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## The Courtyard Landscape Changes of Karim Khan Citadel (Arg) in Shiraz based on Historical Photos & Documents

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**Ali Asadpour**

Assistant Professor, Department of Architecture, Faculty of Architecture and Urban Planning, Shiraz University of Arts, Shiraz, Iran  
asadpour@shirazartu.ac.ir

DOI: 10.22084/NBSH.2020.19842.1995

Received: 2019/08/11 - Accepted: 2020/01/06

### Abstract

Karim Khan's Citadel (Arg) is the largest brick building in the Zandieh Complex in Shiraz, built with his ideas & desires. Its courtyard landscape has evolved throughout history, which is inconsistent with the current situation. Reading its landscape changes can pave the way for a proper restoration program and refine its current understanding of the citadel architecture and its spatial-visual character. The purpose of this study is to read the developments of the citadel courtyard landscape in two parts: a) landscaping features ('planting plan', 'water order' and 'geometry of parterres') and b) elements of architectural interventions adjoining from Zand era to contemporary time. The method of research is 'historical-interpretive'. Research documents include (a) travelogues, historical documents and books, (b) historical photos from the Qajar era, (c) aerial imagery, and (d) field observations. The readings of historical photos are done using single-point and two-point perspective principles, and the resulting data was supported by overlaps. The findings showed that the developments of the citadel landscape could be categorized into four periods: 'Formation (Zand)', 'Transformation & Changes (Qajar)', 'De-functionalizing and Demolition (Pahlavi)' and 'Restoration & Rehabilitation (Islamic Republic)'. The courtyard's original landscape has been transformed from 'Garden of the Residency' to 'Yard Garden' of the Late Qajar, 'Court of the Prisoner' of the Pahlavi era, and finally 'Orangery' in the present time. The original planting plan consisted of tall trees (plane and cypress) and short trees (citrus and orange) and flowers arranged in three lower, middle and upper eye levels. The water-supply order in the center, including pools and fountains, has more or less maintained its structure. However, the layouts of parterres have changed due to both physical and non-

physical intervention subjects. The aesthetics of the Zand dynasty have remained in the courtyard landscape until the days of Mozaffar al-Din Shah (about 140 years), and since then their visual character has been transformed and confined to the lower and middle visual eye levels. Therefore, a set of actions in the parterres and the new planting plan also suggested for landscape restoration.

**Keywords:** Citadel, Planting Plan, Landscape, Garden, Zand dynasty.

### Introduction

The Karim Khan Zand citadel or haram is a combination of residential area with service facilities (baths and stables) and security (guards) spaces with defensive battlements on a limited scale. It is the most important building of the Zand dynasty in Shiraz's historical context and the largest brick building in the Zandiyeh complex and the focal point of the two squares of Toupkhaneh and Mashgh during the Zand and Qajar eras (Asadpour, 2018: 194, 195). This building was inhabited during the Zand period and its construction was started by order and with the first ideas of Karim Khan (1705 to 1779 AD) around 1767 (Fasa'i, 2003: 609). In the book *The History of the Gitigasha* (the most important inscription of the Zand era) stated that Karim Khan established the citadel as 'the building of Narin Qala (a kind of citadel) including the grand and unrivaled building that can be a haram' (Nami Esfahani, 1984: 155) and also stated latter that 'the house known as the Arg was built for the haram' (ibid.: 156). The building used to be inhabited during the Zand period and has remained the residence of the Fars state governors in the Qajar era. In the Pahlavi period, in 1932 (Shafi'i & Esfandiari-pour, 2005: 42) or 1936 (Khormaei, 2003: 31), it was converted to Fars State Prison until 1966 and finally, in 1972, was listed in the Iranian National Monuments.

Such varied and heterogeneous transformations in usage, in the geometric structure of the parterres, the planting plan, and the interiors of the citadel courtyard, have brought about changes that affect our current understanding of its architecture and its spatial-visual arrangement. At present, the courtyard is about 96 to 74 square meters covered with orange trees, which is not fully in line with historical photographs and documentation. Its layouts have changed throughout history, and a mansion built in the middle of the courtyard in the Qajar era, all of which have been destroyed. Reading these changes can be useful for many reasons: First, it can help to recognize the planting plan and aesthetics of the Zand dynasty in the architecture of the courtyard in which the citadel is a

key building. Second, its results can facilitate the achievement of a more comprehensive and accurate landscape restoration plan for the citadel landscape, and third, an examination of its evolution can serve as a basis for the correct re-creation of the courtyard of the other Zand buildings. Therefore, the purpose of this study is to investigate the changes of the courtyard landscape in two categories: a) landscape ('planting plan', 'water order' and 'geometry of parterres) and b) architectural elements ('additional building' and 'architectural dividers in courtyard') from the era of Zand up to now. Thus, this paper examine this hypothesis that basically, Zand governors have used a method of landscaping in Karim Khan Citadel, which due to its residential function and spatial-geometric structure is at least different from the method of planting trees in the Persian garden and with the intervention of other historical periods in the citadel.

**Research Questions:** This research addresses the following questions: A) what changes have the trees in the landscape of the citadel since the time of Zand, and what was the plan for planting and arranging the water in the courtyard? (B) What was the additional mansion(s) in the courtyard, and what effects did it have on the parterres and its visual aspects in further periods? And (c) what would be the solutions to restoring the current landscape of the Citadel based on its changes review?

**Research Method:** The main research strategy of this paper is interpretive-historical which means 'to search for a social-physical phenomenon in a complex context with explanatory-narrative and holistic orientation' and uses a set of deterministic, contextual and inferential evidences. These evidences, in turn, makes the subject matter unique in time and historical space, relates to its text and context, and ultimately establishes a strong link between the subjects under consideration by providing rational interpretations (Grout, Wang, 2005: 136, 154-157). The documents consists of several sections: (a) Written information on travelogues, Fras Cultural Heritage Organization documents, and books on Fars status from the Qajar era; (b) historical photos that are mostly from Mozaffar al-Din Shah and beyond; (c) aerial photographs from 1956 until now and finally d) the author's field observations. The research process consists of four stages: 'gathering data and evidence', 'recognizing and organizing information and observations', 'evaluating and analyzing information', and finally 'achieving a general narration of data merging and analyzing'. Readings of historical photos have been done using single-point and two-point perspective principles. Since information about the dimensions of some elements in photos is now

measurable, other image elements can also be calculated. Besides, the courtyard landscape in each period represented graphically in a united layout and it allow them to be compared.

