

How Medical Functions Shaped Architecture in Anatolian Seljuk Darüşşifas (hospitals) and Especially in The Divriği Turan Malik Darüşşifa

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Summary

The dominant cultural effectiveness of the Seljuks, which affected different nations and regional races within the borders of their empire that stretched from Central Asia to Cairo, has left behind famous civilizations which are today within the borders of various countries (India, Iraq, Iran, Syria, Egypt, Turkey, etc.). As for structural characteristics, in an atmosphere whose origin is rooted in pagan culture and architecture formed by its symbols is continued, the form does not change when planning big buildings or where the "house" is concerned. The root lies back in the Central Asian house or multifunctional Turcoman tent. Hospitals were so improved that various establishments developed in a way that suited the needs of the period's social life, ruling administration and military life. To group these: **Mobile hospitals** were to be found in caravans behind the soldiers who were fighting. In the Malik Shah Era, in the Seljuk army there were military hospitals carried by 40 camels. Seljuk hospitals were **caravanserai hospitals**, **palace hospitals**, and serving public, usually within the structure of a medical madrasah, *darüşşifa*. It was inconceivable for a culture whose scope is as deep and wide as this to not affect the West that was drowning in the conservative religion suppression of the Middle Ages. Like the architectural structures of the *şifahanes*, the education systems of great medical scholars also occurred in Europe. Extending back to the symbols of the knights of Malta and the baroque style, the lily motif seen in *şifahanes* and Divriği ornamentations; on the other side and again from Anatolian culture, the snake motif that originated in healing temples are renowned symbols and a form of expression.

Key Words: darüşşifa, snake motif, iwan-courtyard, madrasah, mental patients.

Introduction

"*Darüşşifa*" is the name of medical institutions in Islamic countries where once patients were cured and students received a medical education. '*Darüşşifa*'s which had the same meaning as terms like '*bimarhane*,' '*bimaristan*,' '*şifahane*' and so forth in the Middle Ages; previously just meant the buildings in which mental patients were nursed and cured (1,2,3,4,5,6).

In '*Darüşşifas*, apart from mental illnesses; eye complaints, various skin and internal diseases were cured and surgical interventions were carried out. Medical treatment services were given without discriminating on the basis of patients' gender, age, religion, language or nationality. Experienced physicians who received an '*icazet*' (madrasah diploma) from '*müderriş*'s (madrasah professors) used to practice, on patients, herbal medicine cures as well as mental

therapy methods like music and water-sound therapies (2,7). Herbal-based recipes prescribed by physicians were also prepared there. The development of Anatolian *darüşşifas*, which had iwans, cells and vaulted structures, stretches back to Ottoman madrasah typology within Turkish architecture (2,5,8).

Anatolian *darüşşifas*, which have fallen to ruin over time can be classified as follows: foundations left standing; only names in written sources; a few structures left standing; a few structures left standing in the complex they are attached to; and just hearsay about them in their vicinity. (As Aksaray Şifahane is in a district called *Timarhane* (lunatic asylum), so one can postulate the existence of a *bimarhane* that served mental patients there.)

The madrasah type that has iwans and domes arranged around a square courtyard, which developed

in Central Asia and Iran, was used in Syria and Iraq in the Zengid period, and was first reflected in Anatolia, in the Seljukid period at Kayseri Gevher Nesibe Darüşşifa, as an order that developed on two different axes (9,10,11).

Planning of first madrasahs should be taken note of when examining the plan origins of *darüşşifas* where medical education was also given. The first model of the iwan formation that develops in two opposite directions is the madrasah founded by Bosra governor Gumushtakin in Damascus in 1136. The four-iwan *maristan* founded by Nur ad-Din Zengi in Damascus in 1154 is the *şifahane* model where the first prototype developed (9)

In the 11th century, in the early period of the Anatolian Seljuks, a complex multiculturalism caused by various civilizations and religions was conspicuous (12,13). In such an atmosphere, special innovation cannot be seen in primary *darüşşifa* architecture in Anatolia. The courtyard and iwan types that passed from Central Asia to Iran and Syria were adopted without change (2). In the plan, the four-iwan formations arranged in a row around a square or a rectangle, seen in the hospital in Aleppo and in Nur ad-Din Hospitals in Damascus, have been adopted without change.

Darüşşifas of Anatolia that existed in the 12th; Amin ad-Din Darüşşifa (1108-1109) in Mardin, buildings in Silvan, Harran, Antioch, and others, were unable to survive to the present but their existence has been determined in written resources. The first *şifahane* of the Anatolian Seljuks that remains standing is the Gevher Nesibe Darüşşifa in Kayseri. The building with its courtyard and four-iwan plan and its double courtyarded design are indicators of an improved prototype. Until this building, which shows up in such a complete plan schema, we just have information about the existence of the buildings that forms the transition in between. About the types that would complete the development chain, it is not much clear after the Ortoqids (2). In Anatolian Seljuk *darüşşifas* such as Kayseri Gevher Nesibe Darüşşifa (1206), Sivas İzz ed-Din Kay Kavus Darüşşifa (1217), Divriği Turan Malik Darüşşifa (1228), Tokat Pervane Bey Darüşşifa (1275), Çankırı Atabeg Ferruh Darüşşifa (1235) and Kastamonu Ali Bey Pervane Darüşşifa (1272). The four-iwan plan typology and cosmic ele-

ments like animals and the sun and moon in ornamentations are the expressions of the development process extending from Central Asia west (14,15).

Waqfs (Foundations)

The **waqf (foundation)** system, which is started by the Seljuks and later carried on by the Ottomans, became a tradition; health institutions, mosque, masjid (small mosque), *tabhane* (hostel), hamam (bath house), caravanserai, fountain, etc. buildings, or groups of buildings where some of these were together were called a *kulliye* (complex) and formed the financial resources through rent incomes called “*akar*”. *Darüşşifa* establishments were generally founded as a charitable institution by the wives of ruling sultans and viziers (16). A *mütevelli* (trustee) was nominated to administer foundations, and a *vakıf nazırı* (foundation superintendent) was entrusted [with the day to day management].

In Anatolia, hundreds of women provided the continuation of an incomes-diminished foundation even if they were not so rich, by donating their houses and orchards in their own names or that of their families, so that their name would be remembered and they would be prayed for after their death (17,18,19,20). As helping the poor and patients is considered a charity in Islam, the hospitals called *darüşşifa* or *bimarhane* were counted among foundation institutions. It is made clear in a foundation document about Kayseri Gevher Nesibe Darüşşifa and Medical Madrasah, which is mentioned in a work named “Muallim M. Cevdet’in Hayatı,” that a village was devoted by saying, “People of a village is registered under the title of medical madrasah foundation of *hassa malikanesi* (private lands given as fief to a servant of the state) to *Karye-I Akker* (Akker Village) of the *Liva* (a subdivision of a province) of *Kayseriye* (Kayseri) in the *defteri mufassal ve mücmel* (detailed and summary registry) of no. 87 *Difter-i Hakanî* (Main Register of Revenues) dated 906 (A.D.1500) (21,22).

Seljuk sultans were founders in many foundations as they had wide privileges and their incomes were enough to control large areas. The only and most renowned foundation of Seljukid period for which we have a deed of trust is the Sivas İzz ad-Din Kay Kavus Darüşşifa trust deed, bearing the date of 1218. Accord-

ding to the contents of the trust deed, renowned doctors were appointed to the *şifahane*, they also gave the *şifahane* and medical schools status administratively. Especially in 13th century, sources of income that were oriented to economic life in towns, and revenues that came from real estate ensured that *darüşşifas* could supply free medical services; at the same time, in *şifahanes* that were within complexes, *imaret* (soup kitchen) services like serving food to poor people were given.

I. Architectural properties of Anatolian Seljuk Darüşşifas

The names of philanthropists who founded Anatolian Seljuk *Darüşşifas* are generally given on inscriptions that are above the portal (*taçkapi*).

Mardin Darüşşifa, which was started by Amin-ud-Din of Ortoqs and finished by his brother Necm-ed-Din İlghazi after his death, is thought to have been built between years 1108-1123, by guesses made considering the years of sultans' reigns, as it has no inscription. From the complex that consisted of a madrasah, a mosque, a hamam (bath house), and a *maristan*, only the madrasah and the mosque exist today

Çifte Madrasah in Kayseri (1206) was founded by Gevher Nesibe Hatun, the daughter of Seljuk Sultan Kilij Arslan II. The *sifaiye* (hospital) was completed in the reign of Kay Khusrau I in the years between 1204-1210.

