

DETERMINATION OF DESIGN PRINCIPLES OF KHAN AND CARAVANSERAI STRUCTURES IN THE SOUTHEASTERN ANATOLIA REGION

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Abstract

Anatolia is a crucial crossroads between the East and the West regarding trade routes. Over time, merchants from the north of Mesopotamia or Iranian traders from Aleppo joined the trade route passing through Southeastern Anatolia. Caravans arriving in the region began trading here, leading to the formation of road networks such as Siirt-Batman-Diyarbakir-Mardin and Gaziantep-Şanlıurfa-Adıyaman. This study examines khans and caravanserais built in Southeastern Anatolia, a region that served as a transition point for many commercial and religious routes. A literature review revealed that despite the region's extensive road networks, a comprehensive study of its accommodation and trade structures had not been conducted. The methodology involved conducting fieldwork and utilizing various archival sources to compile a list of structures to be examined. Sources such as the Regional Directorates for the Protection of Cultural Heritage, Regional Foundations Directorates, the YOKSIS thesis archive, Ottoman Archives, and academic publications were reviewed. After identifying the addresses of the structures, initial information was gathered by contacting village and neighborhood headmen. Following this preliminary stage, fieldwork was conducted to examine all structures on-site. A total of 61 structures were identified for inclusion in the study. For those lacking architectural plans in the archives, measured drawings (röleve) were prepared, while the plans of existing structures were updated through on-site investigations. These drawings were then digitized. The study provides information on each structure, followed by an architectural analysis in the subsequent section. The identified structures were classified based on their historical periods and analyzed according to their architectural elements. The following section addresses preservation issues concerning the khans and caravanserais in Southeastern Anatolia. Ultimately, this study aims to fill a significant gap in literature by documenting 61 structures. It emphasizes the need to accelerate restoration efforts to ensure these historical buildings' proper preservation and transmission to future generations.

Keywords: Caravanserai; Khan; Southeastern Anatolia Region; Seljuk period; Ottoman period; Design Principles.

Introduction

Anatolia is a crucial crossroads between the East and the West regarding trade routes. Over time, merchants from the north of Mesopotamia or Along trade routes, caravanserais were built, which included animal shelters and storage areas for goods, as well as facilities to meet the food needs of caravans [1]. Between Anatolia and Maveraunnehir, these structures are also known by various names such as "ribat, tekke, zaviye, khan, hanakah, buka, dergah" [2]. The widespread emergence of caravanserais, as deeply rooted elements of civilization with typical

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examples, dates to the Seljuk period. Caravanserais are among the most common, largest, and wealthiest architectural examples in Seljuk architecture [3]. Caravanserais are the predecessors of modern hotel structures. The first accommodation buildings in Anatolia were caravanserais, which provided free lodging starting in the 11th century. While caravanserais in the modern world may resemble hotels, inns, or gas stations at first glance, they were initially built for military purposes. Over time, they evolved into social spaces [4].

Due to the commercial network established by the Seljuks in Anatolia, caravanserais began to be built in many places. Positioned along trade routes, these structures served as stopovers for merchants and were typically designed in a standardized way. They were arranged around a courtyard with a single entrance, with spaces for animals and human accommodation [5]. The ongoing trade network in Anatolia, especially after the 7th century, became even more significant with the loss of territories like North Africa, Syria, and Egypt. This period, corresponding to the Byzantine era, preserved its importance throughout history due to its role in religious routes [6]. In the medieval Turkish world, trade development under the rule of the Seljuks in the 11th century led to the proliferation of caravanserais and their transformation into social centers [7].

Caravanserais, located on intercity routes, were complex structures that included hammams (bathhouses), bazaars, and stables. As urbanization increased, urban trade also led to developing smaller, city-center versions of caravanserais. Known as "Khan," these structures differed significantly from caravanserais in size and function. Elements like hammams or stables were either absent or much more minor in Khan buildings. Similarly, the castle-like construction style seen in caravanserais was modified in khan buildings, resulting in a loss of scale [8].

Over time, caravanserais and Khan buildings lost their scale, and with the advancement of technology after the Ottoman Empire, the shift from animals to motor vehicles diminished their functionality. Today, these structures have lost their original functions and either serve different purposes or remain unused.

This study aims to examine the architecture of the khans and caravanserais located within the borders of the Southeastern Anatolia region in detail. This examination includes architectural plans, materials and construction techniques, facades, period characteristics, current conditions, and usage issues. Additionally, the study aims to compare and identify interactions between different periods and highlight period-specific stylistic features. An important aspect of the study is examining the physical characteristics of the Khan and Caravanserai structures and analyzing the architectural styles of their respective periods and how they are reflected.

This study addresses the development and architectural analysis of Khan and Caravanserai architecture in the region, and its significance is amplified by the fact that no comprehensive study has been conducted on this subject before. Moreover, previous similar studies typically focused on individual buildings, and detailed investigations, analyses, and documentation have not been carried out. In this context, the study aims to fill an important gap by revealing the holistic development, changes, and continuity of khan and caravanserai architecture in the Southeastern Anatolia region.

In conclusion, this study's findings will provide a valuable source for identifying shared values and issues related to Khan and Caravanserai structures, offering data for restoration efforts, developing preservation criteria, and ensuring the implementation of accurate technical decisions.

