

## Consideration on Sassanid architectural works and urban planning in ancient Persia

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### Abstract

This paper intends to analyze architectural works of Sassanid age at Firooz Abad Plain. This is because of its position as the first headquarter of Sassanid dynasty that means Ardeshi Babakan. Sassanid dynasty born and grew in such a geographical space and reached to other geographical fields. It is possible to say that Firooz Abad plain is the origin of creation of this dynasty and the capital as well. Firooz Abad plain is located at Firooz Abad city and a dependency of Fars province with a distance of about 120 km from Shiraz between a longitudinal  $52^{\circ}$  and  $28^{\circ}$  latitude. There are a lot of works and ruined places belonging to Sassanid age most of which have been registered as the historical and ancient works by Cultural Heritage Organization. One of the mentioned works is Ardeshir Khore or the glory of Ardeshir. It was the first Sassanid city which was established according to a circular format. In spite of passing 1800 years, right now it is possible to be studied by scientific and academic persons and /or Ardeshir Babakan palace as a very interesting architectural work and comparable with all palaces of Hakhamanesh age including Tajar palace at Takht-e-Jamshid. It is also located at Firooz Abad plain.

**Keywords:** Sassanid, Firooz Abad plain, Architecture, Urban planning, Palace, Stone working.

### Introduction

Sassanid is the last kingdom of Iran before entrance of Arabs They governed on Iran for about 400 years from second half of 3<sup>rd</sup> century up to 7<sup>th</sup> century as well. This period is the origin of some great changes in the field of urban planning and architecture. This dynasty considered themselves belonging to First Pars people or Hakhamanishid. They have been pointed out in different contents and resources as "Second Persians" (Lionel,1993)

Before Sassanid dynasty we have Ashkanid or Parts who governed on Iran for about five centuries. The morphology of Iranian cities at that time was circular and/or rectangular. Parts could provide Feudalism and Slave trading system in which slaves were used in agriculture or industry. But Sassanid dynasty could benefit from both Eastern pattern (Ancient Iranian Architecture) and Western one as well. Solokeih had great effects on Architecture and urban planning because of 70 years of governing of Greece on Iran (Rahimieh & Roboobi, 1975).

On the other hand we should not ignore the role of religion in architecture and urban planning of Sassanid period This is because of great tendency of this dynasty in Zoroastrian religion and official condition of this holy religion with a lot of effects on architecture especially architecture of temple (Nejad Akbari Mehraban Maryam, 2008). Furthermore we have Tangab Rivers as an important geographical factor in formation of urban planning and architecture of Firooz Abad plain.

This research intends to analysis any architectural works attributable to Sassanid dynasty at Firooz Abad plain. Followings are the most important works: Goor city,

Menar tower, Ardeshir Babakan Palace and Dokhtar castle (Pirnia, 2005).

### Goor city

Historical works and ruins places of this city are

*Fig. 1. Goor City plan*



located on 3km of current Firooz Abad city and as the first Sassanid city established by Ardeshir Babakan and after great victory to Ardavan as the last king of Sassanid dynasty (Fig.1). That area was full of water and slime. Estakhri, as a famous geographic stated that Ardeshir established a wall with a length of 4km and a height of 1.80m and drilling tunnel could drainage the land and established Ardeshir Khore or Ardeshir glory city. There are some other names for this city in most Persian and Arabic resources including Ardeshir Khore or Ardeshir glory, Joor city and Firooz Abad.

The name of that city at the time of establishment on 3<sup>rd</sup> century was "Ardeshir Khoreh" or "Ardeshir Glory". But it was changed into "Goor City" through middle period of Sassanid and governing of Bahram Goor. Upon conquest of Ardeshir Khore or Goor city at beginning of Islam Arabic word "Goor" was applied as "Joor" in most written works. Since "Goor" was not so much beautiful and acceptable, Azedo doleh Deilami changed it into "Firooz Abad" at the end of 9<sup>th</sup> century. Firooz was the name of Azedo doleh, before his government.