Built in one of the greatest residential centers, Iz ad-Din Kay Kavus Darüşşifa in Sivas (1217-1218) is an institution, the trust deed of which is known and used as a model in other *darüşşifa* studies. In the complex, which was designed as two parts, a medical madrasah and a *şifaiye* (hospital); it is written on the inscription on the portal of *şifahane* part, which remains today, that it was founded in 1217 by Kay Kavus, the son of Kay Khusrau.

Malika Turan Melek Darüşşifa in Divriği (1227) has an inscription on the entrance door of the *darüşşifa* telling its founder's name, Turan Malik, who was Bahram Shah of Mangujak's daughter and reputedly Ahmed Shah's wife, and the construction date. The name of the master workman Khourem Shah (*Hür-*

rem Şah) (or Horshah) of Khelat (*Ahlat*)'s name is written closer to the tambour part of the dome that covers the great iwan (6,23,24,25).

Çankırı Darüşşifa, the inscription of which is in the Çankırı Museum, has only the *Dar ül-hadith* (school for teaching the hadith) part standing today. *Şifahane* that is known to have been founded by Atâbeg Lala Cemâl ad-Din Ferruh in 1235, according to the inscription, does not even have traces of its foundation left (1)

Publicly known by the name 'Yılanlı (snaked) *Darüşşifa*,' Kastamonu Ali Bin Pervane Hospital has only the portal and a part of outer wall standing today. On the inscription of the building that is founded in 1272, it is stated that its founder was Muin ed-Din Süleiman Pervane. Its architect was Sa'd of Kayseri (26).

As Tokat Gök Madrasah, which was founded by Seljuk vizier Muin ed-Din Pervane, has no inscription; the date given by Gabriel is taken into consideration. Date given for the *şifahane* is 1275. Ilkhanid ruler Abaka Khan left construction incomplete because of the execution of Pervane Muin ed-Din in August 2, 1277; his daughter or another relative later finished it (2,7,27,28).

According to the inscription on the portal (*taçkapi*), Amasia Bimarhane was founded by Sultan Muhammad Olcayto Hüdabende's wife İldus Hatun's slave Abdullah's son Anber in 1309 (29).

Darüşşifas, existence of which is known in written resources but doesn't exist today: It is known that there were *darüşşifas* in *Aksaray* in the *Timarhane* (lunatic asylum) district and in Old Malatya. We learn the existence of Konya Aksaray Darüşşifa Madrasah from written sources. Konya hospitals: **1.** *Darüşşifa* opposite Karatay Madrasah, founded by Kemal ad-Din Karatay, brother of vizier Emir Jelal ad-Din Karatay. It is recorded in the 1255 trust deed of Jelal ad-Din Karatay. **2.** In Konya, it is publicly reported that there was a *bimarhane* in the district named *Sakahane* (hospital) to the north of İnce Minaret. **3.** There is one more *darüşşifa*, called Şadi Bey Darüşşifa, between İnce Minaret and Karatay Madrasah (29,30,31)

1.1. Their locations

According to the sense of urbanism that continued after the Middle Ages until the 18th century, settlements in Anatolia developed around actual monumental buildings, which provided services to the public, such as madrasahs, *darüşşifas*, complexes, caravanserais, hans and imperial mosques. Important buildings that are in the focal position of settlements should be placed on an open area with airy altitude or should be perceivable from a distance by its massive façade architectures and be emphasized with a general silhouette.

Divriği Darüşşifa and Mosque consisting of two parts as a *darüşşifa* and a mosque, create the sense of a big building because both its parts are designed to open into each other. In order to ensure that the building creates an impressive and splendid effect, foundations are placed on a level, which is formed by flattening a slope of a hill that overlooks the settlement and some parts have been filled. The separation of the *darüşşifa* façade from the mosque façade in western direction, with a ¼ height difference, is because of ground conditions or that the *darüşşifa* portal (*taçkapi*) is to be the dominant element. The foundation ground, a part of which is fill, sometimes creates settling problems in the building. Settlement, set up inside the fortress on the left side of *darüşşifa* in Mangujak's period, later slid downwards in a westerly direction. According to Van Berchem's expression, "Divrik ranges over a two km. long area. The general total of the population that is scattered into town houses, fields, and vineyards is not more than 4000. The old city developed on the slopes of the hill that the fortress sits on. Here, on this part, monuments are lined up in steps from north to south (2,6,32)

The buildings were constructed on different levels in Mardin Amin ed-Dîn Darüşşifa because of topographical conditions.

Çankırı Darüşşifa, which is founded on a rocky, sloping land, was situated on the most airy place of the area, which is favorable for health; near a stream called Derbent that is dry today and backed by forests.

1.2. Plan properties

In Central Asia, the four-iwan with courtyard covered by a dome house prototype of ninth and tenth

centuries developed and transformed into big nizamıyyahs. With the removal of the dome, the courtyard got bigger, and bigger buildings were made possible by spaces that surrounded it (5,7,14). In the same way, by changing the courtyard from square to rectangular, in the plan; the volume of the buildings also increased. When one takes into account that monastery life that was carried from Buddhism period was influential among the Turks before Islam, the origin of madrasahs should be sought in monasteries (9).

Apart from the culture that Turcoman clans and Arabs carried from Central Asia and Front Asia, the existing Christian architecture of Anatolia was effective in plan development of Anatolian Seljuk architecture. It is interesting that after Nur ad-Din and Qaymarî Hospitals in Damascus, which are taken as models for *darüşşifa* designs in Anatolia; shared the character of these buildings, as seen in shaping the plan, they appear in a double axes and the four-iwan formation in Kayseri, in the Gevher Nesibe Şifaiye.

The four-iwan and concern for symmetry are not seen in the Anatolian *darüşşifas*, as they are in the *şifahanes* of Asian and Arabic countries. In the 12th century, domed madrasahs were constructed before the iwan-courtyard madrasah schema, and the first iwan-courtyard type was seen in the Ortoqid period. A new iwan-porch-courtyard plan schema was developing when iwan numbers were increasing from room sizes and their numbers from functions; the courtyard that gets bigger was making it possible for it to be surrounded by porchs in three or four directions. Building formats depended on size and population density of the cities they were in. As the Konya hospitals, Sivas Iz-ad-Din Kay Kavus and Kayseri Gevher Nesibe complexes were bigger compared to Divriği it indicates that these settlements were important centers and their populations were denser than Divriği. Although Tokat Gök Madrasah is not as big as the Sivas and Kayseri buildings, the character of the building that has iwans, two-story arrangements and rich partitions, emphasize that it serves a big settlement (2,33).

Entrance portals do not always need to be symmetric or just in the middle of the façade. As seen in the Gevher Nesibe Darüşşifa and medical madrasah, as there was no wish to divide the iwan looking

on the courtyard in the direction of the entrance, the entrances were put in the corners in order to make a functional space here.

Medical madrasahs and other spaces that are designed together in *darüşşifas* serve in design a functional need. These spaces are as follows:

Iwans; As opposed to cells, which have minimal contact with the outside, iwans are spacious and airy spaces with a cover for natural events like rain and sun; with their façades open to courtyard. In the **two-iwan** *darüşşifa*-madrasah models of the Anatolian Seljuks, one of the iwans that are placed on both ends of an axis is higher and bigger than the other. Students had lessons in summer in the main iwan, which is emphasized by its dimensions, and it was sometimes used as a *maşjid* (small mosque). Tokat Gök Madrasah is a model for the two-iwan plans. In the **four-iwan** madrasahs that develop on two different axes, the entrance iwan is the smallest, main iwan and two medium-sized iwans were built on both sides

Kayseri Çifte Madrasah, Divriği Turan Malik Darüşşifa, Sivas Kay Kavus.

Classrooms; Iwans were used as open classrooms in hot weather, but in cold seasons, space on the left or right of the main iwan was used as winter classrooms. In *darüşşifas*, which are in a contiguous position to the madrasahs, **student cells** were in the madrasah structure; if it was a *darüşşifa* building in which lessons were also taught, student cells were placed on the second floor (Divriği Turan Malik). In student cells and patient wards, on ground floor, openings that provided communication with outside, like windows and embrasures were either very few or none at all.