Literature Review

The literature review indicates that caravanserais and khans are often studied individually, and research generally focuses on buildings in Central and Western Anatolia. In

this study, besides academic sources, travel accounts have been used to gather information about caravans and trade routes during historical periods.

In Kurt Erdmann's book *Das Anatolische Karavansaray Des 13. Jahrhunderts* examines and analyzes architecturally approximately 170 structures located in Anatolia. In his research conducted with Hanna Erdmann in 1955, Erdmann categorizes caravanserais into closed and open sections. The work consists of two volumes: the first provides detailed information about the buildings, while the second contains plans and photographs [9].

Ayşıl Tükel Yavuz, in her 1969 work *Alara Han'ın Tanıtılması ve Değerlendirilmesi*, emphasizes that trade routes in Anatolia converged at four main axes: one connecting the East to the West, one from the North to the South, one connecting Southeastern Anatolia to Istanbul, and another linking the Northeast to Istanbul. In her article "Kars'ın Osmanlı'da Ticari Yol Sistemi ve Taşımacılık: Konya Örneği (1700-1750)," the positions and significance of trade routes during the Ottoman period are discussed. The study highlights the flow of the Silk Road from Bursa through Kütahya, Karahisar, Akşehir, Konya, and Adana, reaching Aleppo and Damascus, and the connection of Konya to Istanbul and other cities. It also addresses how trade in Anatolia was carried out by packed animals, with goods reaching collection points through "menzil haneler" (way stations). The study further explains the safety measures taken to ensure the safety of merchants and travelers [10].

In his study *Selçuklu Kervansarayları*, Osman Turan examines caravanserais starting from the 13th century, focusing on their relationship with trade routes and their impact on Anatolia. Turan explains that the Seljuk caravanserais were built for military purposes and with commercial functions in mind, offering secure lodging for caravans transporting valuable goods. He further states that these buildings provided many services, including stables, storage areas, shoe repair, pharmacies, and mosques [11].

In his 1969 work *Tarihi Türk Hanları*, İsmet İlter divides the study of Seljuk and Ottoman hans into two sections, listing them by provinces. His work includes studies on various khan structures, such as Gaziantep Hışva Han, Mecidiye Han, Anadolu Han, Diyarbakır Hasan Paşa Han, and others, while also noting those structures that have not survived to the present day [12].

In Ceyhan Güran's 1978 work *Türk Hanlarının Gelişimi ve İstanbul Hanları Mimarisi*, the development of khan architecture in Anatolia from the early Muslim Turkish states to the Ottoman period is traced. Güran also evaluates the differences in the plan and spatial understanding of these buildings based on the periods in which they were built. After providing a chronological account, he examines the han buildings of Istanbul, analyzing their plans, facades, materials, and structural systems [8].

Dr. Can Binan's 1990 doctoral dissertation "13. Yüzyıl Anadolu Kervansarayları Koruma Ölçütleri Üzerine Bir Araştırma" discusses the conservation and restoration of 13th-century Anatolian caravanserais, emphasizing the need to consider the documented values of these structures during interventions and ensuring that the conservation methods are appropriate for their original features [13].

In her 1994 doctoral dissertation, "Anadolu Osmanlı Dönemi Mimarisinde Mekân Analizi Han ve Kervansaray Yapılarında Uygulama," Gülay Keleş Ustaya applied spatial analysis methods to study the spatial organization of Anatolian Seljuk caravanserais. Using morphological mapping techniques, she grouped these caravanserais based on their functions and characteristics [14].

Mücahit Yıldırım's 1996 doctoral thesis, *Diyarbakır Hasanpaşa Hanı Koruma ve Değerlendirilmesi* includes a detailed study of the Hasanpaşa Han, a 16th-century Ottoman structure in Diyarbakır. His research includes surveys, restitution analyses, and restoration recommendations. Yıldırım categorizes Anatolian hans into three types: those located outside cities (single-room, square, or rectangular-shaped), those with a courtyard and rooms/stables, and those located within cities, such as two-story, colonnaded hans [15].

Cengiz Bektaş, in his 1999 book *Selçuklu Kervansarayları Korunmaları, Kullanımları Üzerine Bir Öneri*, provides an analysis of Seljuk caravanserais through maps that trace the routes of the ancient Silk Road, the Byzantine roads, and the roads used during the Seljuk and Ottoman periods. He proposes a new tourism route called "Kervansaraylarla Anadolu" (Anatolia with Caravanserais), which connects important caravanserais in the region [16].

İsmail Aytaç's 2001 work *Selçuklu Döneminde Malatya Kâhta Kervan Yolu ve Kervansarayları* discusses the han structures in Adıyaman and the surrounding region, focusing on two han structures in Adıyaman [17].

In Adil Özme's 2002 work *Urfa (Ruha) Merkez Hanları* and 2005 *Ruha (Urfa) Hanları Üzerine Bir Değerlendirme*, the study evaluates the han and caravanserai structures in Şanlıurfa, Southeastern Anatolia. Özme documents existing and lost buildings, offering detailed analyses of architectural plans, facades, structural systems, roofing systems, materials, and decorative elements [18], [19].

Gülhan Benli's 2007 doctoral thesis, *İstanbul Tarihi Yarımada'da Bulunan Han Yapıları ve Avlulu Hanların Koruma Sorunları*, investigates the han buildings in the historical peninsula of Istanbul, focusing on their preservation status, architectural features, and the reasons for changes in the historical fabric [20].