Unlike other Sassanid cities which are in rectangular format such as Bishapour, Adeshir horeh was constructed in circular form as Ibn Balkh, great Arab's geographic" said perhaps it has been planned with a caliper (Fig.2). Diameter of Goor city is about 2km with a radius of 1000m and totally with an area of 314 hectare. According to different resources, the walls of city have 4 gates in the names of Mehr or Mitra, Bahram, Hormoz and Ardeshir made from double clay ramparts and a ditch even right now it is possible to see these works. The mentioned walls surrounded city with a diameter of 2km.

By the use of two axles with right angles in center, the city was divided into four parts. It seems that these two axles could organize a lot of buildings around themselves by continuation of axles towards the outside of city and surrounding plain. These divisions were in the form of circle with various radiuses distributed from Menar or a

tetragon at center of the city. Probably the main headquarter of government was established around Menar as well.

What makes Goor city differentiate with other circular cities like Hetraand/or Darabgard with its primary plan under the influence of Ardeshir Khoreh city, is performing of unbelievable and exact mathematical calculations (Mashadzadeh Dehghani, 2006).

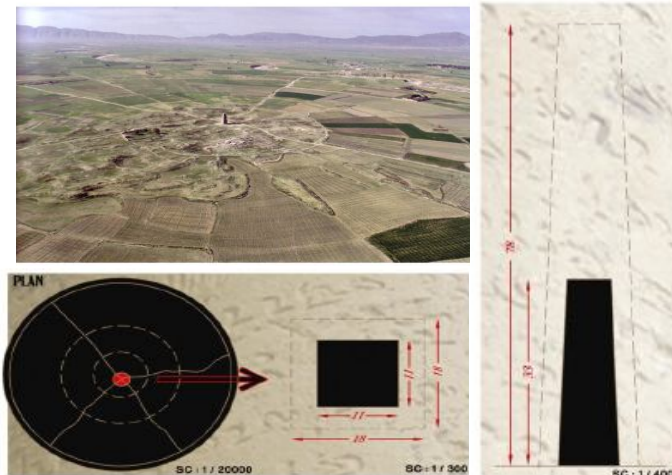
As it was stated, drawing of city is like a circle with a complete radius. It has a high-back wall and a ditch with an estimated width of 55m and brick-shaped tiles with four major gates at four axles. The interior part of city with a diameter about 2km is like a blade wheel divided into 10 streets and 20 great areas. There are two axles based upon main lines by four gates which are opposite to each other in a vertical form. Most of circular and indirect avenues with a unique center provide further relations between central area and residential areas and working & trading places. The avenues were ending on margins of city center with an area about 40m (Hoof, 1986).

Rather than its political application at the Sassanid emperor, Goor city had some other applications including economic, cultural and commercial applications as well (Ashraf, 1974). Ardeshir Khoreh or Ardeshir glory was later on allocated to it. Ibn Balkhi had divided Pars states into five great states all as a furnace. After the governance of Estakhr, Ardehsir Khoreh was considered as the greatest furnaces of Pars. Probably this city was burned and destroyed in 9<sup>th</sup> or 10<sup>th</sup> centuries (Firooz Abad Cultural Heritage headquarters, Handicrafts and Tourism).

**Menar tower**

It was named as "Central tower of Goor city" which was located at city center and made from stone and gypsum. Right now each part of which has a length of 11 m and about 33m height. More distance from the land may cause a reduction in width (Fig.3).