Soup kitchen (*Aşhane-imaret*); It is close to the entrance portal of *darüşşifa* or madrasah. If the *darüşşifa* is located inside a complex, the soup kitchen (*imaret*) is within the complex structure.

Pool; As an element used in mental therapy, it is always found in both covered and open types of *darüşşifa* courtyards.

Fountain; It is generally outside and close to the building. It may be seen fixed outside the walls, as in Divriği.

Toilets; They were necessary for hygiene, and a separate, shed-like building outside the building, close to the fountain, served this function. Therefore, no toilet buildings can be found today.

Staircase; It was designed close to the entrance, one in two-story buildings. There is a **tomb** in the building in which the person who founded the *şifahane* and his/her family lie. If not designed before; after its founder's death, it would be transformed into a tomb by changing a vault on top of an iwan into a dome and covering the front façade with a wall, as seen in the Sivas Iz ed-Din Kay Kavus I. The Darüşşifa. Tomb is on the left of the main iwan in Divriği, in a room facing the courtyard on the right of the main iwan in the Kayseri Çifte Madrasah and, in the small iwan on the right side of the main iwan in Sivas.

Patient rooms; They were arranged in a row on the right and left side of the courtyard. In Kayseri, a ward arrangement is brought to the *şifahane* by the rooms lined up on a parallel corridor.

Doctors' rooms; They were placed close to the entrance to give polyclinic service and keep control of the *darüşşifa*.

Kayseri Gevher Nesibe Medical Institution; In the building where the double courtyard system, which was seen in Anatolia for the first time, was applied; the *şifahane* part looks as if it were added later. Inside the *Bimarhane* that was built for mental patients, the Seljuk hamam (bath house) makes us think that hot water, apart from its heating purpose, was also used for therapy purposes in cures, together with music and suggestion. In the madrasah, in the four-iwan system, entrances are placed in the left lower corner so that they do not interrupt the shape of the plan. Big iwans, which acquired functions in this way, were used to give polyclinic service to outpatients. Another conception is that east and west iwans were for patients to get sun and fresh air; and on the great iwan on the north, surgical operations and collective study activities were done. It is commonly thought that the small room, opening on the courtyard, was a cell for students. In addition, there are units like the medicine-preparation room and the pharmacy. In the *şifahane*, small rooms are of a size where inpatient therapy services were given (33,34,35)

Sivas İz ad-Din Kay Kavus I Darüşşifa: The complex consisting of two parts built side by side as the *şifahane* and medical madrasah, has its *şifahane* standing today. The asymmetric order of the plan and various dimensions of volume show that function is more important than form in spaces. When spaces are compared to Kayseri, getting them smaller and more in number by being divided shows that *şifahane* served many patients and various diseases were cured. There is a big iwan, which is different from others in its dimensions. The entrance iwan being surrounded by more than one volume shows that polyclinic service was also given to outpatients and that there were medicine-preparing rooms, doctor rooms and other personnel rooms.

Divriği Turan Malik Darüşşifa: the position of the *darüşşifa* and the mosque in a continuous row can be explained by a few reasons. These are to meet space needs when patients' numbers increase, to have clerical people who would pray and get the patients to relax and to increase the building volume in order to give it a monumental, grandeur look. The room number is not important in the plan. Four-iwan and courtyard system had its place in the development.

Tokat Muîn ad-Din Pervane Madrasah (Gökmadrasah): A common perception is that the niche in the south wall of the hall, which is on the left of the main iwan, was used as the mihrab. The space where lessons were given also served as a masjid (small mosque). Although it is asserted that the volume on the left side of the main iwan was the masjid (small mosque), as there is no mihrab in this space, it makes us think that it was used as a winter classroom or a patient room. In the north of big iwan, big spaces that line up one after other are the tomb that has a dome on top, library and winter classroom.

Amasia Anber Bin Abdullah Darüşşifa: As the *şifahane* gave service to mental patients and was designed as a medical madrasah, its plan aimed to be in symmetric order. When the Nur ad-Din Hospital in Damascus, and the Qalawun Hospital in Egypt are considered; according to their room dimensions and the Sivas Kay Kavus Darüşşifa trust deeds model, it is thought that small spaces on both sides of the courtyard were patient rooms, the main iwan was used as a classroom, big rooms near the main iwan as spa-

ces for surgical interventions, one of two spaces near the entrance was a room for polyclinic service for outpatients and at the same time used by doctors, the other one was used as a pharmacy.

Aksaray Darüşşifa: Its stones were torn out in order to be used in other buildings, even so much of its foundations are missing that they are far from giving any information about the building. In Egypt, in the Qalawun Hospital founded by Mamluk Sultan Qalawun in Cairo in 1284, which is the most developed of the period and forms a model for other hospitals; draws a portrait of quite a developed hospital in its separate parts for mental patients; separate wards for women and men patients, surgeons, oculists and personnel sections and spaces that served other patients.

When the structural plan is examined systematically; The asymmetric order in the Kayseri Gevher Nesibe, the relationship between spaces around the courtyard and the lack of an arrangement of rows or series are seen clearly. While iwans are arranged in two opposite axes in Sivas İz ad-Din Keykavus; the symmetric formation of a Central Asian house is found in Divriği. In the Tokat Gök Madrasah, iwans are on just one axis in the courtyard, which is transformed from square to rectangle. In Kayseri Gevher Nesibe, the symmetric, double arm ward, separated for mental patients, transforms into a single arm in the Sivas model. In the Amasia Bimarhane, the linear system formed by the rectangular courtyard is a sign that the "ward" was taken into the structural plan so it didn't look as if it was added to the *darüşşifa* later. As seen in Figure 13, there is a ward order in *darüşşifa* buildings that give service to mental patients. When other *darüşşifa* plans are also taken into account, this concept does not mean that no service is given to mental patients in other hospital buildings without ward formation. According to the information we have, such as architectural formations and building trust deeds, it is obvious that in developing the plans for developed complexes like Kayseri, Sivas, and Amasya; a separate part was made especially for mental patients. It's known that mental patients were cured also in Konya hospitals where architecture cannot be defined for certain because their ruins aren't clear completely; and also mental illnesses were cured in dervish lodges, which are found commonly in

small settlements and have architecture consisting of just one room based on simple geometry like a rectangle, square or hexagon.

Position of tomb vis-a-vis the courtyard; in Divriği, the tomb is out of the main iwan-entrance portal axis of the courtyard and placed in the big space on the left of the main iwan. The tomb is in one of the rooms that line up parallel to the main iwan-entrance axis in the madrasah part in Kayseri Gevher Nesibe; in the small iwan placed on the right of the main iwan, in Sivas.

1.3. Their façade architectures

Façades consisted of dignified, great, massive walls, which were far from symmetry and aesthetic concerns, drawing attention in its environment and emphasizing its effect on social life. Therefore, there are no aesthetic approaches like lightening building by dividing surfaces, which is seen in later period façades.

The symmetrical order of **portals (taçkapis)** is not important; with not even ornamentation similarity or similarity in the arrangement of elements and their dimensions can be seen in the portals that are placed in the same façade. Quite a developed functionality, compared to its period, directed the façades, as well as the plan. Entrances were placed where necessary, by considering how to provide inner completeness, not dividing the courtyard, and the use of iwans as a whole space (without being divided by entrances). Portals are in conspicuous dimensions and decorations are exaggerated. Portals (*taçkapis*), which are higher than the walls they are attached to, and in dimension extend out on the sides, are ornamented with quite splendid decoration in relief form and were placed in such a way as to be in the middle of the façade. When there were two parts in the same façade, such as madrasah-*şifahane*, mosque-*şifahane*; portals got their dimension according to the functions of the space and its ornamentation was designed considering spatial properties. For example, one sees that by embroidering motifs that are thought to have protective properties such as the dragon, Tree of Life and double-headed bird on *darüşşifa* doors; these spaces gave the impression of exuding health. On the Divriği *Darüşşifa* entrance portal, the window separated

by a column in the middle of the door is found in Central Asian buildings. The outermost moulding that goes around on the top part of the door, is placed on the pendentive capital on the column, which is made to look as if it is placed on no columns and presents a gorgeous look by forming a salient part outside. In the Kayseri Gevher Nesibe *Şifahane* portal (*taçkapi*), plain return beads on the outermost, a row of geometric motifs in the middle, two big rosettes on the inscription and a pointed arch on the pendentive niche presents a plain and superficial look. Although the madrasah entrance portal is on the same level as the outer walls, the *şifahane* entrance door passes over the wall-line without much exaggeration. In the Sivas Kay Kavus *Şifahane*, ornamentation rows on the portal (*taçkapi*) are intermeshed and superficial, so that they are indiscernible.