Gönül Güreşsever Cantay's 2016 book *Osmanlı Menzil Kervansarayları* highlights the distinctive features of Ottoman-period manzil hans in Turkish architecture. It documents the structures based on site inspections and architectural details, contributing to the literature on Ottoman manzil han buildings [21].

This literature review provides a comprehensive overview of the studies on caravanserais and khans. It offers insights into their architectural features, historical roles, conservation issues, and regional variations across Anatolia, especially in Southeastern Anatolia.

Southeastern Anatolia Region and Commercial Trade Routes

States seeking to control Anatolia have also aimed to dominate the fertile agricultural lands in the region. The Southeastern Anatolia Region, especially the Upper Tigris and Euphrates basins, has historically been an important center for trade and migration due to its fertile land and its position at the crossroads of major east-west and north-south trade routes [22]. Today, it holds commercial and strategic importance along the Aleppo-Kirkuk line.

During migration in Eastern Anatolia, Southeastern Anatolia served as a stopover and resting point for these movements. This situation caused the region to be influenced by Arab, Christian, and Jewish cultural elements, creating a multicultural structure. Following the intense migration of the 11th century, the region became a significant border point in terms of human and cultural geography. However, events such as the Mongol invasions, the Mamluk wars, and the Khwarezmian invasions during the late Seljuk period negatively affected the economic and social structure of Southeastern Anatolia. By the 15th century, the borders of Aleppo, Damascus, Diyarbakır, Van, Kars, and Erzurum had been defined, with the current borders being finalized after World War I [23].

Southeastern Anatolia, the smallest geographical region in Turkey, draws attention due to its geopolitical position. It is bordered by the Eastern Anatolia and Mediterranean regions, as well as Syria and Iraq, making it a strategic transit point throughout history. Acting as a bridge between Mesopotamia and Anatolia, this region has been under the rule of various states in different periods. When governance weakened, it was briefly controlled by beyliks and emirates [24].

To the north of the region lies the Southeastern Taurus Mountains, which reach an average height of 800 meters. In comparison, the elevation decreases to 450-500 meters as it approaches the Syrian border. The region's highest mountain is Karacadağ, which stands at an altitude of 1952 meters. To the east of Karacadağ is the Tigris Section, and to the west lies the

Central Euphrates Section. The Tigris Section has a more rugged terrain compared to the Central Euphrates. Geographically, the Tigris Section is divided into three main areas: the Diyarbakır Basin, the Mardin Plateau, and Karacadağ [25]. (Fig 1).

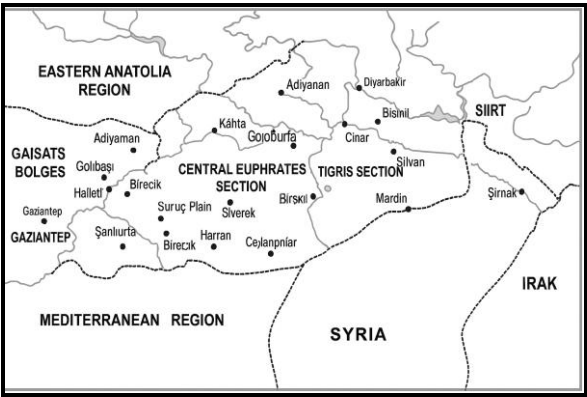


Fig 1. Southeastern Anatolia Region Physical Map [26]

Southeastern Anatolia has hosted important trade routes throughout history. The roads passing through this region have held significant importance regarding commercial and cultural interaction.

The Royal Road, built during the Persian Empire (547 BC – 333 BC), started from Susa in the Persian Gulf, extending to Kayseri, Gordion, and Sardis (Manisa). The road passed through the Tigris-Euphrates region on its return route and reached Aleppo (Fig 2).



Fig 2. Anatolian Royal Road Map, [27]

During the Ottoman period, the Hajj Route was divided into three main routes. The right branch started from Üsküdar and passed through Eskişehir, Konya, Adana, and Antakya before reaching Aleppo. Meanwhile, the middle and left branches passed through different regions of Anatolia, eventually leading to the holy lands (Fig 3).

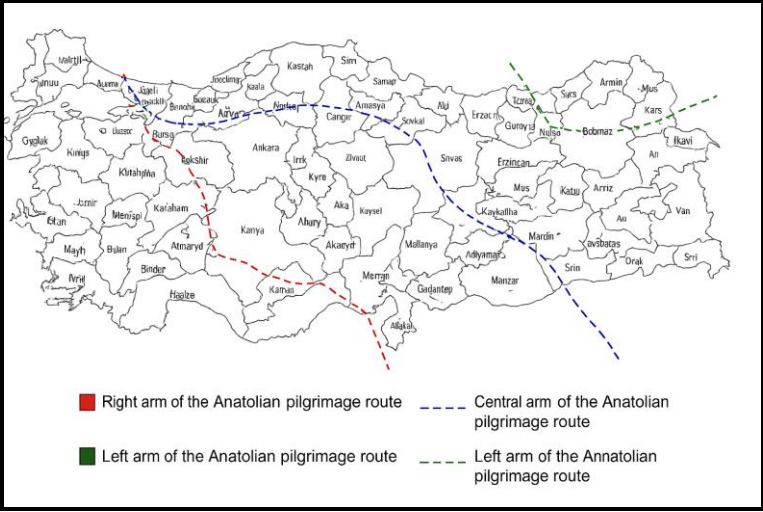


Fig 3. Hajj Route Through Anatolia [28]

The Silk Road, one of the most important trade routes between Asia and Europe, is divided into two main branches: the southern and northern routes. The southern route extends through Mardin, Diyarbakır, Adıyaman, Malatya, Kahramanmaraş, Kayseri, Konya, and reaches İzmir. The northern route connects Erzurum, Trabzon, and Samsun, leading to the Black Sea (Fig 4).