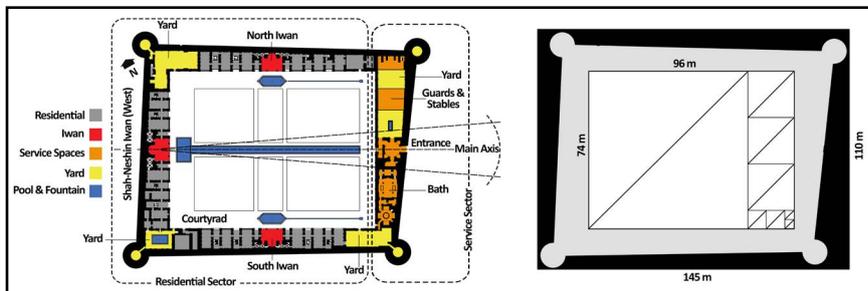
### **Research Backgrounds**

The studies that have been done so far about the Karim Khan citadel are mostly related to the field of decoration and architectural ornamentation. For instance, Ghanbari et al. (2016) in her doctoral dissertation first identified the content of the murals and decorations of the Zand and then identified the effective basics for their formation. Her results emphasized on the Karim Khan Zand's ethnic art depicted in the abstract expression and functionalism of the motifs used in the citadel and other Zand monuments in Shiraz. Another research studied the architectural pattern and semiology of the citadel in two groups of general and specific signs. In that study, the courtyard of the citadel was described as a 'garden-yard' that reflects the semantic aspects of the ancient Iranian garden and it has argued that the ratio of the area of the citadel to the whole building is more representative of a garden than a conventional yard in the geometric structure of a regular citadel (Ghanbari et al., 2018: 201). The only book dedicated specifically to the Karim Khan citadel written by Shafi'i & Esfandiari-pour (2005) entitled *The Manifestation of Art and Architecture in Karim Khan Palace*, which focuses on the analysis of Zand motifs, especially the role of a motif called Toranj. In other examples, simple descriptions of the citadel and its ornamentation have been considered and are mostly in the category of tourist books or nonacademic writings (see Rasouli, 2003; Daneshpajouh, 1998; Khormaei, 2003). However, the landscape of the citadel is a subject that requires distinct research and nothing for this has been done so far.

### **The architecture of Karim Khan Citadel and its Geometry**

The architecture of the citadel is a collection of rooms and Iwans around a rectangular east-west courtyard. In addition to it, the citadel has four other small yards next to each of its round barbicans. Unlike the citadel main courtyard, its outer geometry is like a parallelogram, and neither side is perpendicular from the outside. The entrance to the building on the east side leads to the Arg Square (named Toupkhaneh), and this side, which has more deviations from the other sides, has no entrance to the courtyard except for a small gate. The eastside includes bathrooms and service, guards, barracks and stables, and the other three sides, each consisting of a two-column

Iwan in the center with corridors and arches around it, belong to residential spaces (Figure 1). The Royal Iwan (named Shah-Neshin) at the west side is the most important Iwan of the citadel, which is located along the axis leading to the entrance of the building, and in front of it, there is a pool and a longitudinal water fountain with 28 fountains. The north and south Iwanes have a similar design to the west one, but only small pools with three fountains can be seen in front of them, each of which overflows into a simple rectangular pool on its east side. Thus, the east-west axis of the building from the entrance to the royal Iwan coincides with the extension of the rectangular courtyard, and it is the most important axis in the geometric and spatial structure of the citadel.



◀ Fig. 1. Arg (citadel) spaces and geometric analysis of its courtyard in the current situation (author based on the map of Fars Cultural Heritage Organization).

### Periods of Interventions in Karim Khan Citadel

The studies of the written and visual documents show that the developments of the courtyard can be classified into four stages as follows. The first period, which begins in the days of Zand, eventually leads to the Qajar, the Pahlavi, and the contemporary, and in each period, some characteristics give the courtyard a specific identity. These stages are:

#### A) The first period (Zand)

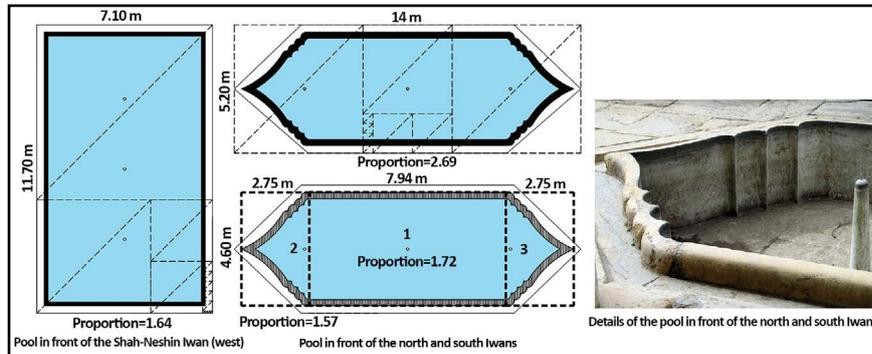
The first period in the study of the landscape of the citadel goes back to the time of the Zand era. For the first time in the book entitled *The History of the Gitgoshah*, the courtyard of the citadel referred to as the Garden of the Residency with 'two or three domestic deer'. In this source stated that 'the flower of the garden has been grown as the face of the dignity, and every new sapling has not seen the loss of the autumn' (Nami Esfahani, 1984: 157, 218). The German Karsten Niebuhr and William Franklin of England, who came to Shiraz at the time of Karim Khan and Ja'far Khan, respectively, do not give any information about the courtyard. Therefore, accurate information on the characteristics of the courtyard landscape, the order of planting and its plant types cannot be found in this period. Niebuhr's description of the 'palace with a beautiful garden' (Niebuhr, 1975:

64) belongs to the Divan Khaneh mansion, because in his time the citadel, which has been interpreted as a 'haram' (Ibid.: 68), had not yet been completed. Franklin's descriptions were more focused on the character and visage of Karim Khan and Jafar Khan (Franklin, 1990: 92). However, the citadel water supply and the geometry of the pool and its fountains (which are still standing) contain information about the original landscape pattern of the citadel. The water of Roknabad Qanat in the north of Shiraz, after passing through the Khoshk River and the city fortifies or enceinte entered the citadel (Nami Esfahani, 1984: 159, 160). Archaeological excavations have shown that the water 'entered through pottery pipes under the southwest barbican of the Arg and go the way into the small pool of the same angle, after which other parts of the courtyard were drunk... And then flowed to the private bathroom and the Vakil's water supply' (Shafi'i & Esfandiaripour, 2005: 27). It seems that due to the geometric structure of the citadel's water features, the water flows in the courtyard from west to east. However, since no complete excavations have been carried out, the details of the water transfer in the citadel cannot be accurately described.

In addition to the central fountain that is 3.90 meters wide and about 79 meters long, three pools can be seen in front of the citadel Iwans that still retain their originality (Figure 2). The pool in front of the Royal Iwan (Shah-Neshin) at the western side has a proportion of 1.64. This number shows the common proportions of the other components of the pools in front of the north and south Iwans. The overall size of the northern and southern parterres is similar, and since the citadel stones paving, except for erosion, have not changed since the days of the Zand era, its proportions and dimensions can be well obtained. Each of the parterres has a length of 77 meters and a width of 25.20 meters, which indicates a proportion of about 1 to 3, which is a well-known geometry in Iranian architecture. Therefore, finding a planting plan and a landscape of the courtyard at the time of the Zand era requires a study of documents from the Qajar period, based on which the original plan can be imagined.

