

THE ORIGIN AND DEVELOPMENT OF MILITARY ARCHITECTURE IN THE PROVINCE OF PARTHAVA IN THE ARSACID PERIOD

BY

Krzysztof JAKUBIAK

(Institute of Archaeology, Warsaw University)

The conquest of the Achaemenid Empire resulted in Central Asia being put under Hellenistic rule. However, Seleucids did not hold sway in these lands for long. In the second half of the IIIrd. century B.C. the area was occupied by the tribe of the Parni-Dahae, i.e. Iranian nomads who had taken advantage of the decline of Seleucids' state and crossed the borders of Turkmenistan where they founded an independent state.

It is remarkable how two traditions — Achaemenid and Greek — converged in the area of Parthia and influenced the development of fortified construction. In the attempt to find visible traces of the influence of Greek tradition on the development of Parthian military architecture we are faced with the following question: did such a short period of Greek rule over later Parthia, affected minds of people enough to alter their architectural ways and methods. We know very well from history that in Central Asia the army of Alexander the Great underwent severe hardships while struggling to win with Persians e.g. the siege of Artacoana, and the battle against the army of Bessus were very dramatic episodes (Bivar 1983, p. 182). In addition, the siege of Oxyartes, a mountain fortress in Sogdiana clearly shows that the tradition of fortifying cities and erecting strongholds was very old in that part of Persia (Bivar 1983, p. 183). Besides the war activities, Alexander also contributed to founding many fortified cities mainly named Alexandria with additional elements as for example: Eschata, in Arachosia, Oxiana, etc. (Bosworth 1988).

Alexander also engaged in renaming the long existing cities. In that way he changed the old name of the capital city of Margiana and dubbed it Alexandria Margiana.

Short Macedonian domination in the province Parthava began during the reign of Alexander but separatist movements grew stronger just after

his death. As these tendencies, escalated, parallel rebellion of Diodotus in Bactria and Andragoros in Parthia clearly showed decentralization movements (Wolski 1993, pp. 32-33). Regardless of the fact that the upheavals were subdued over a short period of time, in 323 BC(?) Bactrian Greek rebelled again (Wolski 1993, pp. 32-33). In my opinion, the examples quoted above proved that further civil unrest and invasions of the Nomad tribes would tear in the near future the region of Central Asia, while being unstable, from the steppe. It should be noted that since the center of the Seleucid Empire moved to the west, to Antiochia, it became clear that the Seleucid policy would rather be aimed at the West than at the East. That oversight forced Antioch I to begin a war with rebellions in Iran around 281 (Bivar 1983, p. 186). This conflict had to make the northern frontier weaker, what led to Parthava province being invaded by the Parni-Dahae tribe. Andragoros, probably the same people who rebelled few years earlier, now tried to defy Arsaces army. It is possible that he died during that conflict, and around 247 BC a new Arsacid dynasty began to rule in the Parthava (Parthia) region (Wolski 1993, pp. 37-51). Once new rulers came to power and started to govern the region of the Southern Turkmenistan a new outlook on regional policy came into being.

In this article, I will attempt to shed some light on the changes in the structure and form of fortified construction development. The subject matter of this paper is mostly based on assumptions, as currently we do not know many examples of Parthian fortifications. The fact that the area of present Iraq (Bergamini 1987) almost completely lacks in the presence of these buildings makes our task even more difficult. This is caused by the condition of research of the country's past. Lack of information is troublesome when we try to examine examples of fortifications known at present but coming from the discussed period. We have some data at our disposal on military construction in the area of contemporary Turkmenistan and Iraq. Of course, Parthian fortifications in Mesopotamia were built later than those in the area north of Koped Dag mountain ridges. Mesopotamian Lowland was seized by Parthians not before circa 148 BC, i.e. nearly one hundred years after the conquest of the Parthia province by Parni. That expansion was possible as during the period between the founding of the Arsacid state in Partava and the conquest of Mesopotamia, Parthia managed to create strong kingship and rise in power under the reign of Mithradates I. This king took advantage of the situation of the Seleucid state deterioration and the conflict between Demetrius II and an usurper

Thryphon and extended his rule over Mesopotamia (Wolski 1993, pp. 80-83). Therefore it is clear that the data that we have at our disposal nowadays, cover only military buildings from two opposite, though extremely important, parts of the Parthian state.