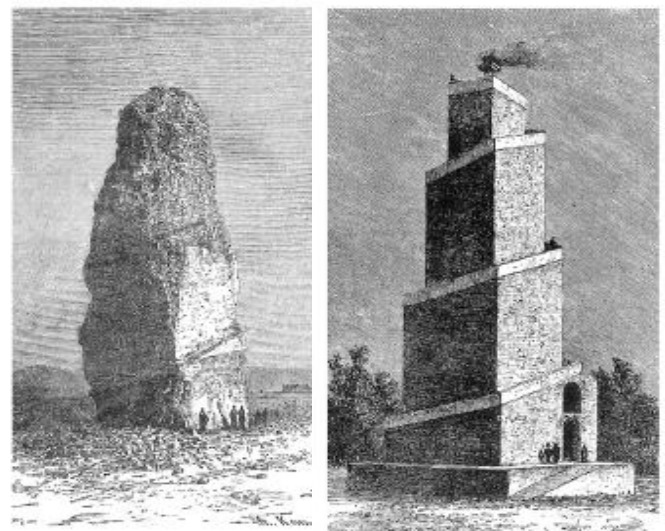
Fig. 2 . Menar tower and Goor city drawing



Plan

"Urban planning in ancient Persia"  
<http://www.indjst.org>

Fig. 3 . A photo of Menar Tower



Even now it is possible to see the effects of foreign stairs for reaching to the top part of tower. There are a lot of researches on general structure of this city made by archeologists and internal / external architectures. Most of archeologists assumed that there is a balcony on top of that tetragon tower with two rooms and a balcony in both sites for handling water for 6km tower to be injected and flow.

There are a lot of applications assumed for this structure which was named as "Gonbad Girma" at that time. Others believe that this tower is established for making a relation with Dokhtar castle and some of researchers and archeologists stated that it was for watching and supervising the city. Finally some other groups believe that it was a place of worshipping fire. It seems that this tower had a height of 78m at its prosperity time with a width of 18m for its sides.

**Ardeshir babakan palace**

It is one of the most important architectural works of Sassanid which is also named as Firooz Abad palace. It has been established by Ardeshir Babakan with a little distance from Goor city and close to "Darreh Tangab" mouth and beginning of Firooz Abad plain. It is assumed that it was a place for kingdom living in a peaceful place in the heart of nature at different ceremonies and special

Fig. 4 . Ardeshir Babakan Palace

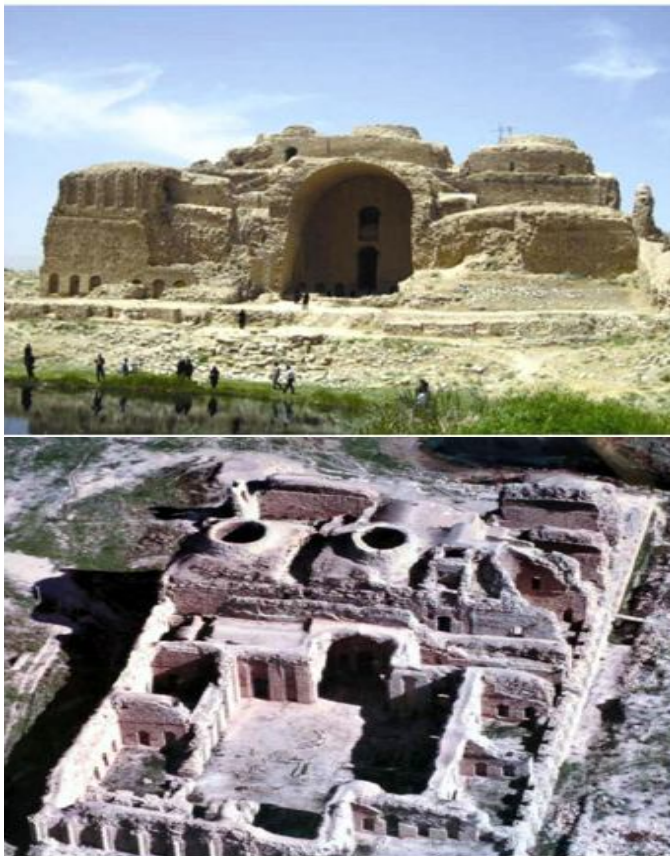
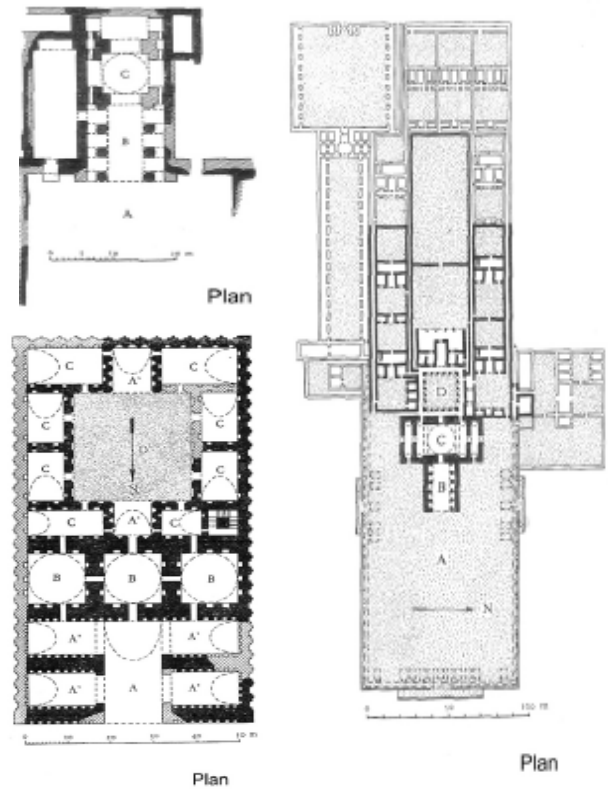