The architecture of the courtyard facade of the citadel in this period is simple brickwork with wooden horizontal features called Shir-Sar in the area of the frieze, which can be seen as the background of the green trees in the courtyard. The citadel's Iwans had been decorated with two probably stone pillars beautified with paintings of ornate sloppy flowers facing the courtyard. Apart from the two tile works on the west side and either side of the Shah-Neshin Iwan, there were three tile works on the east side of the courtyard in front

of the Shah-Neshin Iwan, that were destroyed and only historical photos of them remain. Thus, the east-west axis of the citadel has become very important and has been superior to other axes. This has been exacerbated by the elongation of the courtyard fountain.



◀ Fig. 2. The geometry of pools in the landscape of the Arg courtyard (Author based on field observations).

## B) The second period (Qajar)

The second period in the developments of the landscape is the Qajar period. Sir Robert Carpenter, an Englishman who visited Shiraz during the Fath Ali Shah era (1772-1834), described his meeting with Hussein Ali Mirza Farmanfarma, the governor of Fars, in one of the Iwans; ‘The front of this room is open from the ceiling to the floor, and the view of the plane trees, which used to adorn the Karim Khan’s court, can be seen, and the marble fountains among the flower gardens cool the outside air,’ he writes. This palace was built by Karim Khan and surrounded by a castle-like fortify’ (according to Afsar, 1974: 228). His description indicates that the ‘plane tree’ was a key plant in the landscape of the citadel during the early ages of the Qajar era, which has been a Zand dynasty tradition. Apart from what has been mentioned, none of the Western travelogues paid attention to the citadel or its courtyard to the Nasser al-Din Shah period (1831-1896); Most of them, if they mention the citadel, are the following that refers to the names of the buildings of Karim Khan.

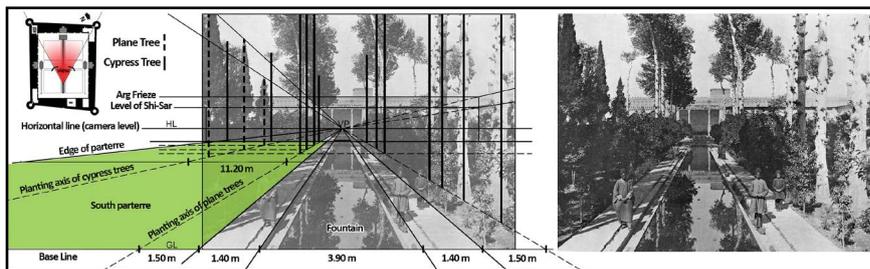
The government palace of Shiraz, which is mentioned by the Japanese Yoshida Masaharo (1993: 109), is the ‘mansion of Khorshid (Sun)’ or the ‘Ayeneh (Mirror) Palace’, which was commissioned by Hussein Ali Mirza Farmanfarma during the reign of Fath Ali Shah Qajar and in the northwest of the Nazar Garden which should not be confused with Karim Khan citadel. Although the description of Furukawa’s novelty (2005: 219) from ‘Dar al-Hukume’ (place of government) in Shiraz, has more details, it refers to the same building as mentioned before. German Heinrich Karl Brugsch descriptions (1989: 476) from the ‘Government citadel’ during the reign of Sultan Murad Mirza and the English Edward Brown (2005:

314) descriptions during the reign of Jalal al-Dowle, all of whom came to Shiraz during the Nasser al-Din Shah period, still refer to the same buildings. Madame Diolafova's descriptions of Karim Khan's proceedings have been also more focused on the city enceinte and moat (1982: 411).

However, Lord Curzon (2001: 121) an Englishman who has visited Iran and Shiraz in 1889 (Nasser al-Din Shah Qajar era) writes about the interior of the citadel; 'Inside the citadel, the courtyards and Iwans of the governor's residence were sculptures that were by no means interesting... In the two courtyards in the citadel, flowers were planted, and in one of them on marble, the faces of several Iranian warriors' sculptures were painted'. It is unknown at this time what he meant by two courtyards. However, it can be expected that he meant two large, elongated parterres of the citadel that have been interpreted as courtyards. Also, the address of what is probably the carving of the heroes of the Shahnameh warriors has not been seen in the citadel, and such a design belongs more to the Khorshid Mansion. In other existing writings until the end of the Qajar era, there is no indication of the characteristics of the citadel. Edmund Ironside (1982: 286), an Englishman who visited the citadel during the reign of Ahmad Shah Qajar (1898-1930), considers it the residence of the governor of Fars. It seems that the travelogues did not pay attention to the citadel during the Qajar period, because this building has always been the residence and haram of the Fars governors, so it could not be a subject for them to visit. Forsat Hosseini Shirazi (1998: 731) at the end of the Nasser al-Din Shah period writes: 'The citadel is a very large house with many rooms, built by the Karim Khan... In its yard, countless trees have been planted, which can also be called a garden, and this citadel is the haram of the rulers.' Another reason refers to the change of the Shiraz administration building from the Divan Khaneh to the 'Palace of the Arg' or what was so-called the Khorshid mansion, which occurred during the reign of Fath Ali Shah and then, this building became the official center of government meetings and therefore was considered by tourists. The citadel was not the center of attention, despite its remarkable dimensions.

In the absence of sufficient written descriptions of the citadel landscape, the only available documents are a general map of Shiraz<sup>1</sup> of the Nasser al-Din Shah period and the historical photographs of this building in the Mozaffar al-Din Shah era. Since the map does not have any information about its size, except for being greenery inside the citadel, it has not been mentioned in this research. The first photographs of the citadel date back to the middle ages of

Mozaffar al-Din Shah. These photographs include three key images taken around 1902 by a photographer named Mirza Hassan (about 140 years after the citadel was built). Figure 3 is the most important of these photographs, which was taken along the longitudinal axis (east-west) and towards the Shah-Neshin Iwan; based on the number of fountains in the image (23), it covers about three-quarters of the length of the courtyard landscape. According to the one-point perspective principles, the viewpoint (VP) is in the center of the Iwan, and according to the location of the people in the photo and the height of the viewpoint from the line of the horizon (HL), it is clear that the photographer was standing on a platform about the 1.50 meters height. Since the width of the central fountain (3.90 m) and its side passages (1.40 m) measured in the field survey, they can be used as a scale for measurements on the ground line (GL). Accordingly, the structure of the south parterre is well defined. This parterre includes a longitudinal axis parallel to the main fountain, which is intended for planting plane trees at a distance of about 1.50 meters from the edge. Another axis is at a distance of about 11.20 meters from the axis of plane trees and especially cypress trees, which, according to the overall width of the parterre (25.20 meters), this distance is located in the middle of the width. You can't see the southern edge of a parterre in this photo. However, the trees in north parterre are visible. In the northern parterre, plane trees can be seen well near the edges of the passageway and at the same distance of 1.50 meters. As can be seen in the photo, north parterre did not have cypress trees in this area. In all two northern and southern parterres, space was filled with citrus trees and, most likely, orange ones.



◀ Fig. 3. Right: View of the Shah-Neshin Iwan along the longitudinal axis of the citadel around 1902 by Mirza Hassan, a photographer (Sane, 1990: 42); Left: Reading the perspective and key components of the landscape (Author, 2019).