Although we are familiar with remains of military architecture in the province of Parthia only, it seems that we could assume that not only did Greek tradition of military architecture take roots there but also it permeated through other parts of the Arsacides' state.

It should be noted that the purpose of this article is to analyze military architecture in the province of Parthia and not all Parthian fortifications known to us. Therefore fortifications in the area of Choresmia, which like Bactria was incorporated into Kushan state, will not be mentioned. The only reference to architecture in these areas will appear as comparisons, which may help explain certain aspects of Parthian military architecture.

One of the most important fortified sites of the period is Old Nisa, the first capital of Parthia, which spread over 15 ha (Fig. 1). Nisa was a royal residence, which necessitated erecting fortifications in the city to meet security requirements thus making Nisa a special place. That fortified site was founded by Mithradates II (123-88/7 B.C.) as a center of the state, and a capital city (Wolski 1993, pp. 93-94). Since very intensive excavations were conducted in the area of both Old and New Nisa there are numerous reports related to the site.

The battlement of old Nisa's city wall has a shape of a pentagon (Pugachenkova 1958, pp. 32-36). The walls are 8-9 meters wide at the bottom and they are much thinner at the top (3-3.5 meters). The construction was built on a platform 5-7 meter-high, which was made of pakhsa (compact clay) and dried bricks. The south-western corner with its massive square tower is bent at an angle of 90 degrees and is similar to its north-western counterpart. The eastern face of the wall was not built in a straight line.

Three hundred meters from the south-east corner of a massive bastion a curtain wall is bent to the north-west at the angle of 55 degrees; 380 meters further it meets the northern line of the city walls. Another massive bastion constituted a critical point of the perimeter wall. The bastion was built at the angle-changing section of the walls. The curtain of the perimeter walls was made partially of pakhsa and partially of square-shaped dried bricks 39 to 42 cm wide and 10-14 cm thick. Along the outer face of the wall

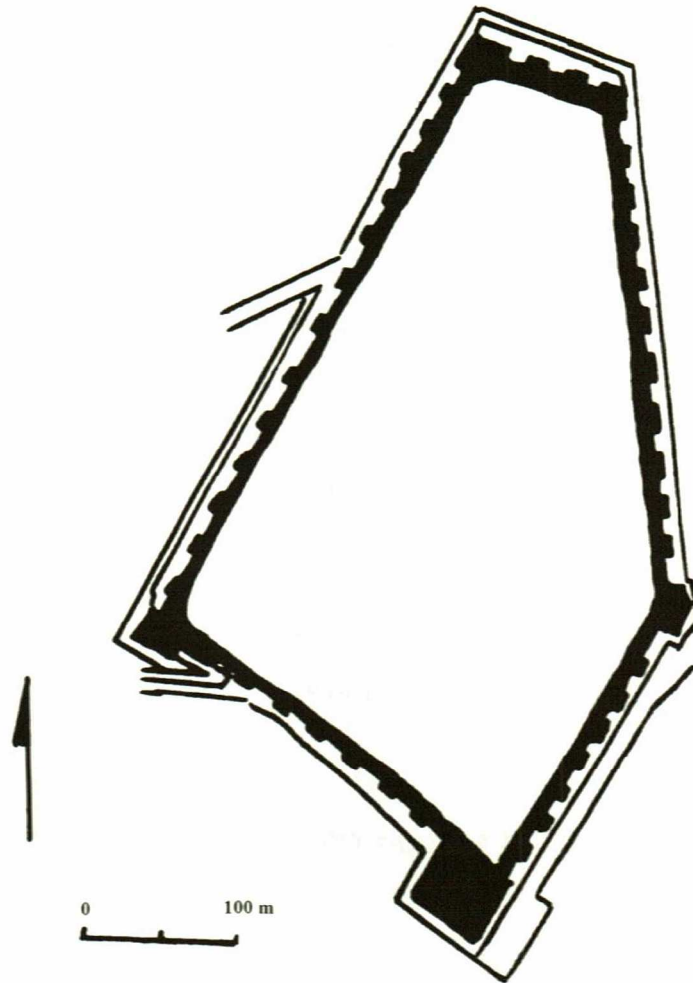


Fig. 1. Plan of the Old Nisa fortifications.
(After Pugachenkova 1958)

there were 43 rectangular bastions, or massive towers to be more exact, 4.5 meter-wide and standing 3 meters from the face of the wall; these towers were situated 25-30 meters from one another. As the entrance to the Old Nisa area was located near the south-west bastion, reaching it was quite difficult. To access it men had to climb a slightly raising ramp built along the walls and then go through a complicated passage, which resembled a labyrinth. To put it short, the entrance to the royal residence was planned in such way to minimize a chance of a strike of large enemy units in case of the turret assault.