In the organization of Anatolian Seljuk *darüşşifa* façades, portals (*taçkapis*) were given importance as well as **courtyard façades**. Stonewalls were embroidered, inner façades gained quality by mosaic glazed tile techniques applied with unique colored glazed tiles and ornamented by glazed bricks, as in the Tokat Gök Madrasah.

In the 13th century, there was no panel-glass technology in the world. More important than that, light getting into spaces through some holes opened on walls was enough and the importance of daylight's effect on people was not yet discovered. There is daylight in open areas naturally. In such an environment, there is no need for big areas in walls that would provide light. In addition, a long, cold continental climate in the Central Anatolia and Eastern Anatolia regions was an important reason to avoid big windows, ornamented by stained glass, which was especially popular in churches. In Anatolian Seljukid societies where conservative social life is essential in culture, the **window** was not given so much importance; needed light and air were obtained from the space, which was designed as covered at the beginning, later as open. In covered courtyard buildings, needed luminance was obtained from a lantern that covered the space in the middle, which had a pool. The mystical atmosphere created by the water inside the pool, under the light and its relaxing effect is another reason for this lantern to be placed in this space. As a neces-

sity for a reclusive life, ventilation needs were met by opening rooms on these light spaces. In two-story buildings, small square windows on the upper floor and skylights on the ground floor open onto the courtyard; they were also opened outside on rare occasions. In the **Tokat Gök Madrasah**, doors that open onto the courtyard on the ground floor, and on the upper floor, windows that open outside, provide the function of illumination. Skylights above the entrance portal are arranged for illumination concerns, rather than aesthetic ones. In the **Divriği Turan Malik Darüşşifa** because of the hard continental climate effect, window embrasures are open on the south façade. In the mosque, windows face the west façade, as there is no façade in this direction. In the covered-courtyard *darüşşifa* part, light is obtained from the lantern, which is in the roof system, although it is not enough. Room windows are open on this space. Also illumination was increased by oil lamps. A console was noticed inside the entrance door, which was used as an oil lamp stand (6). In the **Amasia Bimarhane**, the windows of the long rooms lined up on two sides of the courtyard opened outside, and the rooms on two sides of the entrance iwan opened both to the space at the front and outside. Window arrangements compared to other şifahanes; while an increase in number and the idea of opening outwards increase space illumination, they also destroyed the tradition of isolating the patients and students from outside. Arch and pendentive window arrangements on two sides of portal (*taçkapi*) continued in the Sivas Buruciye Madrasah.

1.4. Physical factors

In the 14th century, the effect of **space lighting** on patients, doctor services, student studies, preparing medicine, etc., worked but the concept of how much it was needed was not formed. In order to isolate patients from the outside and protect them from the hard continental climate, embrasure-like small holes for each space placed at the top of the walls were enough. Space ventilation was done through a window that opened on the middle courtyard or mostly through a door for entering their cells. As weak light came from the lantern above the pool was not enough in the covered courtyard *şifahanes*, oil lamps tried to meet the need for illumination. As seen in Syria in the

Nur ad-Din Zengi and Egypt's Qalawun hospitals, in the great iwan where polyclinic service was given to outpatients, in the entrance iwan, and in the surrounding spaces, there was a small bell on one side for the doctor to call patients, and an oil lamp on the other side. Inside the portals (*taçkaps*), there were salient parts that functioned as oil lamp stands, as seen in the Divriği model.

In excavations carried out within the Kayseri Gevher Nesibe medical unit restoration work, the common thought is that **heating** was provided by steam-channels placed underground and were connected with the hamam (bath-house) near it, and that the winter classroom was heated by this method. However, this thesis cannot be valid for buildings, which do not have hamams (bath-houses) near them. Some art historians are of the opinion in their studies that health buildings were heated by *tandır* (*tandoor* - a heating arrangement). However, no certain proof that confirms the assertion of pipes circulating inside the wall could be found (1,63).

The transition from the covered-courtyard system to the open-courtyard system and courtyard dimensions, which got bigger and made it possible to have more cells, meant that patients, students and workers could benefit from **daylight**. The relaxing **acoustic** effect produced by the movement of water, created by arrangements such as the pool placed in the middle of the courtyard, the ablution fountain, channels, etc., was a method of mystical therapy that calmed patients down.

1.5. Material and ornamentation

While in the Anatolian Seljuk *darüşşifas* rough or hewn stonewalls were used; brick was used in the dome, vault, tomb space and wall ornamentations. Ornamentations got denser on portals, façades, surfaces that face the courtyard, tomb walls, and inner surfaces of roofs. While in the Kay Kavus Darüşşifa traditional local technique is applied in stone material use, glazed bricks in the tambour and ornamentations of the tomb roof carry on Central Asian effects (12,37). While in the Tokat Gök Madrasah traditional rough stone was used on the main walls, hewn stone was used in stanchions, brown stone in the entrance portal and turquoise and purple colored glazed tiles on the walls that fa-

ce the inner courtyard. In Divriği, the richness of embroidering on stone applied in portals (*taçkapı*), was carried on inside on the vaults, these formed unsimilar masterpieces of art, each one having different characters. In the building which identifies with public, meeting the requests and presenting extraordinary design power and ornamentation richness by passing beyond images of the Middle Ages, taking people from Asia to Caucasia, Iran and the Middle East, many styles and ornamentations are presented together (38,39). In the Jamal ad-Din Ferruh Darüşşifa in Çankırı, the weakness of foundation stones indicates that second-degree rough stones were used. Glazed tile pieces on the wall adjacent to *Dar ul-hadith* (school for teaching the hadith) shows that glazed tile was used.

The entrance door of the **Divriği Darüşşifa**; the qibla door, west door, east door (royal entrance door) of the Great Mosque are decorated with plant reliefs which affect the façade architecture in terms of quantity and quality and recall the service offered in the building (36). The qibla door of the mosque is one of the rare models where the artist conveys his personal abilities and experiences, and where plant reliefs were placed in extraordinary density and in an exaggerated fashion (12,39) Plant life motifs on the qibla doors of the mosque and the *şifahane* doors express the supernatural laws. While plant motifs are indicators of the universe, the moon motif on the *şifahane* portal symbolizes nature and forces, whereas the sun motif represents powers like force and light, which recall to the observer wellness, prosperity, power and health. Although features of ornamentation like enthusiasm, exaggeration, magnificence, curled branches, etc. are specified as baroque in some studies; in addition to the century the difference with the current was an effort Jesuits in Rome began to spread Catholicism in the 16th century; Seljuk hospitals forming a model for hospitals in the west shows that the baroque current was affected by ornamentation in Anatolia, in style and content. It is obvious that the Divriği Darüşşifa has a Gothic look because its column was placed in the middle on top of its door, and by stepped moldings that surround the pointed arch. Its difference from the Gothic is the arrangement of the molding group that goes parallel to the arch in the same dimensions without getting smaller towards the inside (40). Sassa-

nid's Tree of Life, papyrus, lotus motifs, zoomorphics and palmettes are the ornamentation types on the door. The tree of Life is a symbol, which instils life and youth for Central Asian and Siberian Turks. On the north door of the mosque, Tree of Life reliefs were used in triple formations. Straight and upside down tulip motifs on the portal (*taçkapı*) on the west façade of the Great Mosque and dense arrangements of big palmettes were the reasons why the door is called the "*tekstil kapısı* (textile door)" (36).