Photo No. 4 was taken from the citadel rooftop on the north side and towards the Shah-Neshin Iwan. In this photo, the details of the three plane trees on the west side of the parterre are well visible. The two-point perspective of this photograph shows that the layout of planting in this parterre includes a transverse axis for planting plane trees. Completing the information in Figure 2, the placement of the plane tree in the middle of the western side of the parterre and the

planting of other plane trees around it can be considered as a model for such trees planting. To achieve this certainty, referring to Figure 5 is essential. This photograph, which shows the entire length of the southern parterre, depicts plane trees along the axis with citrus ones.

Fig. 4. Right: View of the Iwan from the rooftop around 1902 by Mirza Hassan, a photographer (Sane, 1990: 40); Left: Reading the perspective and key components of the landscape (Author, 2019). ▶

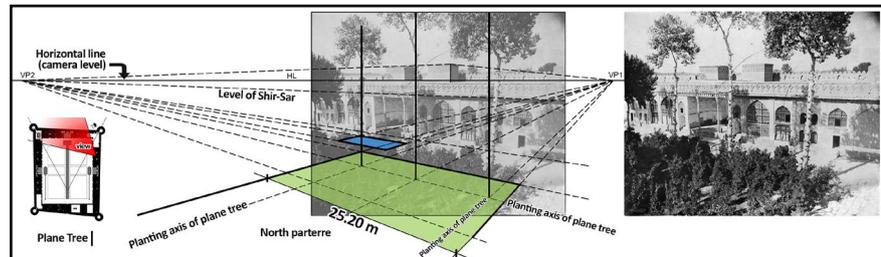
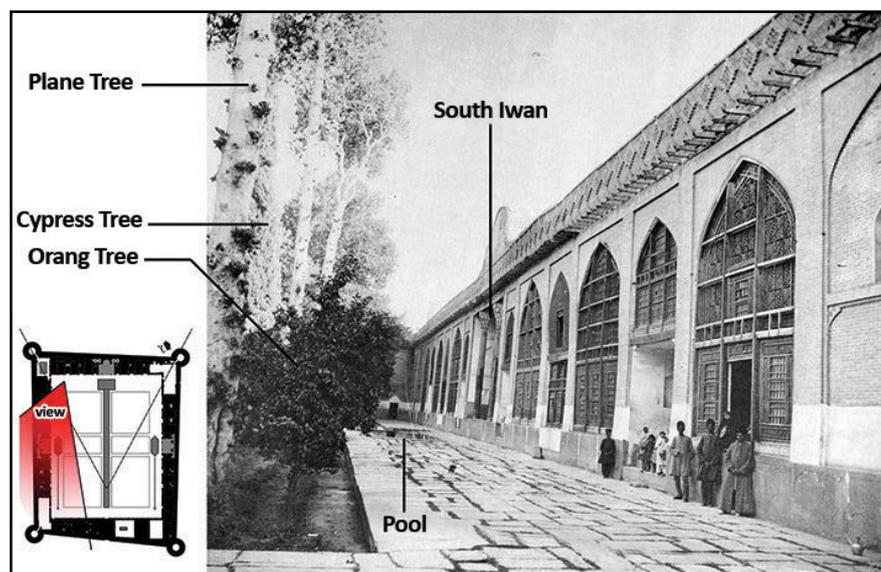


Fig. 5. West-East view of southern parterre around 1902 by Mirza Hassan, a photographer (Sane, 1990: 41). ▶



From the analysis of these three photographs, it could be concluded that in the Mozaffar al-Din Shah period, no trace of the colorful flowers of the Nasser al-Din Shah era could be found. The two northern and southern parterres are rectangular and have no divisions. During this period, the tree planting plan in the citadel included the following two groups:

- Tall trees: This category includes two groups of the plane and cypress trees. Plane trees planted on the outer edges of northern and southern parterres because of its shade. Their tall trunks and crowns have not created an obstacle for the central view from the Shah-Neshin Iwan to the entrance and vice versa, and at the same time, they have emphasized its direction. The cypress trees were planted among the parterres. Although there are no traces of cypress trees in north parterre in these photographs, considering the principle of symmetry in the Persian garden, this defect can be interpreted as the result of erosion. Cypress and plane trees are suitable for creating

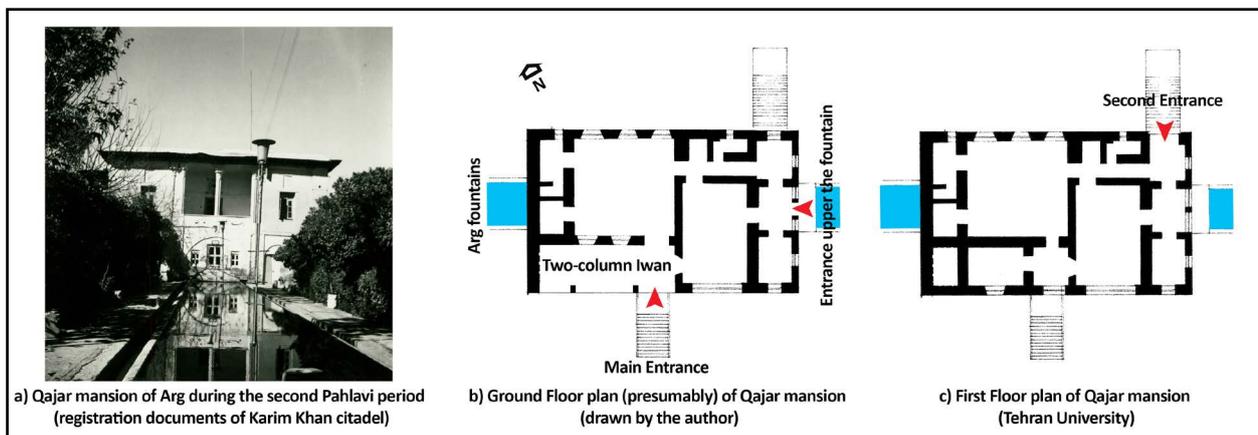
micro-climates in these images, and due to their height and size, they can be older than other trees. While the plane tree is deciduous, the cypress tree is always green, which is why in the cold seasons of the year, cypress trees become more beautiful and, while emphasizing the longitudinal axis of the citadel, still maintain the overall geometry of the courtyard.

- Short trees: These trees include mostly oranges and other citrus fruits, which are low in height, and some of which are not very old. These trees filled all the gaps between the tall trees and were arranged in a network. Unlike the previous group, these trees were planted for fruitful purposes, not aesthetics. The presence of these trees has been common, especially in the yards of houses, and in historical Iranian gardens.