As it has been mentioned before, Nisa was a special city for Parthians due to its functions of a capital and administration center. We may wonder, however, if it was the military significance of Old Nisa that made it so exceptional or rather the function Old Nisa served in the structure of Parthian state. To answer the questions we must first get to know other examples of military buildings.

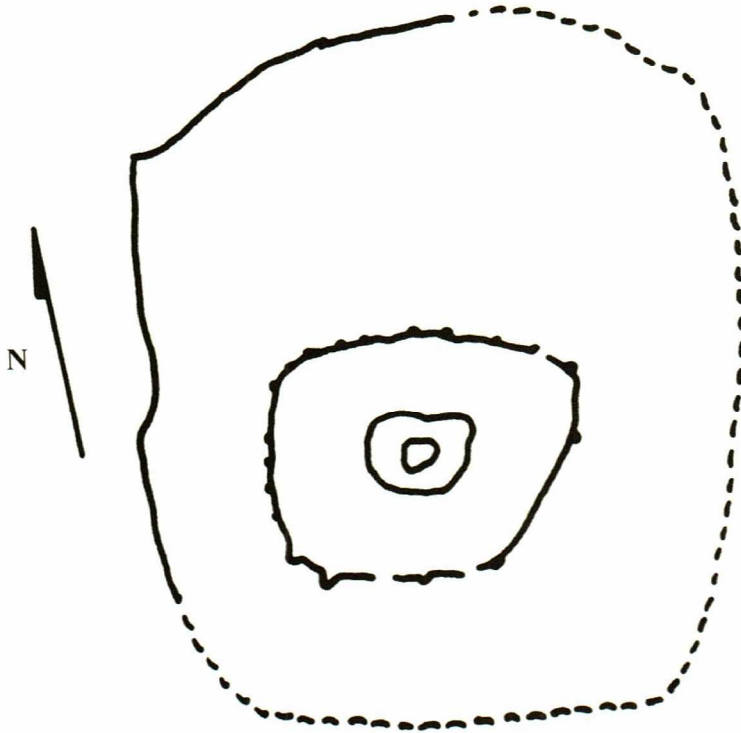


Fig. 2. Kojne Kala. Schematic plan.
(After Pugachenkova 1958)

In the closest vicinity of Nisa there are two sites where fortifications, which date from the early Parthian period were found. The first site, located east of Ashgabat, is known as Kojne Kala or Sirok (Pugachenkova 1958, pp. 28-29, Francfort 1979, p. 31). We cannot estimate, even approximately, how large this site is as there are no detailed data available. There are three elements, which build Sirok fortification system. Centrally situated remains of a citadel are encircled by the second line of battlements with probably square towers (Fig. 2). Additionally, there are outer perimeter walls, which limit the city area. We cannot provide a rough estimate of what the shapes of towers, buttresses, as well the outer walls of the citadel battlements in the curtain walls were built.

However, we are quite sure that the semicircular shape of the upper city towers is the result of later repairs conducted maybe in the Sassanian period.

Although the shape of the complex may resemble an oval, both the upper city and the citadel are irregular in form. As it has been mentioned above it is hard to estimate the size of the site, but given just the layout of the battlements which divide the city into three concentric military circles,

we may say without hesitation that the site is not a fortress nor a fortified residence but quite a large city complex (Pugachenkova 1958, p. 44).

The second site is Geok Tepe, located to the west of Ashgabad and Old Nisa (Francfort 1979, p. 32). There used to be a 4 ha large fortress, which no longer exists. Local fortifications were built in the shape of a square; many square-shaped military towers were built along the outer side of the fortifications. Inside the fortress, we can find remnants of a construction, which may be identified as a donjon or a citadel.

The last fort identified in this region is Alty Yaba, located about 30 km from Ashgabad. As the examination of this structure was not thorough not to say cursory, I am unable to share extensive knowledge on this item (Pugachenkova 1958, p. 59). The outline of the battlements suggests that it was an irregularly shaped polygon military training ground covering over 3 ha. The object is reminiscent of the slopes of Kopet Dag.