Among with plant ornamentation, **anthropomorphic, zoomorphic** motifs and cosmic symbols like the **sun, moon and stars** are ornamented on mosque and *darüşşifa* portals (*taçkapı*). Bird motifs on Divriği Great Mosque's textile doors and stars on the *şifahane* doors are symbols of the Seljuk Turks that continue from Central Asia; (41) **bird motifs** were used for charm purpose such as **guardian spirit** and **charms against evil eye**. In *darüşşifa* buildings constructed in this period, **dragonheads** on wing-ends expresses **health, healing and long life**. Gargoyles of the roof are in dragonhead shape in Divriği. A **dragon headed snake motif** was possibly embroidered on the portal (*taçkapı*), pool, outer walls, etc. Dragon motifs embroidered in snake form were found in Kayseri, on Konya hospitals and on buildings in Divriği and Çankırı. The Tree of Life, dragon and eagle motifs are always in compositions that complete each other. A more developed of this triple, quite stylized model of the Tree of Life is seen in Divriği. For example, as dragonheads are usually embroidered below the Tree of Life, they are embroidered on the tail of a bird (5,35,39,42,43,44,45). The double-headed bird motif was used by Byzantines as an emblem. As the region was under Byzantium rule before the Seljuks and the continued existence of Christian settlements in nearby regions, prevents a certain approach to the subject that the double-headed eagle motif was brought by Turks who came from Central Asia. Although it is asserted that **anthropomorphous figures** on disk-shaped reliefs on both sides of the door are portraits of people who founded the *darüşşifa*, as they are forbidden in Muslim belief, they were embroidered as **charm symbols that protect against evil**, by being hidden in secret places. Another opinion is that anthropomorphous figures symbolize the

sun and moon (24,39,46). On the keystone of the Amasya Bimarhane entrance portal, an anthropomorphic figure sitting cross-legged with one foot under, which is today in a damaged condition, is noticeable. Relief figures on Sivas Kay Kavus Darüşşifa portal's (*taçkapi's*) pointed arch are completely ruined. On one side, the bull shape, which has to be near the **lion figure**, is absent. The **snake relief** on top is damaged in a way that it cannot be recognized. **Geometric ornamentations** and large **pendentives** that are placed on the star system consist of the connections of 7-, 10-, 14- arm horizontal lined up the **star** arm extensions with each other. While **star motifs**, which express a deep resignation and devotion to destiny, also showed they do not deny this life with a dynamic, shining composition. A double-dragon figure on a piece of stone that is commonly thought to be a casing of a door found in the Atabeg Jamal ad-Din Ferruh Darüşşifa and another figurine, a naturalist snake figure winding around a goblet's stem, are a few examples for the **snake motif** to be expressed in **double dragon** form, by the Anatolian Seljuks. **Order, promising healing to patients, giving peace to the spirit**, references that the *şifahane* gives hope and the universe order (44,47,48). On the great iwan's arch triangles, human-headed rosettes, which symbolize the sun and moon, are for charm purposes, as in Divriği. On the rosettes, one a woman, the other a man; the crescent that surrounds the woman's head and the beams that come out of the man's head are evidence that they symbolize the moon and sun. A snake motif going around a cup found in the courtyard of another building in the Çankırı Atabeg Ferruh Darüşşifa courtyard is thought to belong to the *şifahane* (29). Double dragons on the portal (*taçkapi*) are decorated for protective purpose. For the Kastamonu Pervaneoğlu Darüşşifa, because of the dragon-like figure decorating a marble-covered wall, the building is publicly called the "*yılanlı* (with the snake) *darüşşifa*." According to Cantay, the motif on the sarcophagus piece used in the wall decoration has daisies and garlands on it. It has no relation with a snake. According to Ünver, "*maristan*" on the inscription means 'place where snakes live' in Turkish. Until recently lunatics, recluses and people with crooked faces were brought here and cured by psychic and physical means (26).

I.6. Their structures

Vault: Among the Seljuks, the vault type used commonly in all geographical regions and in various buildings was the **barrel vault**. In conditions where barrel vaults go inside each other, the **monastery vault** is formed. An organic variation was created by **cross vaults** and **star vault** ornamentations made inside them. In the Divriği Darüşşifa, where extraordinary formal models of roof systems were caught by various ornamentations and geometric puzzles made in the inside vaults, a four-armed star vault was arranged in its entrance iwan on the cross vault. In two iwans on the sides, in the middle star vault, on triangle pendentives at the corners **composite roofs** formed by stepped vault pieces; in the great iwan, the star vault in the middle, shell shapes at the corners; in rooms at the sides and in the middle part barrel vaults; in the porch part between the rooms the monastery vault were used. In the Sivas Kay Kavus Darüşşifa, star mirrored cross vaults (35) were used in the corner spaces of the porchs, mirror vaults in rooms on the sides, and in other spaces barrel vaults.

Dome: A lantern dome was placed in the middle part by raising the barrel vault in buildings where the central space is covered, as in the Divriği model. The dome system applied in tombs, covered classrooms and masjids (small mosques), created amazing spaces each one of monumental characteristic where because of its high roof it could easily be perceived from the outside, spacious, forcing the artistic trend borders of the period, where rich ornamentation integrated with the structure in an unfamiliar way.

Arch: It's seen that two centered pointed arches were used as a kind of shared element. Depressed arches on doors that provide communication between inner spaces make it possible for the door height remains of modest dimensions so that people who go inside bow down naturally as an expression of respect.

II. How medical functions make buildings gain functionality

In Anatolian Seljuck *darüşşifas*, medical functions have been the reason for the design of the building as well as its roof system; its location, façades and ornamentations even in the smallest details. While symmetric arrangement was not so preferred in the

plan; factors like the comfort of cured patients, polyclinic services, preparing medicines, design of spaces where service groups that would meet eating, bathing, using toilets, heating, cleaning, etc., the needs of the people who use the building and were sheltered inside and the size that was enough for the population around it were important. When physician and patient numbers in the Amasya Bimarhane are considered, the number of rooms reserved for hospital personnel was few and in small dimensions indicates that it was planned to give service to mental patients. Its tendency to a symmetric plan, out of the familiar order, and the creation of a long ward by removing iwans that had to be on two sides of the courtyard are indicators of functional design.

A building's **positioning** by its being in a dominant position in its environment, easily found and inspiring trust was not left to chance, so a suitable place was chosen. Although simplicity prevails in the **façades**, a massive building representing the power of the government, suggesting people trust, of a size that would be enough for patients and an image of gravity were needed. *Darüşşifas*, which were generally built overlooking a settlement on a high hill for these reasons, were at the same time houses of science. In complexes, which were built in a continuous row together with medical madrasahs or a mosque for mutual solidarity, buildings where other services were given like kitchens, toilets, mosques, dar ul-hadith (school for teaching the hadith), hamams (bath house), and fountains were considered. Divriği Darüşşifa's design together with a mosque creates a thought that it was a hospital, which gave service to masses of people with infectious diseases (51).

Portal (*taçkapı*) dimensions that extend out of façade walls, their ornamentation in characteristics which we can call magnificent, extraordinary and universal provide people with an inviting effect rather than a recollection of a cold hospital. Portals placed in the center of the façade, on the vertical axis line that pass from the courtyard center are placed in corners for functional purposes without considering visual aesthetics, as seen in the Kayseri Gevher Nesibe Darüşşifa, in a way to make it possible for the entrance iwan to be used for functions such as polyclinics, physician rooms, medicine preparation rooms,

etc. There are not many **windows** because of the reclusive life, especially for mental patients who needed to be protected a little bit from the outer world and to soften climatic effects such as cold and hot; physical needs such as light, air and sun rays that would come from the windows were met by the courtyard space which was designed in the central part. According to another point of view, as physicians, surgeons and oculists worked in the *şifahanes*, dim rooms were used for patients who had eye surgery. The **inner courtyard** is a functional space for workers, patients and students to get light and fresh air and patients to relax by walking around; it is in dimensions as large as possible and making it possible for room numbers around it to increase in proportion to its dimensions; it also has a pool in the middle. The **pool** that is connected to channels where rainwater is collected is an element, which comforts patients psychologically and presents mental therapy by the peaceful movement of water.

From Central Asia to the hospitals of Mesopotamia and Egypt, then extending to Anatolia, the **"iwan"** is not a coincidental fact. Iwans, which make it possible to create both summer and winter spaces in the *darüşşifas*, are functional areas by their size where many students can gather and have lessons, patients be operated, when needed transformed into rooms used by doctors collectively and when placed opposite each other, making it possible to easily communicate between spaces.

Although the traditional barrel vault of the Seljuks is applied in the **roof system**, the **dome** was applied for space comfort, to create an airy atmosphere by its high ceiling, to make it easier to be perceived as a special and different space from outside; to provide comfort in the winter classroom, tomb, covered madrasahs, and central space, and to create a light atmosphere. The only domed building model of the Anatolian *darüşşifas* is in Divriği. Another example cannot be found from the same period.