These photographs also show that the tree planting structure in the middle of the longitudinal parterres has been destroyed in the area adjacent to the pathway parallel to the central fountain. Plane trees have lost their symmetry in this area. However, all the trees near the northern and the southern pathway of parterres and in front of the rooms and Iwans to the north and south of the citadel remain in place. The empty space due to the lack of plane trees in this section provides a good place to build a two-story mansion in 1902 shortly after the photos were taken. The building was built with the property of Mansour Mirza Shoja'a al-Saltaneh, the son of Mozaffar al-Din Shah, who was the governor of Fars during his reign and Forsat al-Dawlah Shirazi has also written a poem about the history of construction and its engineer (Afsar, 1974: 270). In this piece, the engineer of the building, 'Zain al-Abedin Khan Mozzin al-Saltaneh' and its builder was also named 'Memar-Bashi'. The reason for the construction of this building and its initial use is not clear. There is no image left of it until the Pahlavi period. The only existing photographs date back to around 1971-1972, which show the eastern facade of the mansion and could be seen on the main water fountain of the citadel in the middle of the courtyard (Figure 6). As can be seen, one of the entrances to the building located on the east side and top of the water fountain. In the 1972 registration documents of the citadel, stated that 'the mentioned building was built on two floors and a two-column Iwan in the south of it, which connected to the southern courtyard of the building by a stone staircase. On the east side of the building, on the second floor, there is an Iwan located in front of the water fountain in the middle of the citadel' (Fars Cultural Heritage Organization, Karim Khan citadel registration file, 1972: 26, 27).

In the photographs of the Qajar period, changes in the interior of the citadel could be seen that are interesting; first, a significant portion of the Shir-Sar of the frieze has been collapsed, especially near the Shah-Neshin Iwan. And the other is that ornamental trefoil arcs had been installed on the north and south Iwans, which should be considered as features of Qajar architecture repeated in other courts and official buildings such as Narenjستان Ghavam, Afifabad garden and the like. The third intervention involves the removal of the stone pillars of the Iwans and the installation of wooden ones in their place, which were much less strong than the original. Erosions could also be seen at the lower level of brick walls covered with white plaster or painted. These are signs of the erosion of the citadel during the Qajar period, which is also in line with the erosion of the landscape of its courtyard.

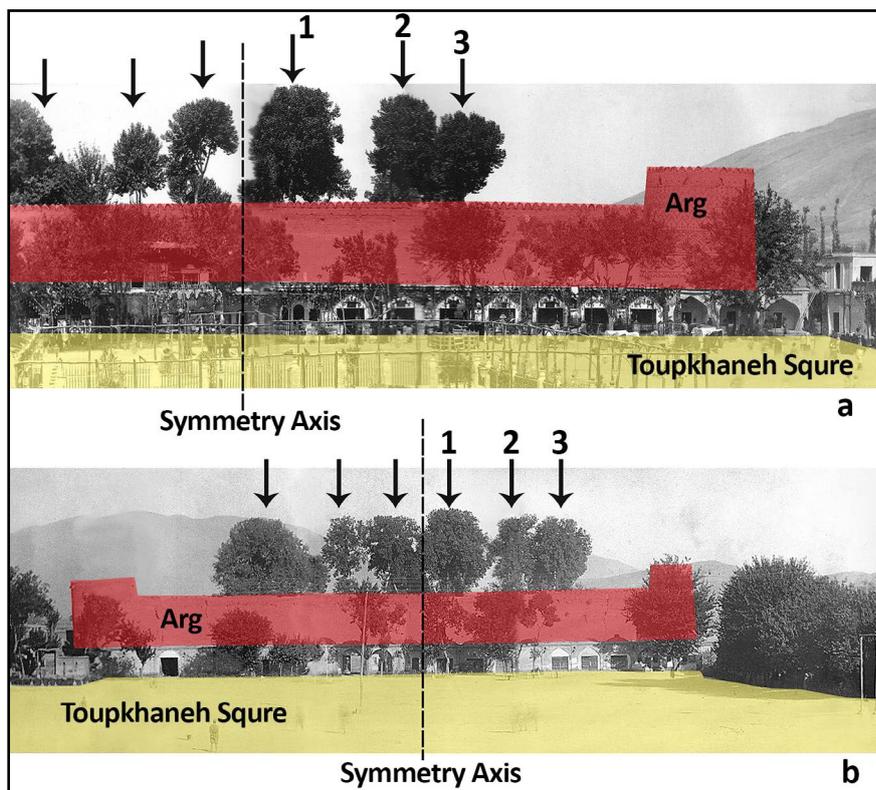
In addition to the photographs from the inside of the citadel, photographs are taken from outside (Fig. 7) during the reign of Mozaffar al-Din Shah and Ahmad Shah Qajar (1898-1930)- also show the orderly planting of tall plane trees. Due to the height of the citadel's walls (12 meters) and its barbicans (14 meters), plane trees should be about 20 meters high. These photographs also show that the planting layout of the trees on the eastern side of the parterres, like the western side, includes three plane trees per each parterre, which has already been analyzed in Figure 4.



▲ Fig. 6. Qajar mansion of courtyard (Fars Cultural Heritage Organization, Arg of Karim Khan Registration Document, 1972, redrawn by author).

**Thus, the developments in the landscape of the courtyard in this period could be classified into two parts:**

- From the beginning of the Qajar era to the pre-Mozaffar al-Din Shah period: Despite the erosion of tall trees (plane and cypress), the landscape still retains its origin in the Zand era, and the courtyard parterres have not been changed. The structure of the fountains and pools in the photo clearly shows that the water order in this period is



◀ Fig. 7. View to citadel trees from Toupkhaneh Square in Shiraz during the period of (a) Mozaffar al-Din Shah Qajar (1904) and (b) Ahmad Shah Qajar.

still similar to the days of the Zand. For this reason, the representation of the landscape in this period, by correcting and completing the defects caused by erosion, can represent the view of the courtyard during its heyday in the Zand dynasty.

- From the Mozaffar al-Din Shah to the end of the Qajar dynasty: with the construction of a mansion on the central water fountain, the structure of the northern and southern parterres, the water order and the geometry of the axial view in the landscape of the courtyard disturbed. During this period, as the middle trees erode, the new order imposed, regardless of the geometry of the courtyard, which is itself due to the space created by the lack of tall trees in the previous period and some unknown functional goals.

Therefore, based on what has been presented so far, it is possible to extract the main planting layout of trees in the landscape of the courtyard in the Qajar and Zand eras. Given that the geometry of the hard elements of the citadel's landscape (parterres and pools) is still present and has preserved its Zand era originality, it is possible to represent the landscape of the courtyard and do an aesthetic analysis. Since ordered planting in line is the basics of planting trees in the Persian garden, the lack of some trees in the known axes can be caused by erosions. So, based on the assumed pattern of planting, completing the layout of the courtyard in the Qajar era and with a

strong probability at Zand time is possible. Besides, since there have not been many changes in the citadel's landscape before Mozaffar al-Din Shah, this representation could depicted Karim Khan's order of planting. In this representation (Figure 8), the intersecting axes of plane trees planted around the northern and southern parterres. The cypress trees also planted in the middle of each parterre from east to west. The remaining surfaces allocated to citrus (orange) trees. Such an arrangement in planting makes the longitudinal axis of the building more distinctive. Its schematic sections (Figure 9) show that the aesthetics desired in the citadel at the Zand and Qajar era arranged in three levels of vision, as follows:

- Lower eye level: The lower eye level includes the stone paving of the courtyard, the surface of the fountains, the pools, and finally the flowered surfaces on the edge of the parterres.
- Middle eye level: At this level, there are citrus trees with evergreen coverings and the scent of flowers. This level, which is in line with the normal human vision, also created a natural barrier to the overall vision of the entire courtyard and helped to keep the citadel privacy.
- Upper eye level: The upper eye level aligned with the crown of plane trees and the elongation of cypress. At this level, the point of view cone created by the trunks and crowns of the trees. This surface has evergreen and deciduous trees. For this reason, the landscape of the citadel has been painted in different seasons.