There are a few examples of fortified sites in Margiana being one of the most important provinces. Although it was not owned by the Parthian state, a few examples of fortified sites date from the times of Mithradates I who incorporated the province into his realm. First Parthian coins, according to the numismatic evidences, were minted in Margiana by Phraates II (ca. 138- 127 B.C.) (Nikitin 1998, pp. 14-19). It indicates that since the reign of Mithradates' I successor Phraates II strengthened Parthian rule in that region. The province's capital — Marv — is of course the most important of them (Pugachenkova 1958, pp. 39-44) (Fig. 3). The oldest settlement was concentrated in the area of Erk Kala. It was a military complex built on a circle layout. The settlement originated, as estimated, in the Achaemenid period. Both the citadel of Erk Kala and adjoining city district known as Gyaur Kala were built in the Parthian period. Unlike the oval-shaped citadel, Gyaur Kala was erected on a rectangle layout, with gates leading towards four quarters of the globe. One must remember, however, that while the citadel of Erk Kala was put up in the Achaemenid period, Gyaur Kala is a Hellenistic design and was initially known as Antiochia Margiana. So, in the Parthian period the defense of the city was based on two elements: downtown of Gyaur Kalu and the citadel of Erk Kala. It is worth mentioning that downtown walls were built in such a way that made two sides of the walls adjacent to the citadel, so the citadel itself protruded from the walls of Antiochia city complex. It is also important to mention that in order to raise a security level both parts of the city were surrounded not only by battlements but also by moats dug in front of

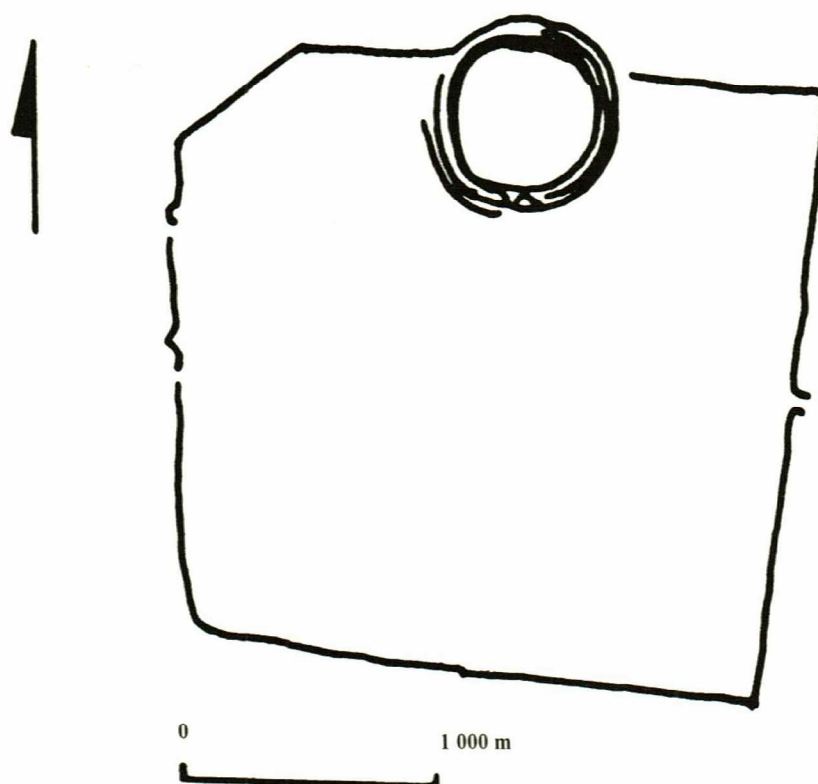


Fig. 3. Merv. Layout of the fortified walls.
(After Pugachenkova 1958)

the battlements. The importance of the city can be judged from the area it covered in the discussed period namely 324 ha.

The latest excavations in the area of Erk Kala and Gyaur Kala demonstrated that, for additional city' protection, a *proteichisma* was created along the walls (Herrmann, Kurbansakhatov, St. John Simpson 2001). This technical solution is characteristic of Greek fortification ideas. Therefore, we can infer that the structures were erected in the time of Greek rule. Perimeter walls of both Erk Kala and Gyaur Kala were massive constructions built with mud bricks. It was an interesting solution to build towers, which did not protrude from the face of the wall but which were erected above the upper part of the curtain. The towers built that way were situated 30 meters apart of each other.