When all the ornamentation of buildings is examined, it is found that they were appropriately chosen for the medical function of the space, rather than decorative purposes. Among ornamentation generally preferred in *şifahanes* are moon, sun, star, and cosmic reliefs expressing these, like human-heads; animal

motifs like dragon, eagle, lion, bull, geometrical arrangements and Tree of Life reliefs. They were used as symbols of harmony with the universe, giving trust, suggesting, instilling in humand that these buildings would certainly heal patients.

II.1. Health employees, students, and patients in Darüşşifas

For determining workers at *şifahanes* founded in 12th century Anatolia, one has base it on the information in trust deeds. The **vakıf nazırı (foundation superintendent)** who inspects the **mütevelli (administrative trustee)** and foundation works done by the administrative trustee were nominated by the sultans. Among the duties of the trustee were all kinds of work, from supplying medicine to building repairs. There are documents stating that physicians were also nominated by the Seljuk Sultan (49,53). However, as only the Sivas Kay Kavus Darüşşifa trust deed has been found, based on the information found in it, an idea can be formulated about the composition of the employees. According to the trust deed; physicians, surgeons, and oculists were in charge (2,35,50,51). It is notable that especially oculists were mentioned, and other branches of physicians were not. As mentioned in the Sivas Darüşşifa trust deed, in the Kayseri Gevher Nesibe Darüşşifa and Medical Madrasah all staff physicians were registered in the Kayseri *tahrir* (survey of a province) and *evkaf* (foundations) registries. There were at least two internal diseases specialists, two surgeons, one pharmacist, headdoctor, headdoctor assistants, *danişmends* (learned man) and assistants (*tabib-i şakird*) on the staff (34).

There was a hierarchic order among **physicians** that worked in the *darüşşifas*, which continue up to today. **Reis'ul Etibba** (Minister of Health), nominated by him **Ser-Etibba** (chief doctor), **Tabib-i Evvel** is equivalent to today's head doctor. **Tabib-i Sani** (one. assistant director), **Tabib-i Salis** (second. assistant director) can't take *Sertabib*'s (headdoctor's) place in the same hospital, physician exchange between hospitals was done by nominating another hospital's headdoctor or assistant director, a kind of today's rotation duty was achieved. Other working personnel; **surgeons, oculists**, medicine preparing **aşşab** (herbalist), **tabbah** (cook) who prepares syrups and diet fo-

od, **edviye-i kub** who grind medicine by pounding, responsible for medicine storing **kilardar-ı emin-i mahzen, kayyum** (nurse), **kaşe-keş** (who collects samples like urine bottles), **ferraş** (who cleans floor), **ab-rizi** (in charge of toilets), **bevtab** (security) (20). Employee number and quality can change according to the *şifahane*'s size and service it gives (26,54,55). In jobs related to health, from the Seljuks up to our day, some names have passed to our day without changing. Among these names, which are Arabic and Persian rooted, are "**cerrah** (surgeon), **tabib** (physician), **attar** (herbalist), **dellak** (bath attendant)". **Sabuncuoğlu Sharaf ad-din bin Ali bin Elhac İlyas**, who wrote renowned work **Cerrahname** (book of surgery), has been the headdoctor in Amasya hospital. **Cerrahname**, written by Sabuncuoğlu Sharaf ad-din, gives the names of instruments used in surgery, in Turkish (10,55,56).

While physicians were assigned to positions, exchanges between hospitals made it possible for renowned physicians to be trained and to give service in various regions. There are written sources telling about the most renowned scholars of all time worked in the Amasya Bimarhane (26,57). At the same time, important medical works were translated and new works were written. If we mention a few renowned doctors, **Dr. Jamal ed-din Aksarayî** who is known publicly as *Muciz'i Hallil Muciz* worked in the Konya Aksaray Darüşşifa (55,58). **Zekioğlu Ebubekir Sadr ad-din Konevi** (Ebû Bekr İbn el-Zekî) (1208-1274) who worked as a head doctor in the Kayseri Gevher Nesibe Darüşşifa has renowned works named "*Ravzatü'l-Küttab*" and "*Hadikatü'l-Elbab*".

Seljuk Darüşşifas were at the same time renowned education institutions where physicians were trained and **students** got medical education. While **baştabibs** (head doctors) gave practical education to students by making **visits** to patients, on the other side they proposed patients needed diet and medicine prescriptions. Students had names according to the education and degree they have reached (20). The number of students at each madrasah changed according to capacity and number of educators. According to *Başvekalet* (Prime Ministry) records, in 1909, 500 students were being educated in the Sivas Kay Kavus Medical Madrasah, which is accepted as one of the greatest madra-

sahs of the period. While the capacity of the building was enough for the number, about near that numbers of students were being educated in that period. In madrasahs food and bed expenses of students were covered by foundation income, also they were given allowance (59). As medical books written by physicians like Ibn-e Sina (Avicenna), Galenos, Abd-ul-latif of Baghdad, Kutb-ad-din of Shiraz and Ali Suavi were lectured from, by looking at these books' contents, the specialization areas of physicians may almost be defined (30,34,60). All of the specialists who today have names like internal diseases specialist, orthopedist, nutrition expert, general practitioner and psychiatrist are mentioned by the name "tabib"(physician).

II.2. Cured diseases and curing methods

Diseases cured in *darüşşifas* are determined by the branches of physicians that are recorded in trust deeds and *evkaf defterleri* (foundation registries) and health personnel, by looking at students' lesson contents in madrasahs where education was given in coordination with the *darüşşifas*. As only a few numbers of medical books written in the Seljuk period in the Arabic, Persian and Latin languages reached our day, it's not possible to compare works and tell much about the innovations they brought to medical science. So, we understand that cured diseases were as follows: **fractures and dislocations, poisonings, fevers, kidney diseases, internal diseases;** especially from "oculists" mentioned in Sivas trust deeds, **eye complaints;** (from personnel called like "fetterer," "security man" mentioned in records about the Amasya Bimarhane) **mental diseases** were cured and according to physician Sabuncuoğlu's work named *Cerrahname* (Book of Surgery), also that surgical operations were done, therefore other diseases were also cured (26,57). It's thought that Turks had psychiatry institutions and mental disease cures for a very long time. Turks have always shown compassion to the mentally ill, and believed that their spirits were far from evil and they will not be judged in the hereafter. Mental patients were counted as patients who need care and innocent and one acquired merit in God's sight to look after them (54,61). Mental patients were not excluded; on the contrary, they were embraced and helped, so quite rich idiomatic materials used in metaphorical meanings developed (62).

Seljuk medicine uses the methods of its period's Islamic scholars. In this period, instead of 'hastane' which means 'a space for patients', sacred spaces; instead of medicine, sacred words and rituals were in the forefront. **Musical therapy, suggestion therapy, physical therapies like "hot water", surgical interventions and herbal medicine recipes** were used as curing methods. To understand the high-level physicians' curing methods and pharmacy reached Anatolia, it is useful to examine Byzantine physicians, who were most near to the area in the same period, and their methods. Curing methods of Byzantine physicians were based on a few principles. They were easy methods like; giving blood three times a year, diet, rest, keeping the body warm and using pepper for liver diseases. In Byzantium, which stretched over three continents, there were gems and semiprecious stones, objects called amulets and superstitious traditional tools commonly used by people to be protected from diseases and the evil eye (63,64).

According to Prof. Dr. Nil Sarı, "By the belief that each suffering has a remedy in nature, the human being who molded clues he creates in his mind about medical effects he looks for, by moving from shape, color and tastes of plants, animals and metals, explored the healing property of nature for thousands of years by trial and error methods and found most of them and books which had mentioned medical matters for centuries have been the main resource for remedy seekers." Renowned Greek physician Dioscorides who lived in the first century A.D., has made use of herbs that grow in Anatolia and Mediterranean, in his book *Kitab'ül Haşayiş*, where herbal curing methods are described. Herbs mentioned in the work are today used for curing purposes among the people. (One of the manuscripts that could reach our day *Kitâbü'l Haşâyîş ve'l-Hayvân* is registered in Topkapı Palace, Ahmed III, in 2147) (30,34,65,66).