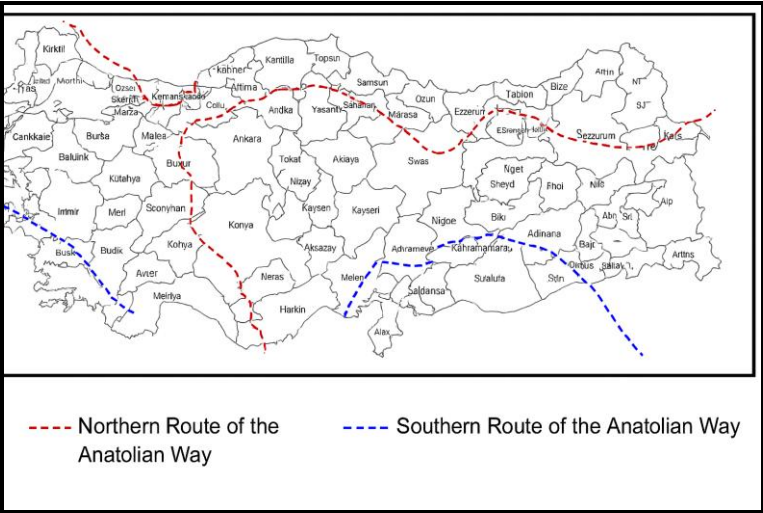


Fig 4. Silk Road routes passing through Anatolia [28]

During the Seljuk Period, the trade routes in the east-west axis were prominent, particularly the Tabriz-Ayas and Tabriz-Black Sea-Istanbul lines. On the north-south axis, the routes included the Sinop-Antalya and Samsun-Aksaray paths (Fig 5).

The Ottoman Period trade routes were shaped according to the political and economic developments of the time. Centers such as Tabriz, Van, Bitlis, Diyarbakır, and Aleppo formed important trade lines for the Ottoman Empire. The significance of these routes is frequently highlighted in the diaries of foreign travelers (Fig 6).

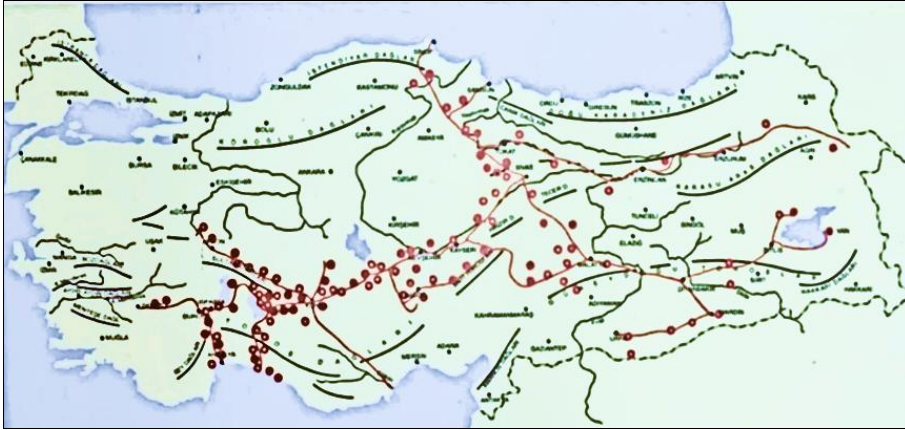


Fig 5. Seljuk period caravanserais and caravan routes map [16]



Fig 6. Ottoman Period trade routes [16]

These routes have made Southeastern Anatolia a central hub for trade and cultural interaction throughout history.

Differences Between the Concepts of "Khan" and "Caravanserai"

The terms khan and Caravanserai are often used interchangeably, but they refer to different structures: Caravanserais are large, fortified structures located along intercity roads. Built with a plan like a castle, these buildings typically included a courtyard, mosque, stables, storage rooms, and rooms for travelers.

On the other hand, Khans are smaller in scale and are typically found in city centers, bazaars, or towns. Compared to caravanserais, they are less equipped and do not have additional structures like bazaars or baths. Additionally, during the Ottoman period, special Menzil Khans were used for military and logistical purposes. These state-controlled inns ensured the smooth operation of the postal and messenger systems.

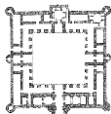
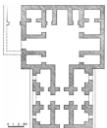
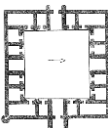
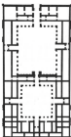


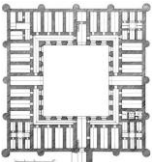
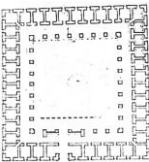

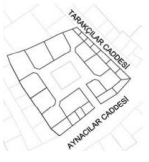




The historical development of Khans and Caravanserais can be divided into two main periods:

Pre-Islamic Period: Khan and caravanserai-like structures appeared as "Karum" trade centers during the Persian Empire (6th century BC). During the Roman and Byzantine periods, military and commercial accommodation structures were called "mansions" and "stationes".