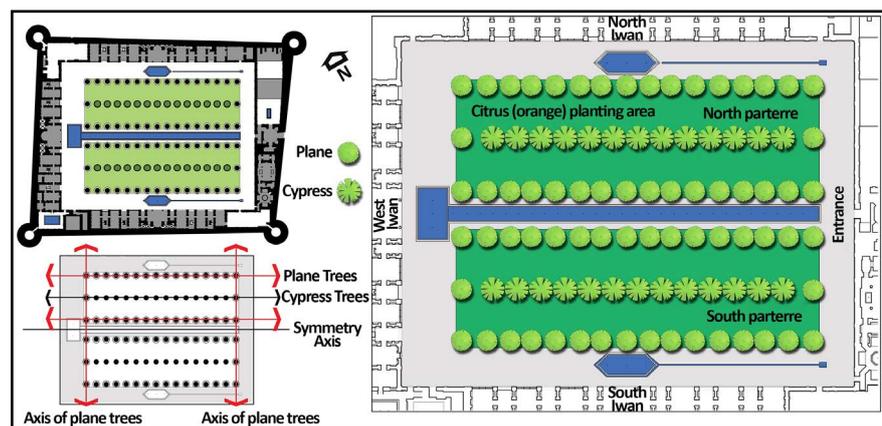
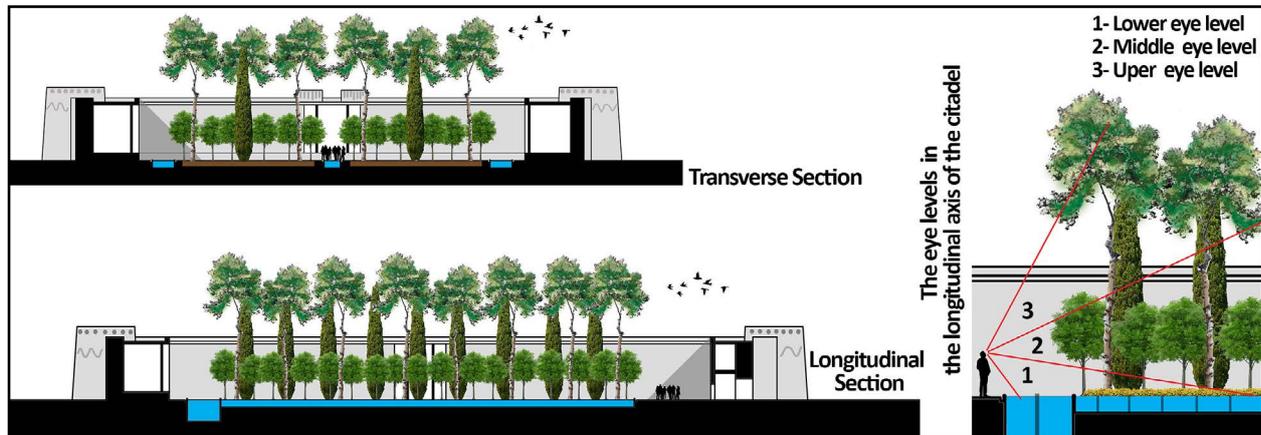


Fig. 8. Reconstruction of the planting layout and the main axes of organizing the trees in the courtyard in the Qajar period (Author, 2019). ►

### C) The third period (Pahlavi)

Ironside (1982: 285) states in his writings that the citadel was sometimes used as a state prison during the reign of Ahmad Shah Qajar, in addition to the residence of the ruler of the time. In addition to the nature of the citadel as a castle, this issue marked the grounds for its usage changes in the Pahlavi era. During the first Pahlavi



period (1925-1941), the Shiraz police station was first established there and in 1932 (Shafi'i & Esfandiaripour, 2005: 42) or 1936 (Khormaei, 2003: 31) at least for about three decades until 1966, was still a prison. The interior one-story rooms of the citadel were divided into two-story ones during this period. An important part of the decoration of the rooms was covered with plaster, and by removing the windows and building simple walls in its place, the inter space of the citadel was practically completely changed. Even the Iwans were not being safe to these changes and were practically blocked by the construction of the walls. Thus, this shift in function from a residential to a judicial space created the most chances in the citadel's Iwans, rooms, and art decorations, and as a result, changed the landscape of the courtyard, as follows:

- The tall trees of the citadel (plane and cypress) were all cut down to increase its internal security. It also increases the possibility of controlling criminals. Thus, only a few short trees, such as citrus and especially oranges, were preserved. Therefore, of the three triple eye levels, only the 'lower eye level' remained.

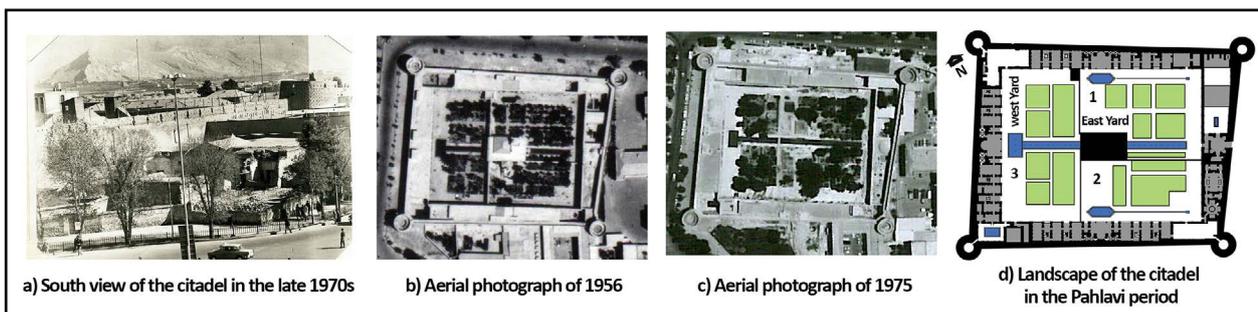
- By the construction of the north-south wall next to the Qajar mansion, which had become a prison medical center, two eastern and western courtyards were practically formed, and with the construction of another wall to the east of the mansion, the eastern courtyard divided into two parts. Accordingly, the original rectangular parterres of the citadel divided into smaller parts, and some of them, which were adjacent to the Qajar mansion, even removed. Thus, by the construction of the annex building, the visual integrity that had been distorted in Mozaffar al-Din Shah was destroyed.