In Seljuks, physicians could prescribe a **diet** according to the patient's condition. For diagnosing a malady, methods like looking at the color and smell of urine and checking the temperature were the ones used mostly. Prescriptions suggested by physicians covered recipes of various mixtures of herbs. The Seljuks, who used **rye grass (tare, *Lolium temulentum*)**, which are among the various herbs reached our

day in written resources, for anesthetic purposes, in the Anatolian *darüşşifas* (in the Gevher Nesibe Darüşşifa), anesthesia was done by Ibn-e Sina (Avicenna) method in operations (syrup which includes **wine, opium, aloe, mandrake and coconut**). Herbs, which are used mostly in cures are these: **almond oil, myrobalan, black myrobalan, bedda nut** (fruit of a tree which grows in India), **wormwood, scammony, garlic, poppy, watermelon** for eyes, **lily, white and blue colored iris**, compounds like “bluestone” which is applied to eyes, “galia moschata perfume compound” for mind and heart, “theriaca” against poisonings were also used. (67,68). In painful diseases (antispasmodics), **dill, flax seed, melilot, bitter almonds**; as analgesic **mandrake, poppy, henbane, poison hemlock, oleander**; for headache **camomile, violet**, for ear **gall, hemp** milk were used (69). Medicines, after being prepared according to the mixtures of prescription in medicine preparing rooms, were given to patients in the pharmacy department. Some patients were given a **diet** and according to the progression of the disease, medicine was given proportionately. **For mental patients**, in melancholia conditions, **elecampane, buckwheat**; for epilepsy, **centaury**; in neuralgies **succory**; for relieving stress and in paralytic conditions **garlic**; in melancholia and sleeplessness conditions **opium** was used. In our day, **passionflower (passiflora incarnata)** is a drug used in nervous diseases.

Ornamentations having dense vegetal motifs on the portals (*taçkapısı*) of *şifahanes*, which create extraordinarily enthusiastic and gorgeous appearances, give the idea that they were inspired by herbal mixtures used in prescriptions, even prescription mixtures were arranged (70). To make this subject clear, it was decided to explore to what degree the belief spread among the people in its neighborhood that “Herb motifs on the Divriği Şifahane qibla door reflect medicine prescriptions of the period,” is true, and examine this by mixing the herbs. In the wide ranging study of the Divriği Great Mosque qibla door; there was a big lotus relief on the top parts of the door, at the end-point of the pointed arch; just near that, inside the lotus motif, six stars, and the inside stars were zoomorphics. The curled lotus form at the uppermost of the triple Tree of Life formation on the sides of the portal (*taçkapısı*) is in a zoomorphic sense and the curled

relief inside that was found similar to the purple iris plant (see also, Yazma Eserlerden Tıbbi Bitki Hayvan and Madenler Sergisi, Süheyl Ünver Nakışhanesi,. Irises, lily bulbs, lotuses inside a papyrus form are seen. In a quotation from Pope, Kuban mentions that curled reliefs were Iranian in origin vine leaf and lotus combinations. Moreover; in Divriği, the Armenian population is a sign that shows that wine was given importance, and vineyards mentioned in Müjgan Üçer and Fatma Pekşen’s ‘*Mutfak Kültürü*’ book are signs that the grape was grown in the region. On the side of the door, a thin long cypress motif was embroidered on bar relief motifs that recall vertical and horizontal “*aleph*.” Cypress we generally see on gravestones symbolizes immortality. On the side of the door, a thin long cypress motif was embroidered on bar relief motifs that recall the vertical and horizontal “*aleph*,” whereas the cypress we generally see on gravestones symbolizes immortality (71).

Palmette, tulip, and geometric motifs on the west door create interpenetrating, dense surface texture. Succory motifs were seen on walls inside the *darüşşifa*. In ornamentations where zoomorphics were mostly used, no mixtures of prescriptions of the period are seen. However, when ornamental elements are taken separately, some resemblances were found with the herb and fruit motifs stated above.

Among the Seljuks, importance given to **mental patients** is understood from special hospitals built and the care given these patients. When at the beginning cures for mental diseases were given in villages and dervish lodges, over time, special departments were built in *bimarhanes* and *darüşşifas*. Because people thought that mental diseases were caused by supernatural powers, it was expected that patients would be cured by religious and magical ways such as tombs, saint tombs, fumigations and amulets. For this purpose, there was always a sheikh, dervish lodge, saint’s tomb, healer (by blowing breath), amulet writer, etc. that would be the remedy for the sufferings of people in every town.

In Anatolia, curing sources for mental patients are based on **asklepions**, which cured patients by using religious **suggestion** in the Mediterranean civilizations about a thousand years ago. In the method, which is based on a religion-based cure in the name of god

of medicine Asklepios; sun, water, music, and medicines were used and patient was let to sleep in a dark room. Known Asklepiion centers were complexes in Cos and Epidauros in Greece and Pergama (*Bergama*) in Western Anatolia. The Asklepios cult and materials and methods used in cures such as vows, inscriptions, ceramics, grave steles, statues and surgical objects show similarities with curing methods mental patients in dervish lodges in Seljuk times, such as baths in healing waters, sleeping in sacred places and special herbal medicines.

In addition, snake motifs found in asklepiions indicates that this sign was used in mental therapy. Mental patients in Anatolia had mental therapy in *maristans* where the snake motif was definitely embroidered. The Kastamonu Ali bin Pervane Darüşşifa was known as the snaked maristan and patients who had facial paralysis and those who were insane were cured here. However, motifs found here are not snake figures. Malarial people used to mix a piece of snake embroidered stone in water and drink it. When we think that the word *maristan* means ‘where snakes live,’ it is obvious that “**snake motif**” was used since asklepiions were founded before Christ for mental therapy purpose.

When people had no possibility of applying to doctors or for various reasons did not want to apply to doctors, all the methods and procedures for diagnose and cure of disease purposes were called **folk medicine**. Among these are methods like medicines (herbal, animal, mineral sourced), magical processes, spiritual processes of religious sources and surgical operations were applied. From very ancient times, methods like psychotherapy, hydrotherapy, acupuncture and gymnastics carried out by people were common applications for diseases. Spiritual curing methods, which were used to seek a remedy for sufferings as consolation when medical therapies were not successful were called **mystical folklore**. In beliefs about religious folklore, it was **suggested** that patient would be healed by various beliefs such as healing water, marvels, miracles, written stones, dances, vows, and mortification (72). The purpose in cures by **sheikh-disciple** relations in Sufistic life is the curing of spirits by their reaching God, by denying physical existence. In a 1726 dated document in the *Başvekalet* (Prime Ministry) archives, it’s recorded that many

epileptics and insane people were healed by the *darüşşifa* sheikhs in the Kayseri Ali bin Pervane Darüşşifa. In 1147, the *Toprak* dervish lodge in the Pasin district, recorded as the Erzurum Darüşşifa in the *Başvekalet* (Prime Ministry) archives, was a lunatic asylum where mental patients were cured (73,74).

Music therapy for mental patients, which was previously practiced in the Cairo Qalawun Hospital, seems to have started for the first time in Anatolia in the Kayseri Gevher Nesibe Darüşşifa.

II.3. “Water” needs for buildings

Water, which is an indispensable element since human beings have existed is a hygienic need. Romans were first to use healing waters in the West. By the rise of Christianity, having a bath started to be counted a sin, all places of hygiene and therapy like hot springs and hamams (bath houses) were destroyed. Starting with the Seljuks, a hot spring and hamam (bath house) culture started in Anatolia; healing springs were used in therapy. Ibn-e Sina (Avicenna), who in his work named *El-Kânûn Fi ‘l-Tıbb* (The Canon of Medicine) describes water as, “A unique natural element taken as a part of food and drinks” also mentioned the subjects of ‘properties of good water’ and ‘purification of water’ and also explained that rain water is better than well water and warm water is useful in headaches that occur because of epilepsy, melancholia and cold (75).

There is always a water spring, running water near a *şifahane* building, and naturally water buildings like a hamam (bath house), fountain, ablution fountain or pool. Sometimes the hamam (bath house) or fountain was constructed before the building. According to Muslim belief, in the words of our Prophet “Cleanliness is next to Godliness,” a fountain is needed in settlements on a district scale, and in buildings like complexes, khans, caravanserais, *darüşşifas*, madrasahs, dervish lodges and mosques. Fountains are somewhere outside the buildings like toilets, in courtyards or on outerwall, open for the use of the people around, and it is mostly a charity.

