

HEALTHCARE ARCHITECTURE ON THE SILK ROAD: DARÜŞŞİFA BUILT BY THE SELJUK AND OTTOMAN EMPIRES ON THE ANATOLIAN TRADE ROUTES

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Introduction

"The Silk Road" is an extensive intercontinental network of trade routes across the Asian continent connecting East, South, and Western Asia with the Mediterranean world, as well as North and Northeast Africa and Europe. This route served as the primary path of commerce for the states from the 2nd century BC to the 15th century AD. Even though the sea routes between Europe and Asia were established, caravan trade continued along the Silk Road until the 17th century and later. While commerce was the primary intention for the establishment of this intercontinental network, Silk Road played a significant role in the exchange of knowledge, culture, religion, and technology between the East and West. Various belief systems extended along the route such as, Buddhism, Islam, Christianity, Manichaeism, and Zoroastrianism. Algebra, astronomy, Arabic numerals, medical developments and techniques, architectural styles spread from East to West, while various construction techniques, seafaring methods, medicinal plants, and cotton cultivation spread from West to East [1].



Fig.1: Major trade centers in North, South and Central Anatolia routes and locations of *darüşşifa*

Since ancient times Anatolia has been a bridge between East and West where 3 routes stretching from Central Asia to Anatolia and then from Thrace to Europe. Additionally, on the Aegean coast the ports of Ephesus and Miletus, in the Black Sea Region the ports of Trabzon and Sinop, in the Mediterranean the ports of Alanya and Antalya were used in order to reach Europe from sea. Among the 3 routes in Anatolia mentioned, North route included

Trabzon, Gümüşhane, Erzurum, Sivas, Tokat, Amasya, Kastamonu, Adapazarı, İzmit, İstanbul and Edirne; South route included Mardin, Diyarbakır, Adıyaman, Malatya, Kahramanmaraş, Kayseri, Nevşehir, Aksaray, Konya, Isparta, Denizli, Antalya in the South. In between these two, Central Anatolia route connected Erzurum, Malatya, Kayseri, Ankara, Bilecik, Bursa, İznik, İzmit, İstanbul [2].

Similar to caravanserais on trade routes to sustain commercial activities [3], Seljuks and Ottomans built *darüşşifa* to provide healthcare for the public varying in language, religion or race. In fact, *darüşşifas* existed since early Islamic civilizations in order to fulfill the function of a hospital. These facilities were understood and defined as the places of health and were given various names such as *bimarhane*, *maristan*, *darülmerza*, *darülahiye*, *darülsıhha* and *darüşşifa*. The fundamental mind-set and aspire was to provide care for everyone, free of charge. Seljuks was very sensitive about health services, therefore contributed to the development of modern medicine by building health buildings. During the Seljuk Empire many *darüşşifas* were intentionally established on the major trade centers in Anatolia and Mesopotamia in order to provide healthcare and shelter for travelers who fell out of their hometowns for trade purposes [4] [5]. During the Ottoman Empire on the other hand, *darüşşifas* were mostly located in İstanbul and rarely connected to the trade routes. They were built as a part of a large complex (*külliyeye*) consisting of a mosque, a caravanserai, a madrasa, and constructed with the order of Sultan [4]. This organization improved the functioning of *darüşşifas* and prevented the feeling of isolation from the public, patients use to experience in *darüşşifas* (Fig1) [6].

Darüşşifas in trade centers admitted inpatients and delivered ambulatory care services for the locals. *Darüşşifas* in İstanbul acted as both hospitals and medical schools. They provided both medical and spiritual treatments [6]. Medical treatments included careful diagnosis of the illness by using some basic, even modern methods such as urinalysis, checking pulse, applying appropriate diet, cleaning the body before medical treatment, preparation and application of appropriate medicine and surgical interventions [4] [5]. Spiritual treatments included consciously planned and designed physical environment. Especially sensory experiences of patients were addressed through natural features in the space, light and music [7] [8].

Major trade centers of Anatolia on the Silk Road were listed in the previous paragraphs, however not all *darüşşifas* located in these centers have survived. Names, locations and construction dates of all *darüşşifas* in Anatolian and Mesopotamia trade centers, which are active between 13. and 19th Centuries by Seljuk and Ottoman Empires [5] are given in Table 1, below. This paper aims at focusing on the well-documented examples of *darüşşifas* by Seljuk and Ottoman Empires, built at the Anatolian trade centers of the major intercontinental network of trade, science and medicine. The architectural characteristics, spatial healing features and the role of architectural space design in healing will be discussed by looking these early examples of hospitals in Anatolia.

Method

Existing *darüşşifas* constitute the heart of this study. Buildings will be analyzed with reference to the previously completed documentation and sources, in terms of plans and volumetric characteristics chronologically. Above and beyond these analyses, documentation putting emphasis on spatial design and features that have impact on health and healing processes will be discussed.