Fig. 5 . Plan of Ardeshir palace



times and also a focus on glory of Ardeshir Babakan (Fig.4)

The mentioned palace established in a space with a dimension of 116x55 with stone scraps and gypsum. Perhaps diameter of walls reach to 4 m and total area of this palace with surrounding place is 11000 sqm. This palace has two floors and three domes and a lot of rooms at southern part which are really the harem of palace (Daryani, 2007). There were some square rooms at three sides of central yard with arc ceilings and a great dome on one of the halls of palace (Lerner, 2009).

This palace has been established towards north eastern and beside a water basin of 50m diameter. According to the claim of local people this spring has not dried and has clear water in a way that it is possible to see the surface and bottom of it clearly. Depth of this spring is maximum 12m with drinkable water. More probably this spring had a lot of effects in establishment of Ardeshir palace.

Palace has an integrated and rectangular for with high walls and double prominences on which there is a half-column and decorated with a truss and canopies. The outer layer has canopies decorations with semi-circle arcs inside a rectangular format in white color. There is a (crown) inscription in these canopies which was present previously in three doors and windows at Takht-e-Jamshid palaces.

There are different aspects for the Firooz Abad palace drawing including of an earring at four angles of the building for creation a dome on four angle building which appeared in Sassanid architecture for the first time. All domes and ear rings are mounted on it. It is possible to create a circular dome arc format by the use of the mentioned earring and on a square format with four walls (Fig.5).

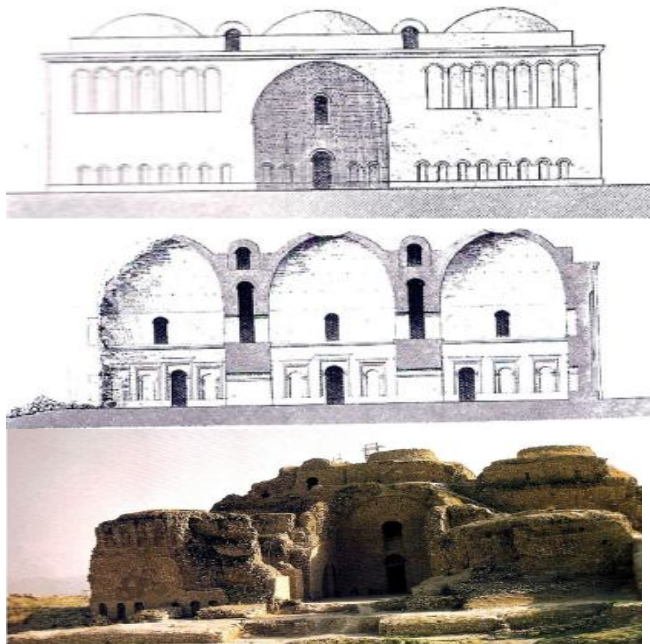
According to the archeological studies about architectural plan of palace it is obvious that Palace has three major and three indirect entrances. The main entrance gate is located on major axle of palace and in front of a spring and two other entrances on both sides of the yard and entrance balcony.