Apart from its hygienic purpose like bathing, the hamam (bath house) was needed for the heating of the *şifahane* and medical madrasah and for mental therapies of patients.

The pool and ablution fountain is in the center of the building, in an open or covered courtyard. The architectural character of the building, whether open or covered, does not change the location and function of the pool. In covered courtyard madrasahs and *darüşşifas* a high light-hole (lantern) is placed on the rooftop to light the pool. The ablution fountain placed in the courtyard, which is sometimes in its center, and water channels in various shapes (with snake motifs) on the sides were needed designs for creating water movement and collecting rainwater. Rainwater flowed from pool to channels on the sides from which it passed to reservoirs where water was collected.

Water use in therapy

There was always a pool in open or covered courtyard madrasah and *darüşşifa* buildings. Today most of these pools are lost or replaced by elements that don't replicate their originals in restoration. **Pools** were in different, amazing forms and water channels around them were decorated with reliefs in various motifs. The placement of the pool in the plan, at the focal point that forms the intersection point of the two axes, is not coincidental. All spaces around the courtyard open on the pool. The purling water-sound created by water-movement, its relaxing effect which calls patients to peace, the peace-giving scene of pool, water-sound, dim atmosphere created by low level light that comes from the lantern at the top (in covered courtyards) gives peace to people and especially in summer creates coolness around it.

Physicians of the period used the calming and analgesic properties of water it has on people (76,77). The pool of the *şifahane* in Divriği is octagonal, the intersection points of the waterchannels and pool are square, and there are curled snake motifs on the water troughs. Wöhrlin stated that pool in the center of the courtyard reminds of a rainwater-collection vessel and that collected water is very valuable.

Hamams (bath houses), which serve *darüşşifas* were spaces where calming bath therapies were applied to patients in psychological depression. In the Kayseri Gevher Nesibe Darüşşifa restoration, a Seljuk hamam (bath house) was found inside the *bimarhane*.

In mental therapy, focal places related with water culture had their place in Turkish folklore ever since

Central Asia. Healing waters and thermal waters, which patients are believed to be healing by using the water considered sacred and by the vows they made around them, are always found in the settlements of Anatolia.

Its use in spaces for hygiene purpose

In Seljuk times, when charitable institutions connected to foundations were constructed, works like bringing water and building **hamams** (bath houses) were given priority. Some models without a hamam (bath house) in the *darüşşifa* structure, doesn't mean that hygienic conditions were not met. In such circumstances a nearby hamam (bath house) was used (78).

As the water needs of the buildings were supplied from district fountains, except where there was running water, **fountains** on the outerwalls of the *darüşşifas* are equivalents of district fountains.

Toilets were understood to be ruined quickly, as they were shed-like and weak constructions outside the buildings, but close to fountain in the courtyard. Therefore, no toilet buildings can be found except a few examples (79,80). As some *darüşşifas* are placed in complex structures, the shared use of building areas is a point at issue. In the Çankırı Darüşşifa *sema-hane* (whirling dervish house), *imaret* (soup kitchen), kitchen and toilets are buildings whose use is shared.

In Divriği, the Bekir Çavuş Hamam is 100 m. in distance and strengthens the opinion that it serves the *şifahanem*.

Conclusions

For the architectural development of *darüşşifas*; the versatile development of Anatolia culture, which is based on different civilizations, depends upon such reasons as the following:

1. Turks didn't leave figures valid in the shamanist religion, to which they were devoted before Islam, and used motifs like humans, birds, dragons and Trees of Life on portals (*taçkapıs*) and on the innerwalls of the *darüşşifas* as protective charms,
2. Byzantine settlements, which still existed in the 11th century and curing methods taken from these doctors of Christian origin,

3. Masterworkmen who did the stonework, ornamentations, architecture, and planning function needs of the buildings in a way that reflected the effects of districts they came from and the technical schools they were educated in.

In this way, a synthesis of Seljuk civilizations that spread over a wide area was displayed in Anatolia.

In the plan, the Nur ad-Din Hospital in Damascus was taken as a model, in the Divriği Turan Malik Darüşşifa in the four—iwan system, while the great iwan was used as surgery space and in summer for classroom purposes, two other iwans were used for different purposes. The changes in the functions of the spaces were reflected in the roof system and **star vaults**, which do not look like each other but reflect masterpieces of art were constructed in all iwans. The plan's dimensions directed the roof system. As seen in the Kayseri Gevher Nesibe Hatun and Sivas Kay Kavus Şifahanes, the open courtyard model was chosen in buildings that have bigger dimensions compared to others, and in Divriği as the plan in small dimensions made it possible for the square courtyard to be covered at the top, the light problem was solved by a lantern placed in the courtyard roof. The plan is functional. There's no need for a plan prototype when the arrangement is symmetric and there are four iwans. As the building is used for patient care and madrasah-education purposes, asymmetric order is formed between the spaces as seen in the Sivas Kay Kavus model; details like preferring ward order achieved by rooms being arranged in a row on an axis, reserving a limited number of rooms for hospital staff as seen in a single-purpose building that serves mental patients like the Amasya Bimarhane model, arise from function.

The preference for *darüşşifas* to be within a grouped complex structure included an *imaret-aşevi* (so-up kitchen), fountain, hamam (bath house), *dar ül-hadith* (school for teaching the hadith), dervish lodge, mosque, medical madrasah, toilet, etc., buildings in a complex structure to support the *şifahane* through services they give. Even if a small *şifahane* that would be enough for the people settled in the area was enough as in Divriği, the need for space would be met by a nearby mosque and moral support would be received from a religious officer, when needed. In ad-

dition, the elevation of the building, which integrates with mosque, would change into a grander silhouette and reflect around as a big, confidential, and serious building.

In the *darüşşifas*, the **pool** is a spatial element in which water is used for mental therapy purposes. Therefore, it forms the focal point of the building, which could be seen by everyone, and all the spaces of the building were directed towards. Therapy by bath; hot water and hot springs is a kind of curing method used in Anatolian civilizations B.C. There should always be a **hamam** (bath house) near therapy centers. Sometimes before a *şifahane* or medical madrasah was constructed, a hamam (bath house) would be built and the main building would be put up after that.

In structural details; portals (*taçkapis*) that are the only elements that shape façade architecture are elements of buildings that catch attention where cosmic symbols like the sun, moon, stars, human pictures, geometrical patterns, Tree of Life, vegetal motifs and different symbols were expressed and visual material of buildings were presented the most. Carving symbols on these places was a desire for their being placed where the people who came to the *darüşşifa* would notice them as they entered and left. Ornamentation motifs are generally for charm purposes rather than decoration. The carving of symbols reflects the spiritual protectiveness of supernatural powers, powergiving and the healing effects of the universe. The geometric star motifs on the portals (*taçkapis*) of the Sivas and Kayseri *darüşşifas* point out that this place, which gives spiritual peacefulness and promises healing, is a hope-giving place. For ornamentations, the **snake motif**, which is always put somewhere in the buildings, is a symbol that is believed to have mystical healing effects ever since the healing temples in Greek settlements, the asklepians.

Ornamentation: Marvellous, very much throughout the period, gorgeous, catching the optimal level in architecture, art history and medical history, grandeur, the amazing look presented by the Divriği Turan Malik Darüşşifa, especially on the portals (*taçkapis*), has more than one reasons.

- Expression of the power of Mangujak Sultan Ahmed Shah in government and the richness of the state,

- Background of artisan Hürremshah of Khelat (*Ah-lat*) who was affected by the district he came from, where he developed in a atmosphere where most developed models of stone decorations were made and the expression of an artist who advocates independent and free personal thought,
- The effects of the Christian, Shamanistic and Muslim religions of various nations which were united under the Seljuk flag; Arabia, Iran, Byzantium, Ortoqid, Turkish, which today includes states from North Afrika to Iran, Georgia, Central Asia, India, form a rich cultural mozaic.

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Heating technology in anatolian seljuk hospitals. METU Jfa 2016/2. 185.Â historic records, or during surveys in Anatolian Seljuk hospitals in Kayseri and Amasya. Ventilation holes are observable in the vaulted ceilings of the rooms, however, this may be due to the prevalence of the portable braziers or buried tandÃ±rs used for heating (Figure 16). Tuncer (1981) claims that.