In the nomadic lifestyle of the Turks in Central Asia, structures called "ribât" built along caravan routes can be considered early examples of khans and caravanserais.

Post-Islamic Period: The Gaznavids and Karakhanids (10th-11th centuries) developed khan and caravanseraï architecture, building secure structures along trade routes. During the Great Seljuks (11th-12th centuries), large caravanserais were built in the regions of Iran and Khurasan. The Anatolian Seljuks (12th-13th centuries) constructed caravanserais with state support to encourage trade and ensure the safety of merchants. During the Ottoman Empire (14th-19th centuries), the construction of caravanserais continued, with large khans built, especially in major cities such as Istanbul and Bursa (Table 1).

Table 1. Examples of the construction materials of khans and caravanserais built in Anatolia between the 10th and 20th centuries [29], (Küçük Çukur Khan, Kaşıkçı Khan [20], İpek Khan Plan; [30].

Name of the Structure	Daye Hatun Caravansary (Turkmenistan-Arnul)	Kurtlutepe Caravansary (Başhane)	Ode Merguen Caravansary (Turkmenistan)	Akçakale Caravansary (Merv-Amul Caravan Route)
Year of Construction	11-12. th	9-10.th	11-12 th	11-12.th
Building Material	Adobe-Brick	Adobe-Brick	Adobe	Adobe-Brick
Floor Plan				
Photos of the Structure		--	--	
Name of the Structure	Anushirvan Caravansary (Aksaray-Kırşehir)	İpek Khan (Bursa)	Kucuk Cukur Khan (Istanbul)	Kaşıkçı Khan (Istanbul)
Year of Construction	13.th before	15.th	16.th	18.th
Building Material	Stone and Brick Mixed Rubble and Regular Stone Masonry	Stone and Brick Mixed Rubble and Regular Stone Masonry	Stone and Brick Regular Stone Masonry	Stone and Brick Regular Stone Masonry
Floor Plan				
Photos of the Structure				

From the period of Turkish states to the Ottoman Empire, the khan and caravanserai structures developed in terms of plan and facade elements. Before the 13th century, buildings with rectangular or square plans, single stories, and protective walls with defense towers were constructed. In the 14th century, smaller buildings with enclosed courtyards and no shops were preferred due to economic crises and security issues. After the 15th century, with the strengthening of the Ottoman Empire, changes were made in the building plans, and shops were added around the courtyards. In the 16th century, urbanization increased, the concept of bazaars became more prominent, and khans in the bazaars were built with simple facade designs. Starting in the 17th century, buildings began to better serve trade functions, with increased stories and more windows on the facades. In the 18th century, independently constructed khans and caravanserais featured ornate facades and entrance portals. In the 19th and 20th centuries, three-story khans were constructed, with decorative details and many windows on the entrance facades (Table 2).

Table 2. Architectural Features and Elements [28].

Main Gate	Monumental entrance doors, often highlighted by ornate stonework.
Entrance Corridor	Double doors for security, providing access to the courtyard.
Courtyard	A spacious area in the center, which houses the winter and summer sections.
Arcades	Colonnaded or arched passageways surrounding the courtyard.
Rooms	Accommodation areas for travelers, typically small and simple.
Stables and Storerooms	Shelters for riding animals and storage spaces for caravan goods.
Mosque	A small place of worship for travelers.
Fountain and Water Basin	Structures used to meet water needs.

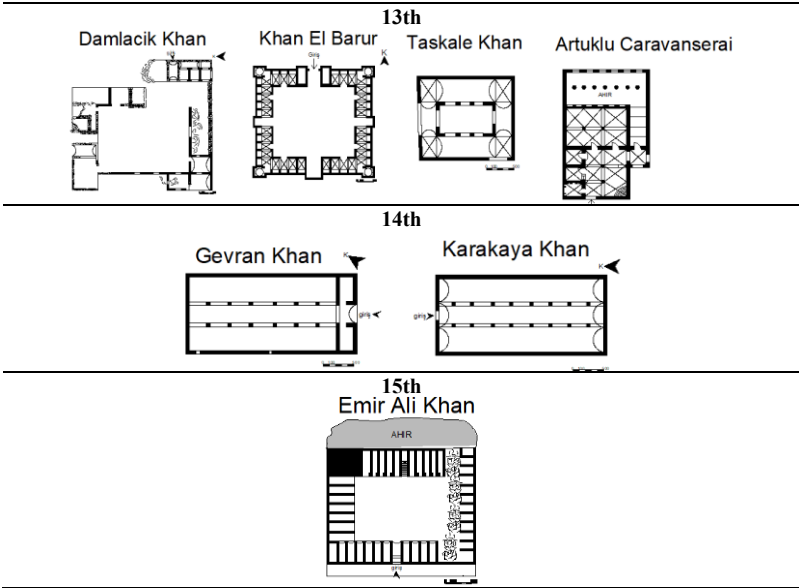
Khan and Caravanserai Structures of the Southeastern Anatolia Region

The Southeastern Anatolia Region comprises nine provinces: Adiyaman, Diyarbakir, Batman, Mardin, Sanliurfa, Gaziantep, Kilis, Siirt, and Sirnak. A study conducted on Khan and Caravanserai structures in this region reveals that these structures are in both the city centers and rural areas of 8 of these provinces. However, no structures that have survived today were found in Siirt. Through archival research, 84 structures were identified, and fieldwork in the area revealed that 61 met the criteria for inclusion in the study. Structures that have been destroyed, those that are only accessible in ruins, structures that are still under restoration, and those submerged underwater were not included in the research. The 61 structures located within the borders of the Southeastern Anatolia Region have been classified according to their construction periods. When categorized by period, it was determined that four structures date back to the 13th century, 3 to the 14th century, 1 to the 15th century, 8 to the 16th century, 3 to the 17th century, 11 to the 18th century, 15 to the 19th century, and 4 to the 20th century. Additionally, the construction dates of 12 out of the 61 structures could not be determined.