The entrance yard of the palace has a wide area with a great water basin in its center. It is assumed that King's presence window was opened towards the great and height balcony towards present people. It was possible to see aristocrats, water basin and wind and also central hall or public hall and relevant halls for invited persons through that balcony (Fig.6).

Also we have public hall and similar dome hall on both sides. It is possible to compare all decorations and dome halls with relevant decorations of Tachar palace at Takhe-Jamshid. One of the most attractive architectural work is great dimensions of three halls of the palace. Other rooms of the palace are in rectangular form with arched roof. It seems it was the private part of the palace. The other private part of palace is located at upper floors for further access to upper floors with a great stone made stairs.

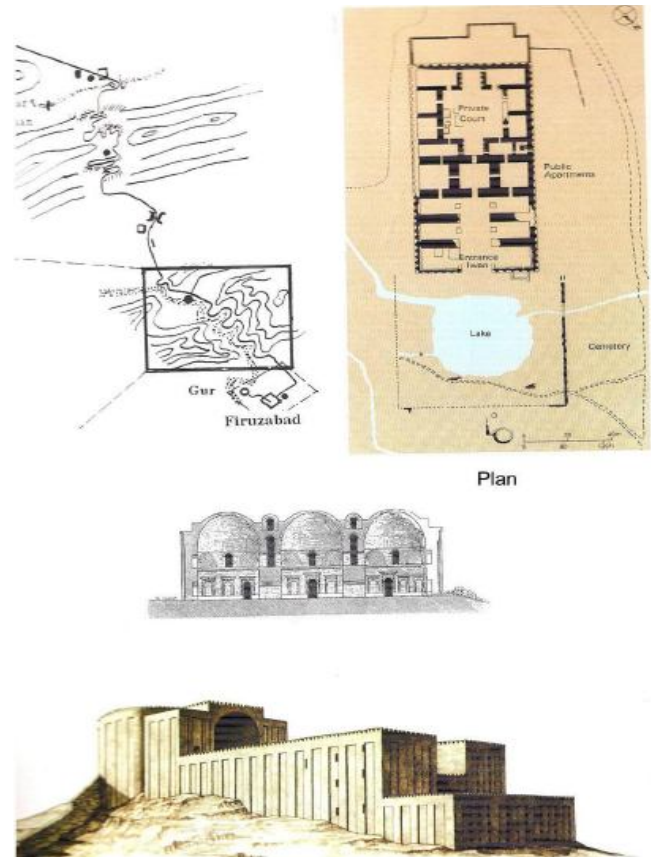
The remained residential units, below-dome spaces

Fig. 6 . Photo and 3D plan of Ardeshir Babakan Palace



and annexed rooms and corridors which have located at upper floors. Smooth corridors only for king's presence window and probably for king's family, ladies, prince for taking part in kingdom ceremonies. The structure of palace is located on non-fixed soils and probably for the small rivers and sedimentary soils. Like Dokhtar castle, the walls have been structured with stone scraps with variable dimensions of 20 to 40 cm and gypsum (Fig. 7).