Furthermore, it should be noted that the fortifications were not built directly at the ground level. Prior to their erection a *pakhsa* platform reaching 6-7 meters above the surrounding area was built. Of even more compelling interest is the fact that the wall was not built on the edge of the platform, but the platform protruded out of the face of the wall by 2 meters. Therefore, there was so much space left that one more military

element, namely *proteichisma*, could be placed. One important question must be asked here: was *proteichisma* really needed in this case? Some suppose that *proteichisma* constituted a military construction used to fight off the first line of attack launched by means of siege machines. The discussed element of military constructions was in spite of the above described function quite low, short and not very solid. It was probably a way to check the attackers' level of determination; the defenders hoped that after the first assault attackers would be discouraged from further siege attempts. However, it is hard to understand the reasons why the *proteichisma*, erected on a high platform, was meant to protect from siege machines. Even if we assume that the constructions of this type were seldom higher than 1.5 meters, together with the platform it gave 8.5 meters of distance between attackers and defenders. Therefore, it can be assumed that the role of the *proteichisma* in Merv was to limit the intensity of the first attack, originally it was not supposed to protect from the siege machines being dragged to damage the main battlements. The function of protection against siege machines was performed indirectly as if it were, inasmuch as the *pakhsa* platform shielded from the attack by means of heavy siege equipment. Due to the fact that the military system was quite complicated approaching the perimeter walls must have been very troublesome. Ramps, like those in Old Nisa discussed above, were built to facilitate transport. Because the ramps led towards the city, in order to increase the security level, military towers flanking the entrance were built.

At another Margiana site of Kyrk Teperese, the perimeter resembles the layout of the fortifications of Merv (Pugachenkova 1958, p. 41). Remains of the fortified city of 12.3 ha consist of the same elements as we find in Merv (Fig. 4). The most important is the citadel located in the north-western part of the site; its layout resembles an oval. Like in Merv, lower town battlements were built in the way that they reached citadel battlements while about half of the citadel protruded from the face of battlements, which encircled downtown. The entrance to the citadel could have been an interesting element if it existed — and we are quite sure it did so. Guessing from the form of the terrain we can assume that there was a barbican in front of the gate; the barbican protected the entrance of the citadel. In the area of Central Asia, this type of protection of a city i.e. a fortified entrance had been known from previous times. This type of solution proves in this case, that fortifications in Kyrk Tepe were not erected as a