In 1971, the citadel building was handed over to the Organization of Antiquities Preservation and a year later it was nationally registered. The annex building of the Qajar period was also 'being repaired and

▲ Fig. 9. Longitudinal (eastern-western) and transverse (north-south) schematic sections of the courtyard landscape in the Qajar period (Author, 2019).

equipped with the experts of the Ministry of Culture and Arts for the museum' (Sami, 1984: 596), but was eventually demolished due to its inconsistency with the citadel architecture. The planes of the citadel which were produced by the University of Tehran's School of Fine Arts prepared before the demolition of the annex building. They show the state of the courtyard in the early 1950s. The adaptation of this map to the situation of the courtyard in the Qajar period and also its comparison with the aerial photographs of 1956 and 1966 (Figure 10) show that:

- The inner divisions of the northern and southern parterres located exactly on the planting axis of the cypress trees.
- Most of the changes occurred in the parterres around the Qajar annex building and specifically in the southern parterre.
- A comparison of two aerial photographs shows that in about 20 years, more or less much of the green cover of citrus trees in the middle part of the courtyard lost, leaving only the trees on the outer edges of the parterres.



▲ Fig. 10. Southern view and aerial photographs of the citadel in 1956 and 1966 (National Survey Map Organization) and graphic representation of the citadel landscape in the late Pahlavi period and before the start of the restoration process (author based on the map prepared by the University of Tehran).

#### D) The fourth period (Islamic Republic)

The restoration of the citadel, which began in the early 1971s, continued after the victory of the Islamic Revolution. However, the restoration of the architectural elements preceded the construction of the courtyard. An attempt was made to restore its former authenticity by removing the interventions of the Pahlavi period in the building. This was done by renovating the rooms, especially the windows, and the Iwans were restored to their former state. Before the implementation of the current plan to regulate the landscape of the citadel, another plan called 'tree planting plan and corridors between the gardens of the Karim Khan citadel' prepared in the Fars Province Cultural Heritage Organization, according to which the condition of the trees in the citadel and the empty spaces of the parterres could be studied in the 1980s and early 1990s (Figure 11):

- The orange trees in the courtyard are less dense in the central and southeastern parts of parterres, which is consistent with the 1975 aerial photograph.

- In this plan, the structure of the division of the parterres has been changed and while returning to the Longitudinal parterres along the length of the building, divisions have been created in front of the northern and southern Iwans, which does not correspond to the documents of the Qajar and Zand eras.

- In the newly built small parterres, there are also pathways to connect the two sides of the parterre that have no historical background.

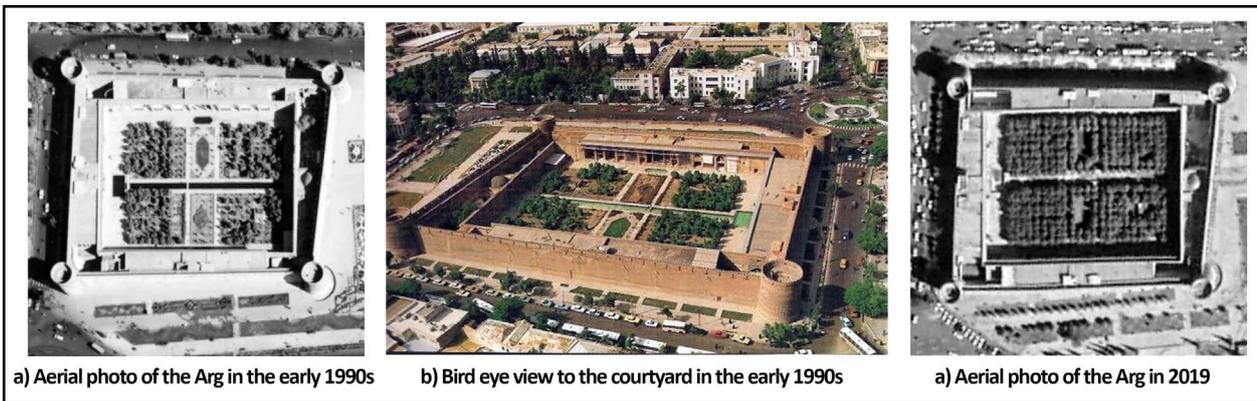
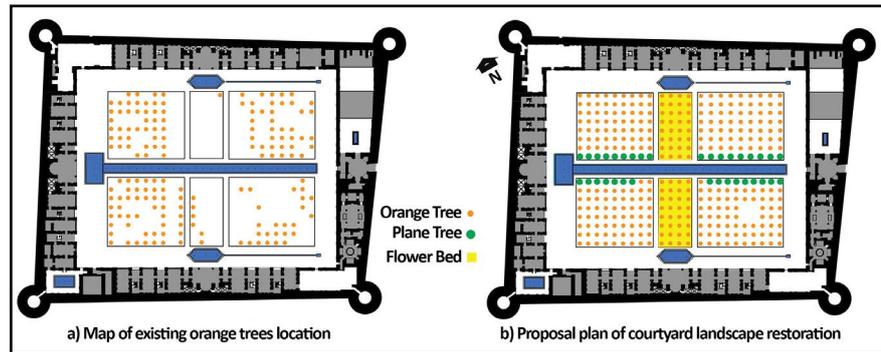
- The basis of the plan is to plant cypress trees on both sides of the courtyard central fountains and in the empty spaces in the parterres, or instead of the existing orange trees. This idea does not correspond to the historical documents mentioned in the previous sections.

- Also, the small parterres created in front of the Iwans dedicated to shrubs and ornamental flowers among the multitude of orange trees, and the planting of cypress trees in this area has been avoided. Probably, this proposal has been suggested for establishing a visual connection between the north and south Iwans, which also lacks historical validity according to the documents of the Qajar period.

- In this plan, plane trees, which have been an important element in the landscape of the citadel, have not been used.

However, the original proposal for the Fars Province Cultural Heritage Organization was not fully implemented, but the proposed divisions for changing the parterres and planting small flowers in front of the Iwans were realized. An aerial photograph from the early 1990s shows that flower beds were created in parterres based on the layout of the fountains in front of the side porches. The little orange trees were planted on the outskirts, and the rest of the empty spaces in the plots were dedicated to the orange trees. Thus, the landscape of the citadel eventually changed from the 'garden of the residency' to the 'orange garden'. Key elements in its landscaping, including the water fountain and the parterres, were preserved along the east-west direction of the building, but the main trees in its landscape, namely cypress, and plane were ignored. Due to the limited flower space to the inner parts of small parterres, the tradition of planting flowers on the outskirts of the main parterres in the Persian garden had not been considered, and therefore the current landscape of the citadel was limited to the 'middle eye-level'. Although the longitudinal main axis of the building has been preserved in this work, the historical visual cone of the Shah-Neshin Iwan to the entrance of the building and vice versa, with its historical facts during the Zand and Qajar periods (before Mozaffar al-Din Shah) is not completely compatible. This also affects the exterior escape of the citadel; in the past, the

Fig. 11. Map of existing and proposed trees in the primary plan of Fars Cultural Heritage (drawn by the author based on the original source). ▶