Fig. 7 . Dokhtar castle



**Dokhtar castle**

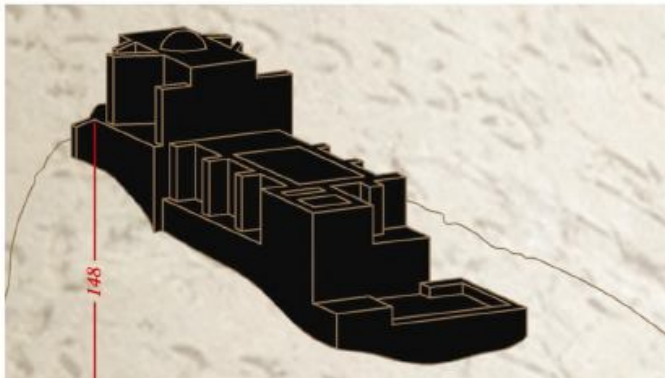
Dokhtar castle is the most important established castles of Sassanid dynasty in neighboring of Goor city. What was important in establishment of these architectural works was geographical position and difficult to move and also closeness to surrounding plains.

In fact Dokhtar castle is named as Dej palace and established by Ardeshir Babakan on a mountain near to Tangab and beside a narrow great way and due to its impossible situation to be conquest is named as "Dokhtar castle". There is a height difference between the bottom of valley up to its upper point about 148m. Then we have palace with a powerful image due to its considerable architecture and special harmonies in its specific situation. The dimensions of Dokhtar Castle are a width of 40 m and a length of 125m and a total area of 4 hectares. Dokhtar castle includes three levels as: Lower level as

the establish place of watchmen and a place for taking permission by invited persons and with a staircase and a central place in rectangular form which may connect it to upper spaces of palace.

In second level, there is a hall with a lot of halls and rooms and probably the aristocrats and great people would be stand in this special place. Third level at the highest level of this palace is the important field of palace and it seems that it was the sitting place of Ardeshir Babakan and also allocated for special persons (Fig.8).

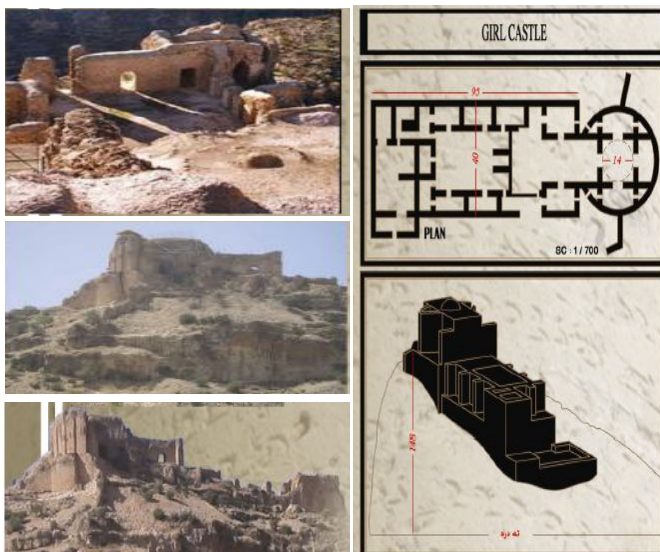
Fig. 8 . Leveling of Dokhtar castle in a 3D space



Public hall is placed at 3<sup>rd</sup> level and as the oldest special Iranian dome. It has been located on 4-earrings or four arcs (Mir Latifi, 2005). The separation of dome from its base and filled is a thick gypsum tape as clear as possible. This palace has three levels and a great dome and a central hall with narrow stairs up to ceiling. There is an excellent perspective at three sides of castle which probably watchmen were standing at highest part for watching a road ending to Ardeshir palace.

Diameter of dome mouth is 14 m and there is a

Fig. 9 . Dokhtar castle from different angles



circular staircase for access of special persons to all corridors and spaces of second floor and dome surrounding. There were small rooms around the great dome with an open ceiling towards the sky which was named as "Hoorno" (Pirnia, 2007).

Palace is made from stone scrap and gypsum. In this method all required stones would be arranged in order to create a stone format. Then it is necessary to fill inside the format with scrap stones and gypsum with the coats. The surrounding balcony and gypsum decoration show that Ardeshir Babakan was interested in architecture belonging to first Pars. The bottom of the building has been coated with gypsum. The arcs and external walls and also the yard of building have been decorated as well. All the walls are constructed on a rock but the balcony and a part of which is constructed from stone scraps.