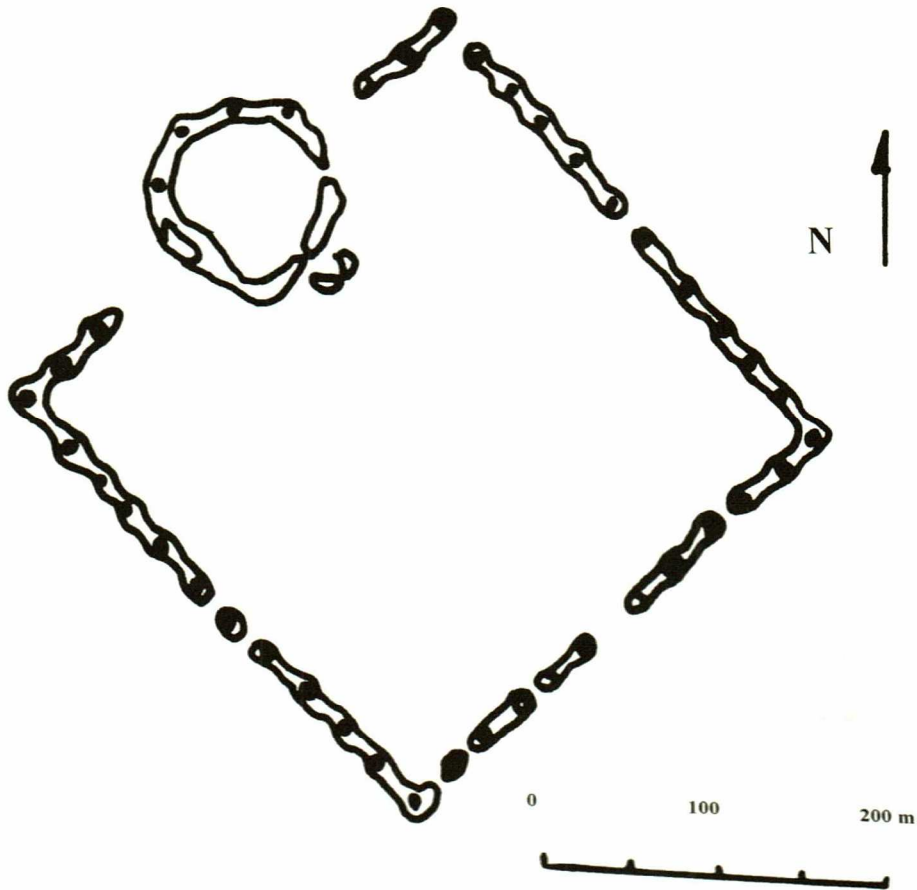


Fig. 4. Kyrk Tepe. Plan. (After Pugachenkova 1958)

preplanned military complex. The constructions were erected gradually along a longer period of time. The citadel must have been built at the very beginning and only after that, in course of later construction efforts, square-shaped downtown was built. It must be remembered that we usually find examples of gates with barbicans in the outer line of battlements. In the case of the Kyrk Tepe citadel, the solution must have been similar. Just as in Merv, lower town gates were flanked by two towers and were directed to the four cardinal directions. Nowadays there are three types of constructions visible on the ground. There also must have been a fourth edifice, which must have been located near the citadel. However it is not visible. It is possible that the perimeter wall was also built here on what can be a platform of compacted clay.

One more element linking Kyrk Tepe to Merv is the similarity of military towers. Here, the towers located along the walls also do not protrude from the curtain wall, but they are higher than the level of the battle gallery. It is possible that staircases were made inside those towers; thanks

to them, it was possible to reach the top of the perimeter walls or a roof of a particular tower. It is important for these fortifications that towers were situated in lower corners of the town to avoid unfavorable situation inasmuch it was the case that lower corners of the town were critical to the battlements outline. Furthermore, it must be remembered that every change of the way the walls ran, especially at the corners, because of changing of brick thread, would bring about weakening of the wall construction. Resistance of the corners to possible damages was therefore improved.

Another site located in the area of Margiana oasis is the fortress of Goebekli located 32 km north-west from the ancient Antiochia (Pugachenkova 1958, pp. 44-45, Koshlenko 1963). Founding of Goebekli is dated from the so-called early-Parthian period, which in the case of Margiana means probably the middle of the IInd. century B.C. As for the layout of the fort it is square-shaped and it measures 120 × 110 m. So, it means that, the area slightly exceeded a hectare. Traces of military towers are visible; they were built not only on the curtain wall but also in the corners of the fort. The entrance must have been located between two towers; it was located, as estimated, in the southern wall. The perimeter wall was 2.8 m wide and was built with bricks the measurements of which were 42 × 42 × 12 cm. The state in which the whole military construction preserved is amazingly good, even now, walls are 13 m high.

It is important that Goebekli is not only a fort but also, quite a big settlement which was located close to the fortifications. Therefore, it is believed that it was integrated with the fort, but the battlements have never encircled the settlement. We can assume that the ramparts were unnecessary, because in the case of a danger people would protect themselves in the fort or would run into the desert.

As the area of Merv oasis has been thoroughly investigated for decades, all settlements located there are fully examined. We should add one more site here: Akcha Tepe (Pugachenkova 1958, p. 29, 46; Koshelenko 1963, p. 64). It is quite a small, military structure, and its area is not much larger than a hectare (Fig. 5). The complex measures 100 × 120 meters; its walls were erected on a platform. There are square-shaped towers protruding from the face of the walls. In every wall there were two towers located and additionally two towers were built in the corners of the structure. The entrance to the fort was probably located in the south-east corner. The fort was adjoining an open settlement, which, as estimated, stretched as far as 300-700 meters.