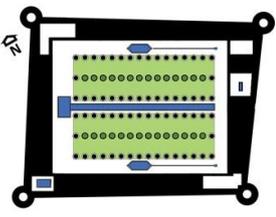
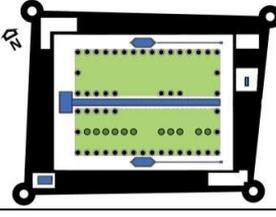
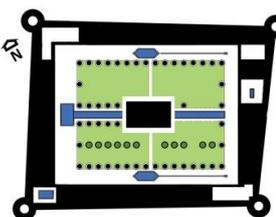
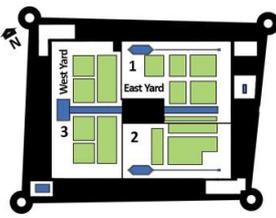
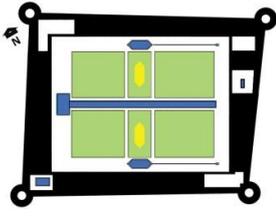
▲ Fig. 12. Arg courtyard landscape in the 1990s and 2010s (National Map Organization; Google Earth).

tall-sized trees seen from the citadel outside brick walls, and the combination of these two colored surfaces made the citadel a living and balanced space. The planting of orange trees also damaged the historical background of the citadel from the outside and showed the scale of the brick building beyond what it was. Table 1 shows the mentioned periods by noting the most important features of each period.

### Conclusion

The citadel courtyard has been an important part of its identity throughout history, which has undergone various changes. The Citadel (Arg), which is the largest building of Karim Khan in the Zandieh complex in Shiraz, has a plan for landscaping, parts of which are no longer visible. A study of the pictorial and written documents from Zand's era to the present shows that these developments took place in four periods: 'Formation (Zand)', 'Transformation and Change (Qajar)', 'De-functionalizing & Demolition (Pahlavi)' and 'Restoration and Rehabilitation' (Islamic Republic). Accordingly, the landscape of the courtyard has changed from the 'garden of the residency' in the Zand dynasty to 'yard garden' in the late Qajar period and finally became 'court of the prisoner' in the Pahlavi era. The planting plan includes tall trees (plane and cypress) and short

Table 1. The Comparison of landscape developments of Karim Khan Zand citadel (Author, 2019). ▼

No	Title	Period	Function	Graphical Plan	Condition	Description
1	Formation	Zand	Residential		Garden of the residency	The parterres include two rectangular plots with an east-west extension (77 by 25.20 m), a central water fountain (3.90 by 79 m) and a rectangular pool and two patterned pools ● Planting plans including tall trees (plane and Cypress) and short-height trees (citrus and orange) ● Planting plane trees around the parterres and cypress trees in the middle of the parterres ● Citrus (orange) trees in the empty spaces of parterres
2	Transformation & Change	Qajar (from the beginning to the Mozaffari period)	Residential		Garden of the residency	Preserving the authenticity of Zand parterres ● Erosion of plane trees at least along the central axis of the courtyard ● Removing cypress trees in north parterre ● Preserve citrus (orange) trees both parterres
		Qajar (from the Mozaffari period to the end)	Residential		Yard garden	Joining a two-story brick mansion in the middle of a courtyard and on the central fountain ● Eliminating the initial divisions of the parterres and creating subdivisions to maintain water order while damaging the central fountain ● Eliminating the longitudinal and axial view of the building on the east-west axis ● Erosion of trees in east-west axis ● Preservation of plane trees in the outer margins of the northern and southern parterres
3	De-functionalizing and Demolition	First and second Pahlavi	Prison		Court of the prison	De-functionalizing of the adjoining mansion to the prison health center ● Dividing the courtyard into three separate courts with the focus on the adjoining mansion and eliminating continuous views in the courtyard ● Dividing the main parterres into smaller parterres without regular geometry ● Maintaining water order while damaging the central water fountains ● Removing all tall trees (plane and cypress) from the landscape of the courtyard ● Preserving/planting of limited citrus trees in the western and eastern parterres (except for the middle parts)
4	Restoration & Rehabilitation	Islamic republic	Cultural Space		Orange Garden	Elimination of adjoining building ● Integration of north and south parterres while creating smaller parterres in front of north and south Iwans ● Restoration of water order in the longitudinal axis of the building ● Ignoring the plan of planting original historical trees such as plane and cypress in the landscape of the courtyard ● Reducing the planting plan to orange trees ● Planting flowers in the gardens in front of the north and south Iwans, regardless of the longitudinal axis of the courtyard and the history of planting layout in the Persian garden ● creating visual integrity in the landscape of the citadel

trees (citrus and orange), which were arranged to emphasize the elongation of the longitudinal axis of the citadel. The water supply system in the courtyard, including the pools and the fountains, has more or less maintained its structure. Developments in the landscape of the courtyard show that the aesthetics of the Zand dynasty in the citadel has been preserved until the time of Mozaffar al-Din Shah Qajar (about 140 years). Therefore, two events should be considered as turning points in its landscape: a) construction of a two-story mansion in the center of the courtyard in the second half of the Mozaffari period and b) the change of use of the citadel as a state prison in the first Pahlavi period.

From the aesthetic point of view, the courtyard of the citadel should be seen as a small example of the Iranian garden, which has been harmonized with the requirements of a military-residential space. The use of plane trees in the periphery of longitudinal parterres is intended to create the most shade on the paths within the citadel, and the cypress trees that were formerly planted along the main axis of the Persian garden were moved to the interior spaces of the parterres to create a two-sided main wall. Restoration plans over the past few decades, ignoring historical documentation, did not fully comply with the parterres division system and were limited to preserving the original orange trees from the original garden plantation. This has reduced the courtyard garden to 'an orange garden'. The consequence of this change is the disappearance of the visual-aesthetic system of the courtyard perspective, which has ruled for at least fourteen decades. Since, according to the Venice Charter (1964), Florence (1981) and the Rome Historical Gardens Charter (2003), no change to the historic garden is possible without historical backing and documentation, so it is suggested that the first set of remedial actions be put on the agenda below:

(A) The side paths created in the northern and southern parterres in front of the side Iwanes should be removed and temporary paths shall be used to communicate between the two parterres without interfering with the geometry of the parterres.

B) In the first stage, the cypress trees should be planted between the northern and southern parterres and in the east-west direction, while preserving the current visual integration in the midrange landscape, providing an important part of associating the citadel garden regarding the Iranian garden mentality.

C) In the second stage, by planting plane trees along the main axis of the center, the visual geometry of the axis as the most prominent visual cone in the citadel landscape is reconstructed. Another planting

of planes around the parterres can be done at other times.

Further research could study the landscaped gardens built during Zand's time in other cities in Iran to get comparable results to clearing a picture of Zand's ideas in gardening. Future studies can also be devoted to orchards formed in Iranian citadels. Or by comparing the landscape of the citadel with other gardens of Shiraz, their impact on each other can be achieved. The results of such research will also enhance and complement the current knowledge of different species of the Persian garden.

## Endnote

1. Please refer to the 'Pictorial Documents of Iranian Cities in the Qajar Period', written by M.Mehryar, Sh.S.Fatullayev, F.F.Taheri and B.Qadiri, published in 1999 by Shahid Beheshti University and Iranian Cultural Heritage Organization, pp. 225, 226.

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