The walls of Dokhtar castle had a base and bars and without thicker layers. This may cause more power against earthquake. According to the findings about Dokhtar castle the defense of major palace with defending arms and a height of about 6 or 7 m (Fig.9).

In some parts these walls are located at the precipice edge which makes more strategic conditions for the palace. The water resource of the castle is two

Fig. 10 . The remained parts of a bridge belonging to Sassanid period at Firooz Abad



rectangular wells drilled inside the rocks and fed by downstream river water. By finding a 1drham coin belonging to 2<sup>nd</sup> Shapour kingdom is a sign that this castle was used even by children-in-law of Ardeshir.

Finding out copper coins at the end of Sassanid period is a sign of continuous usage of this castle at that time. Perhaps that castle was the last shelter against Arab's attacks. Therefore, its military usage has more applications than other items.

**Sassanidbridge**

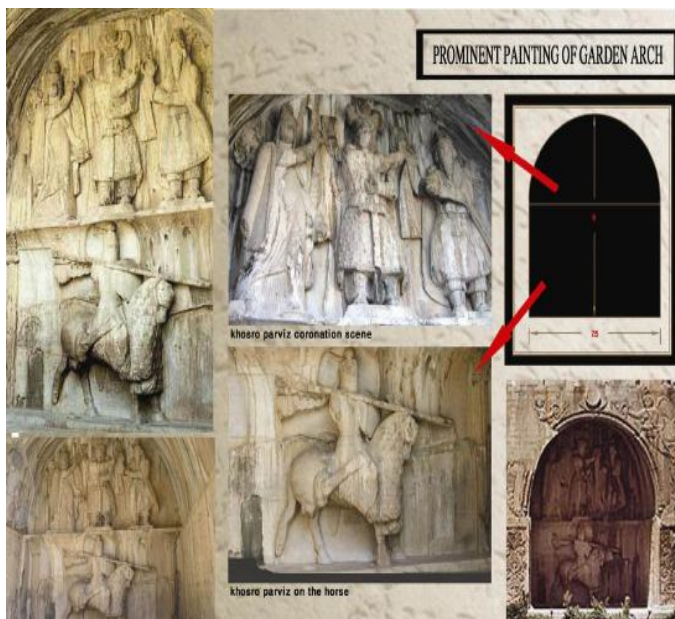
In addition to mentioned works at the way of Tangab River towards Firooz Abadi plain, there are some effects about a bridge belonging to Sassanid in accordance with a Pahlavi encryption in 7 lines. This bridge has been constructed by the order of Mehrnasi the higher minster of three kingdoms in 5<sup>th</sup> century.

The remained bases show that the mentioned bridge has been decorated with square stones and/or in rectangular forms. The inside of the bridge bases has been filed with stone scraps with cement mortar and also for upper parts with gypsum mort. The remained holes on stone perspective are probably the place of holding clips (Fig.10).

**The role of stone working**

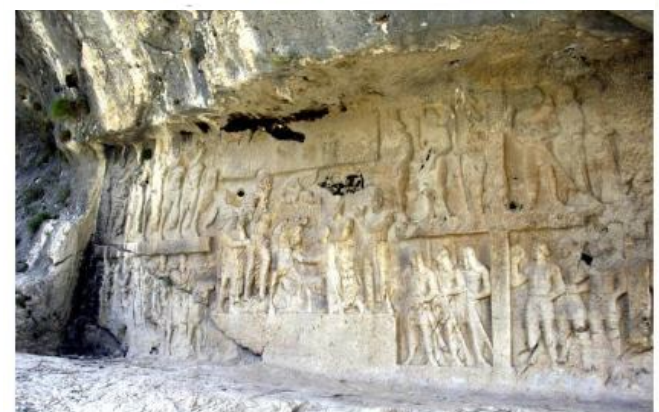
The other important and considerable result of Sassanid period is the art of stone working made by industry men and Sassanid engineers in the heart of stones and rocks. One of these stone work works is salient plan of crowning of Ahura Mazda to Ardeshir Babakan in a distance of some meters from floating bridge and with a height of 4 meter from the bottom of Tangab River.