Seljuks and Early Ottoman Period

The analysis of the layout plans of khans and caravanserais in the Southeastern Anatolia region reveals architectural variations across different historical periods (Seljuk, Early Ottoman, and Ottoman). During the Seljuk period (13th century), the closed-plan type, meaning structures without courtyards, was predominant, while courtyard plans, or symmetrical layouts were rarely used. Both non-courtyard and single-courtyard structures coexisted in the Early Ottoman period (14th-15th centuries). In examples from the 13th century and earlier, caravanserais were built with rectangular or square plans, single-story structures, protective walls, and defensive towers. However, in the 14th century, smaller structures with enclosed courtyards and no shops were constructed due to economic crises and security vulnerabilities. After the 15th century, with the establishment of Ottoman rule, changes in the design of caravanserais and inns became evident. While the arrangement of spaces around the courtyard continued, shops opening onto the street appeared behind these spaces (Table 3).

Table 3. Plans of Khans and Caravanserais from the Seljuk and Early Ottoman Periods Located in Southeastern Anatolia -Damlacik Khan, Taskale Khan, Artuklu Caravanserai, Gevran Khan, Karakaya Khan [28], Emir Ali Khan [31] Khan El Barur [32]



Ottoman Period

In the Ottoman period (16th century and later), there was a significant transition to multi-story (two or three-story) buildings, and single and double courtyard plans became widespread. In the 16th century, with the increase in urbanization, the concept of markets and bazaars became more prominent, leading to the construction of inns within commercial centers. This resulted in a more simplistic façade design for inns. Additionally, designated stable areas were included due to commercial activities focusing more on daily trade rather than accommodation. From the 17th century onwards, buildings increasingly served urban commerce, shifting their focus from lodging to trade. In 17th-century structures, floors increased, and numerous windows were added to the facades. In the 18th century, independently constructed inns and caravanserais featured ornate facades and entrance portals. During the 19th and 20th centuries, three-story inns (including the ground floor) were built, with entrance portals, decorative façade elements, and many windows on their front elevations (Table 4).

It has been determined that previous studies have not included closed-plan type khans and caravanserais located outside urban areas with unknown historical backgrounds. These structures, which are either absent from the literature or lack detailed information, include Eymir Khan, Vazde Khan, Taşkale Khan, Damlacık Khan, Merkez Khan, Hayvan Khan, Şerbetin Khan, Çeper Khan, Konak Khan, Piriçlik Khan, Güzelşeyh Khan, Kantarma Khan, Kap Khan, Titriş Caravanserai, and Sam Khan. All these structures except Damlacık Khan, Hayvan Khan, and Titriş Caravanserai follow a closed-plan design. A review of research on the closed-plan type reveals that no comprehensive study has been conducted on these structures in the Southeastern Anatolia region (Table 5).

Table 4. Plans of Khans and Caravanserais from Ottoman Periods Located in Southeastern Anatolia -Çifte Khan and Gülüşke Khan [33], and others [28], [31].

16th									
Serbetin Khan	Hasanpasa Khan	Deliller Caravanserai	Cifte Khan	Lala Mustafa Pasha Khan	Tuz Khan	Sam Khan	Yeni Khan		
17th									
Ceper Khan			Suluklu Khan	Cevahir Khan					
18th									
Mecidiye Khan	Pürsefa Khan	Yüzükcü Khan	Yemis Khan	Tutun Khan	Saban Khan	Sirur Khan	Gümrük Khan	Mençek Khan	Barutcu Khan
Millet Khan									
19th									
Tuz Khan	Kavuncu Khan	Kalaycılar Caravanserai	Buğday Pazarı Khan	İlgar Caravanserai	Hacı Kamil Khan	Millet Khan	Seker Khan		
Güven Khan	Belediye Khan	Kumru Khan	Anadolu Khan	Gümrük Khan	Kurkcü Khan	Budeyri Khan			
20th									
Cudi Pasa Khan	Geluske Khan	Topcu Khan	Bayaz Khan						







Table 5. Plans of Khans and Caravanserais with Unknown Construction Dates in Southeastern Anatolia - Güzelseyh Khan [34] and others [28]

Unknown						
Eymir Khan	Vazde Khan	Merkez Khan	Hayvan Khan	Estel Khan	Pirinçlik Khan	
Titris Khan	Kantarma Khan	Konak Khan	Carmelik Caravanserai	Kab Khan	Güzelseyh Khan	

Main Gate

When examining the entrance doors of khans and caravanserais in the Southeastern Anatolia region in terms of material, form, and design, it is observed that the doors are large, made of wood, and feature a series of iron nails on the wood. The doors are typically double-winged. Some khans and caravanserais have a small entrance door on one of the door wings, referred to as a “narrow door” or “side door.” The purpose of this design is to prevent the larger door from being continuously open for security reasons. The large doors are used for the entry and exit of animals, while the small doors are used for human entry and exit. The dimensions of the entrance doors in these buildings generally range from 240 to 350 cm. The size of the narrow door typically varies between 100-150 cm. Examples of narrow doors from the structures examined in this study are provided in the table.