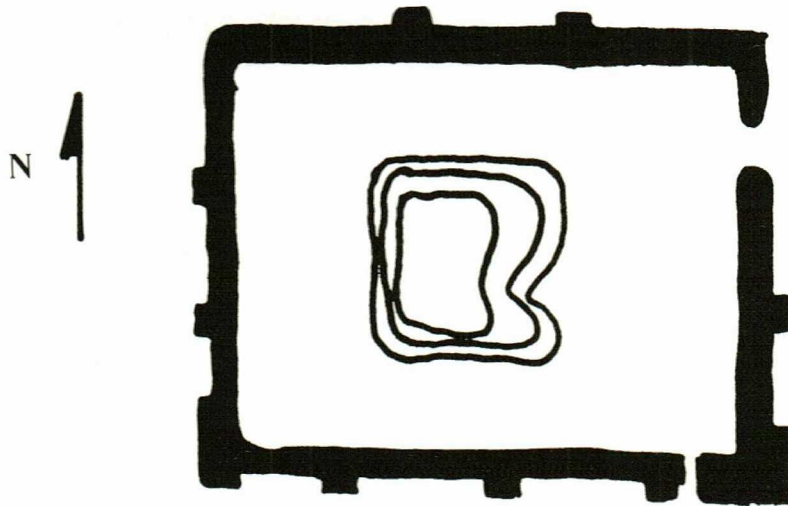


Fig. 5. Plan of Akcha Tepe. (After Pugachenkova 1958)

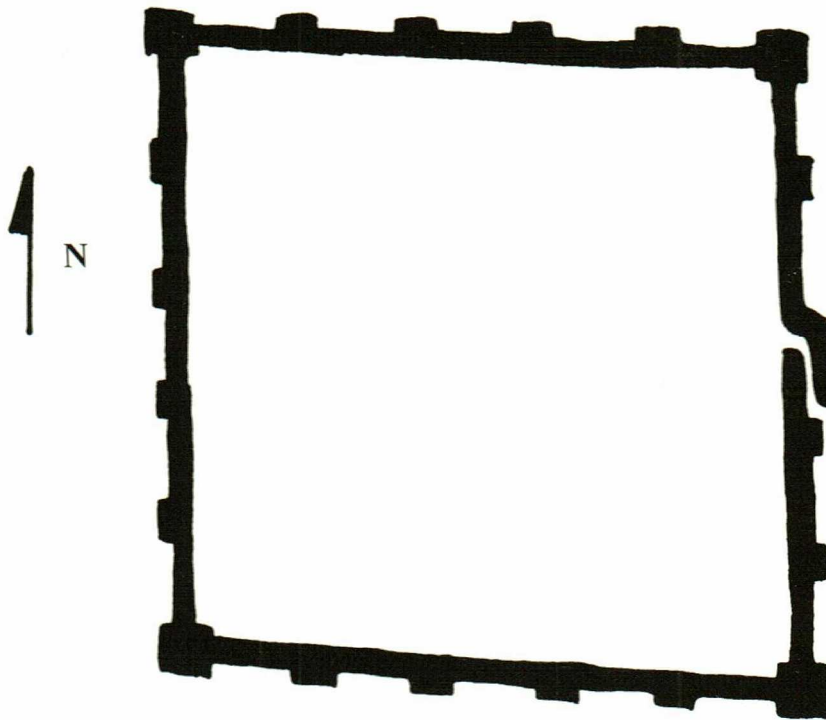


Fig. 6. Chichanlik Tepe. Plan. (After Pugachenkova 1958)

In order to maintain military advantages of the fort, an area of 50 meters outside the face of the walls has not been inhabited (Pugachenkova 1958, p. 45).

Chichanlik Tepe is another fort, or to be accurate a fortress (it had an area of 4 ha) (Pugachenkova 1958, p. 29, 46; Koshlenko 1963, p. 62; Francfort 1979, p. 31). The complex is square-shaped; its sides are 200 meters long (Fig. 6). Looking at three of the sides we can see four towers per one side

protruding from the curtain wall and additionally three slightly larger towers located in the corners while on the fourth, east side only three towers were located. It is because of the construction of the gate, or rather the sluice, which is called a maze in the scientific literature. If we look at a plan of Chichanlik we can notice at once that the construction of the gate and a tower being located nearby make approaching a very hard task. Attackers would be subject to heavy fire not only from the gate but from the tower as well. Furthermore, it is amazing that this architectural solution made the use of a battering ram to destroy the gate useless since there was not enough room to do so. The battering ram could not reach the speed necessary to damage the door of the gate (Pugachenkova 1958, p. 46).