Table 1. *Darüşşifas* built by the Seljuk and Ottoman Empires in the significant trade centers of Anatolia

	Anatolian Centers with Darüşşifa	Darüşşifa by Seljuks	Darüşşifa by Ottomans	Date of Construction
North Route				
1	Trabzon	-	-	
2	Gümüşhane	-	-	
3	Erzurum	-	-	
4	Sivas	Sivas Darüşşihassası	-	1217
		Divriği Turan Melik Darüşşifası ve Ulu Camii		1228
5	Tokat	Tokat Muinüddin Süleyman Darüşşifası	-	1255-1275
6	Amasya	Amasya Darüşşifası	-	1222-1232
7	Kastamonu	Kastamonu Ali b. Süleyman Maristanı	-	1272
8	Adapazarı	-	-	
9	Izmit	-	-	
	İstanbul	-	*	
11	Çankırı	Çankırı Cemaleddin Ferruh Dullafiyesi	-	1235
12	Edirne	-	Edirne Sultan II Bayezid Darüşşifası	1488
South Route				
1	Mardin	Mardin Eminüddin Maristanı	-	1108-1112
2	Diyarbakır	-	-	
3	Adıyaman	-	-	
4	Malatya	-	-	
5	Kahramanmaraş	-	-	
6	Kayseri	Kayseri Gevher Neshibe Şifahanesi ve Tıp Medresesi	-	1206
7	Nevşehir	-	-	
8	Konya	Konya Darüşşifası	-	Unknown
9	Isparta	-	-	
10	Antalya	-	-	
11	Denizli	-	-	
Middle Route				
1	Erzurum*	-	-	
2	Malatya*	-	-	
3	Kayseri*	*	-	
4	Manisa		Manisa Hafsa Sultan Darüşşifası	1539
5	Kırşehir	-	-	
6	Ankara	-	-	
7	Bilecik	-	-	
8	Bursa	-	Bursa Yıldırım Bayezid Darüşşifası	1400
9	Iznik	-	-	
10	İstanbul	-	Fatih Darüşşifası	1470
			Osmanlı Cüzzamhaneleri ve Üsküdar Miskinler Tekkesi	1514
			Haseki Darüşşifası	1550
			Süleymaniye Darüşşifası ve Tıp Medresesi	1559
			Topkapı Sarayı'ndaki Hastaneve	
			Atik Valide Darüşşifası	1582
			Sultan Ahmed Darüşşifası	1617
Bezmialem Gureba-İ Müslimin Hastanesi	1847			
In Other Countries (Darüşşifa/Şifahane buildings that do not exist today)				
1	Musul	Erbil Atabeyi Gökbürü Hastanesi ve Ziyafethanesi		
2	Şam	Nureddin Zengi Hastanesi		
3	Halep	Maristan-ı Atik		
4	Trablüşşam	Nureddin Şehid Bimarhanesi		
5	Kahire	Bimaristan-ı Atik		
6		Kalavun (Mansure) Hastahanesi		1284
7	Şam	Kaymeri Hastahanesi		1248
8	Konya (Aksaray)	Darüşşifa		XIII. yüzyıl
9	Konya (Akşehir)	Akşehir Hastanesi		XIII. yüzyıl
10	Konya	Cüzzamhane		
11	Erzurum	Erzurum Darüşşifası		
12	Erzincan	Erzincan Darüşşifası		

“*” refers to trade centers active in two or all branches of the trade routes

Results

The ongoing study puts forth some similarities between *darüşşifa* and madrasa architecture. Both were observed to have large, rectangular open courtyards acting as inner gardens surrounded by arched porticos on four sides that leads to closed rooms. Spacious entrances with large doors and connection to a large "eyvan" to create a gathering space, was a common approach observed. *Darüşşifas* consisted of a hamam for the patients, a room to prepare and store medicine, patient rooms, and doctors' rooms [4] [5]. A further remarkable issue is the special approach in design of *darüşşifas* that addressed sensory experiences of patients. Designs were observed to concentrate on triggering 5 senses with features integrated into the design of the environment such as creation of natural scenes and play of light/shadow in the inner gardens; visual/tactile textures and patterns on interior surfaces; fragrances of aromas and fresh breeze in ventilation of closed spaces; and sounds from nature and music therapy [8]. Study will be completed with detailed and organized data related to the plan organizations, volumetric characteristics given in tables. Spatial features that trigger sensory experience and contribute to health and healing processes will be presented with examples.

Discussions and Concluding Remarks

Early examples of hospitals, *Darüşşifas*, with architectural and medical programs, and spatial qualities are considered to have a role in the healing process. They are considered as the indicators of the exchange of knowledge (medicine and medical techniques), culture, religion, and technology between the East and West. As a conclusion, discussions on spatial characteristics and qualities of *darüşşifas* will be made to trace and pin the origins of healthcare design and healing by design approach through the Anatolian trade routes.

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