Table 6. Examples of Doors from the Han and Caravanserai Structures in the Southeastern Anatolia Region [28].

Hayvan Khan	Cifte Khan	Gumruk Khan (Siverek)
		
Barutcu Khan	Tutun Khan	Yuzukcu Khan
		

Entrance Corridor (Dehliz)

The entrance corridor concept in khan and caravanserai structures provides a secure passage into the building, preventing direct access from the street to open/semi-open or closed spaces.

An analysis of entrance corridor examples in Southeastern Anatolia khans and caravanserais reveals that these corridors lead directly to the courtyard, an arcade, or a closed space. The transition types are primarily linear, but L-shaped and Z-shaped examples also exist.

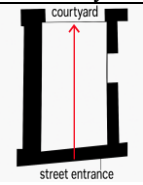
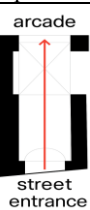
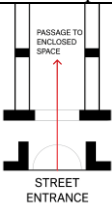


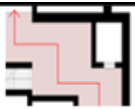
Entrance corridors are generally narrow and have long rectangular forms. Guard rooms, with doors and windows opening into the corridor, are along the long sides. In some buildings, these guard rooms exist on both sides, while in others, they are only on one side.

The entrance corridor dimensions in the khans and caravanserais of Southeastern Anatolia vary:

- The short side ranges between 2 to 4 meters
- The long side ranges between 3 to 7 meters

An analysis of entrance corridors in the region’s khans and caravanserais classified them according to form, transition type, and number of rooms. A total of 39 structures has entrance corridors (Table 7).

Table 7. Schematic drawings of entrance corridors from the han and caravanserai structures in the Southeastern Anatolia Region [28].

Direct transition from the street to the courtyard	Passage from the street to the portico	Passage from the street to an enclosed space	Linear form	L Form	Z Form
					

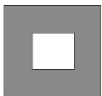





Courtyard

When examining the development process of Khan and Caravanserai architecture, the courtyard concept has maintained its place in the layout throughout all periods. A study of khans and caravanserai in the Southeastern Anatolia region reveals that out of 61 structures, 18 are without courtyards, while 43 have courtyards. The courtyard sizes of these structures vary between 100 m² and 2000 m². However, they typically have courtyard areas ranging between 250-400 m², with dimensions of approximately 13x15 m or 14x16 m.

Khans and caravanserais with courtyards have been classified based on the courtyard types specific to their construction periods. According to the number of courtyards, they are categorized as single-courtyard and double-courtyard structures. There are 40 single-courtyard structures and three double-courtyard structures. Single-courtyard structures are divided into three groups: central courtyard, inner courtyard, and outer courtyard.

The central courtyard type, which is surrounded on all four sides by rooms, is classified into two forms: regular rectangular and irregular rectangular. The inner courtyard type consists of courtyards with opposing units. On the other hand, the outer courtyard type is L- or U-shaped and lacks units in at least one corner (Table 8).

Table 8. Schematic drawings of Courtyard from the han and caravanserai structures in the Southeastern Anatolia Region [28].

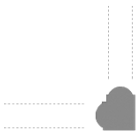
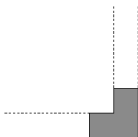

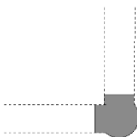

Central Courtyard		Single Courtyard		Outer Courtyard		Double Courtyard
Regular Rectangular Plan	Irregular Rectangular Plan	Inner Courtyard	Parallel Plan	L-Shaped Plan	U-Shaped Plan	
						

Arcades (Revak)

Arcades are present in examples with unknown historical backgrounds as well as those from the Ottoman period. An examination of the arcades in khans and caravanserais in the Southeastern Anatolia region reveals that the width of the arcade arches ranges between 150-180 cm. The size of the arcades, measured in square meters from arch to arch, generally varies between 1.2 m² and 2 m² (excluding corner junctions). The height of the arcades from the ground level ranges between 20-50 cm. When examining the arcade corner junction details

surrounding the plan, it is observed that the types of junctions include: a type where the corner turns by creating a chamfer from the junction point, an L-shaped junction formed by the direct connection of two columns, and a junction type created by two arches resting on a single column. According to the table, the junction detail where two arches meet in an L-shape on a single column is the most common. Schematic drawings of the arcade corner junction details are shown in the table below (Table 9).

Table 9. Schematic drawings of Rewak Corner Detail from the han and caravanseraı structures in the Southeastern Anatolia Region [28].

