse conceded the same rights to all the communities living in Toledo; the translation work was organized around the Cathedral of Toledo and coordinated by the Benedictine monk Raymond de Sauvetat (1125-1152 A.D.). The Christianisation of the city consented to overcome the aversion to the Muslim culture produced in Europe by the Crusades and opened the city to a second wave of translators, philologists and philosopher looking to translation of the entire works of Aristotle and other Greek scientist.

Several translators were coming from other European cities or other translation centres such as the Chartres Cathedral or the Normand court of Palermo among the most important. Raymond started his coordination work in the 1130 and involved a group of Castilian-speaking Jews who formed the first society of translators. The group was supported by Dominicus Gundissalinus, Archdeacon of Segovia (1110-1181 A.D.) the Jews Solomon and the Mozarab Ibn Ghalib, identified as Johannes Hispaliensis or John of Seville, presumably the Gundissalinus' Arabic teacher. The Arabic manuscripts came presumably from the "house of Science" at Baghdad, and in their great majority were translations of Greeks texts to the Syriac, Arabic or Hebrew. The Latin versions of the Toledan translations were the results of different translations and lost the required accuracy and precision.

A new route of translations was opened in XIII century through the Byzantine Greece to find manuscripts in Greek and have more accurate translations. The increasing pressure of the orthodox Islamic world in the South of Spain pushed Jews and Mozarabs Christians toward the North, and the several Spanish Jews who represented the core of Arabic physician-philosopher started to spread across Europe, the Jew colony of Montpellier was large and many physicians in that city were Jews.

Native scholars were flanked by European Scholars; the most emblematic were Michael Scot (1170-1294 A.D.) and Gerard of Cremona (1114-87 A.D.), both previously at the Normand court in Sicily. The first translated the Averroes capital works that had a great influence on the Scholastic tradition; the second learnt Arabic by Ibn Ghalib and translated 70 works including the Canon of Avicenna, Galen, Aristotle and Ptolemy, Rhazes and Abulcasis and other Greeks. Gerard.

After a transition period the School could beneficiate of a new generation of translators coming from others European countries under the direction of the bishop Rodrigo Ximenez of Rada (1170-1247 A.D.). In addition to Michael Scot, Herman the German (dead on 1272), Alfred the Englishman and (1220 A.D.) who translated Aristotle minor works, and Marcus of Toledo, who translated Galen and other astronomical and astrological works of Arabic science. Daniel of Morley (1140-1210 A.D.) after a long period working with Gerard of Cremona in Toledo came back at Oxford and introduced the new version of Aristotle and Avicenna in the English Universities (Arraez-Aybar, 2015).

Through the translations of the Toledo and Salerno Schools the Western Latin Middle Age science and medicine recovery the lost contribution of the Greek tradition. The synthesis of the Golden Age Arab medicine made possible the transfer of other important medical tradition: the Egyptian, preserved through the work of the Hellenistic Alexandrian School, the Mesopotamian and Indian collected by the Gundishapur School.

All these traditions flow into the European Medieval medicine through the Arabic medicine and contributed to the development of the Universities and the modern science. Lain Entralgo describing this recovery

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distinguishes three different stages: 1) reception, through the work of Constantinus Africanus, Adelard of Bath and Dominicus Gundisalvi, 2) incubation, in Salerno and Chartres, through the Gerard of Cremona and Michael Scot group and William of Conches and Peter of Spain; 3) assimilation, in three different contexts: a) France, in Toulouse, Chartres and Paris: b) England, Adelardus of Bath and Daniel of Morley and some other translator from Toledo School; c) Italy, through Gerard Sabionetta and John of Palermo, Michael Scot and Pedro Hispanus.

The assimilation of the Arabic medicine in the Medieval Universities represents a great opportunity for the progress of medicine in the three most important medical Schools of the age: Bologna, Montpellier and Paris (Lain, 1978).

References

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