Fig. 11 . Stone working belong to Ardeshir



In this work we will observe a small fire place, great Ahura Mazda and new king from both sides. Ahura Mazda has a crenulated crown and the king has a hat with a great bulb on it (Christian, 2008). Ardeshir takes the power ring from Ahura Mazda which is a sign of great power with his right hand. He has raised his left hand and bended his index finger for more respect. There is a noble man on his back and has a blower in his hand. The number of attendants is three who are probably the sons of the king and different from each other due to their different hairs make up. There are some items on the encryption exchanged between Ardeshir and Ahura Mazda which unfortunately have been disappeared through the ancient history (Matthew P. Canepa, 2010). The height of this work is more than 3m and his length is about 5 meters (Fig.11).

Fig. 12. Stone working of Ardeshir Babakan



At the continuation of this way and where there is an end for "Tang", Ardeshir has an stone work on the top of a rock with a length of 23 m and width of 9m. It is one of the greatest and oldest rock works of Sassanide. This work is a memory of fixed war and victory of Ardeshir as the founder of new dynasty to Ardavan as the last Ashkanid kingdom. After Ardeshir, his elder son defeated a hero of Ashkanid and finally like a Sassanid glory turned his hand



around the neck of Ashkanid hero in order to take him down of horse (Fig.12).

### Conclusion

Upon considering the content of this essay, we may conclude as follows: The major basis of architecture formation and urban planning of Sassanid Emperor is Firooz Abad Plain. Natural & Geographical factors have great effects on formation of these works especially topography and geomorphologic items. Tangab with a hard to move way and any access to water resources are major factors in establishment of Sassanid architecture including Dokhtar Castle. The effect of Akhdamenish architecture at Sassanid architecture is obvious even with arcing and dome models. Urban planning with circular and radius models not only make more safety but more imitation of Parts pattern. Establishment of Ardeshir palace is so much similar to the palaces belonging to first Pars specially Tachar palace. Benefiting from both gypsum and cement mortars in establishment of relevant constructions are obvious in all architectural works. Encriped images on the stones including some pictures of defeating enemy and crowning and hunting and. Are the signs of the peak of stone working art at Sassanid dynasty? The continuation of this art is obvious in next periods especially in Tagh Bostan (Pour Amini Davoud, 2005).

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### Appendix

The Achaemenid Empire (Old Persian Haxāmanishiya) (c. 550-330 B.C.E.), known as the first Persian Empire, was the successor state of the Median Empire, expanding to eventually rule over significant portions of the ancient world which at around 500 B.C.E. stretched from the Indus Valley in the east, to Thrace and Macedon on the northeastern border of Greece (Daryani Touraj, 2007). The Achaemenid Empire would eventually control Egypt, encompassing some 1 million square miles unified by a complex network of roads and, ruled by monarchs, to become the greatest empire the world had yet seen.

Parthian Empire (247 BC - 224 AD), also known as the Arsacid Empire (Modern Persian: اشکانیان Ashkāniān), was a major Iranian political and cultural power in ancient Persia. Its latter name comes from Arsaces I of Parthia (Daryani Touraj, 2007) who, as leader of the Parni tribe, founded it in the mid-3rd century BC when he conquered the Parthia region Hoof Ditrish (1986) in Iran's northeast, then a satrapy (province) in rebellion against the Seleucid Empire. Mithridates I of Parthia (r. c. 171-138 BC) greatly expanded the empire by seizing Media and Mesopotamia from the Seleucids. At its height, the Parthian Empire stretched from the northern reaches of the Euphrates, in what is now south-eastern Turkey, to eastern Iran. The empire, located on the Silk Road trade route between the Roman Empire in the Mediterranean Basin and Han Empire of China, became a center of trade and commerce.