Arcade Corner Junction Detail				
Type formed by the union of columns		An additional arcade bay with an angled junction detail created by chamfering at the corner	Type formed by arch junction on a single column	
L-shaped junction detail with two circular columns	L-shaped vault junction detail with two square columns		The junction of two arches in an L-shape on a single column with circular form	The junction of two arches in an L-shape on a single column with square form
				

Rooms

In khans and caravanserais, which are used as accommodation units, rooms play a significant role. During historical periods when caravanserais were needed to rest the pack animals of caravans, the accommodation units for animals, such as stables, were prioritized. When examining the khans and caravanserais of the Southeastern Anatolia region from the 13th to the 15th centuries, it is observed that the accommodation rooms were commonly built as shared spaces. After the 15th century, rooms for individual use began to be constructed. Following the 18th century, the demand for animal accommodation also decreased with the decreasing need for packed animals. As a result, in 19th and 20th-century buildings, rooms were more frequently moved to the upper floors and became less prominent.

In khans and caravanserais with courtyard layouts, rooms open to the courtyard or arcade. If arcades surround the courtyard, the rooms' doors and a window open to the arcade. This is also true for the upper floor. The arcade serves as a corridor for access to the rooms. For example, where arcades do not surround the courtyard, the rooms open directly to the courtyard. Rooms on the ground floor typically have only one window, while rooms on the upper floors have windows facing both the courtyard and the facade. In the analysis of khans and caravanserais in the Southeastern Anatolia region, it is observed that there is a differentiation in the room types of structures with courtyard plans. This variation emerges depending on the relationship of the courtyard with the parcel. To adapt to the parcel shape, irregular rectangular courtyards or regular rectangular courtyards were constructed. In this case, the room forms in plans with irregular rectangular courtyards are right-angled, while those with regular rectangular courtyards vary at different angles. In examples consisting of regular rectangular courtyard plans, it is seen that the rooms are aligned with the parcel shape (Table 10).

It is the reverse process of plan formation caused by the parcel shape. The parcel shape is allocated to the courtyard, and the rooms are kept with regular right angles. This situation is commonly seen in urban Khan buildings. Due to the limited parcel sizes in urban areas, room forms have been constructed at different angles and volumes (Table 11).

Table 10. Examples of rooms with a rectangular courtyard from the han and caravanserai structures in the Southeastern Anatolia Region [28].


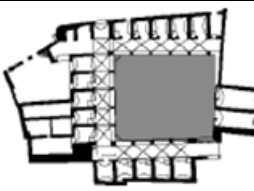
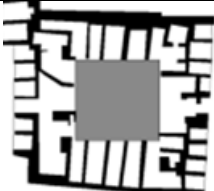

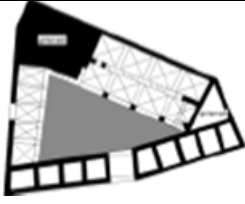

Cifte Khan	Gümrük Khan (Siverek)	Hacı Kamil Khan
		

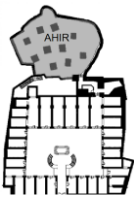
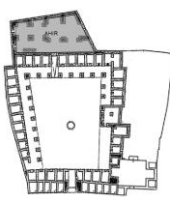
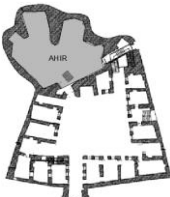
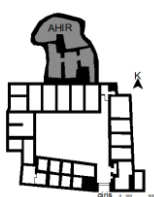
Table 11. Examples of rooms with an irregularly shaped courtyard from the han and caravanserai structures in the Southeastern Anatolia Region [28].

Tuz Khan	Hayvan Khan	Mencek Khan
		

Stables

When examining the dimensions of the stable units in the khan buildings in the Southeastern Anatolia region, it is observed that they range between "56 m²" and "135 m²." For example, in closed-plan types, the stables are smaller in size, while in open-plan type buildings, particularly those from the 15th or 16th centuries, the stables are more prominent in volume. When examining the stable units in buildings constructed during the Ottoman Empire, it is seen that the stable unit was clearly separated in the 16th century, especially in urban locations. In the later periods of the Ottoman Empire, the stable unit appears to have receded into the background, indicating decreased need for caravans. In some regional buildings, the stable units were constructed using a rock-hewn system. In other khan buildings, the stable units were built using a rubble stone or cut stone masonry system (Table 12).

Table 12. Examples of stable units carved from rock in han and caravanserai structures in the Southeastern Anatolia Region [28].

Yeni Khan	Hisva Khan	Yuzukcu Khan	Tutun Khan
			

Conclusion

This study examines the architectural analysis of khans and caravanserais in the Southeastern Anatolia region. The 61 structures analyzed have been classified according to the periods in which they were built. Structures from the Seljuk period are generally located outside cities, along trade routes, due to their strategic positions, while most structures from the Ottoman period are situated within cities. This is related to the rapid increase in trade and urbanization during the Ottoman period and the need for these structures to integrate with urban trade activities.

Buildings in urban areas were primarily constructed to serve trade activities and, therefore, have more compact and functional layouts. The plan analysis reveals that the Khan and Caravanserai buildings have entrance halls, large courtyards, arcades, rooms, and stable units. Urban buildings typically have single or double courtyard plan types, reflecting trade intensity and social interaction. The monumental gates are a significant feature of Seljuk architecture, ensuring the structures have grand and impressive entrances. The entrance doors of the buildings have been carefully examined both for their functional and aesthetic aspects.

These analyses have revealed that khans and caravanserais, located in urban and rural settings, possess different plan features according to their periods. The architectural features should be carefully maintained in line with these analyses during preservation and restoration.

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