The square-shaped fort known as Eliming Tepe is four times smaller (Francfort 1979, p. 32). It stretches over a hectare, because each side of the battlements is 100 meters long. There are square-shaped towers here as well. The massive tower, or bastion however, built in the south-east corner of the fort is extremely interesting.

Another fort, Durnali, also built on a square layout, is located about 25 kilometers north of Merv ruins (Pugachenkova 1958, pp. 47-52; Bader, Gaibov, Koshlenko 1994). Its measurements are: 183 and 173 meters of two opposite sides and 160 and 150 meters of the so-called shorter sides (Fig. 7). Lower parts of the perimeter walls are made of two pakhsa layers so we can say that the wall was erected on a platform, or on a wide plinth. A brick wall was built on a platform made in this way. Numerous square-shaped military towers with inner rooms are visible in the outline of the wall; they are located 15-17 meters from one another. Just like in the cases of other sites discussed here, more massive towers were built in the corners of the fortress. Similarly to Chichanlik, there are remains of a nearby unfortified settlement, which was located by the fortress of Durnali. However, it is likely that more than half of it is comes from the later period.

About 20 kilometers from Merv, another fortress, Chilburj, is located; thanks to the pottery and fragments of terracotta figures found on the surface of the site we know that it dates back to the IIIrd.-IIInd. century BC. (Pugachenkova 1958, pp. 51-54; Koshlenko 1963, p. 59, 63; Gaibov, Koshlenko, Noviko 1991). Like other mentioned fortresses, it was founded on a plan which could be considered a rectangle (Fig. 8). Longer sides are 260 and 230 meters long, the shorter sides are 200 meters each. Therefore,

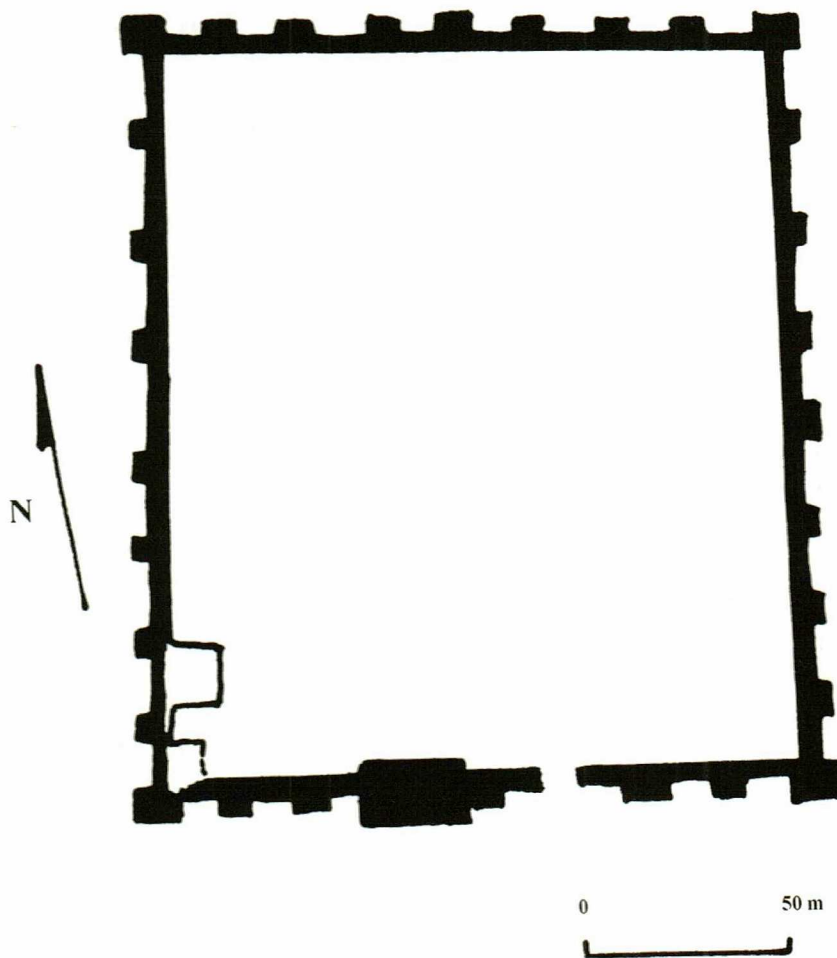


Fig. 7. Durnali. Schematic plan of the fortresses.
(After Pugachenkova 1958)

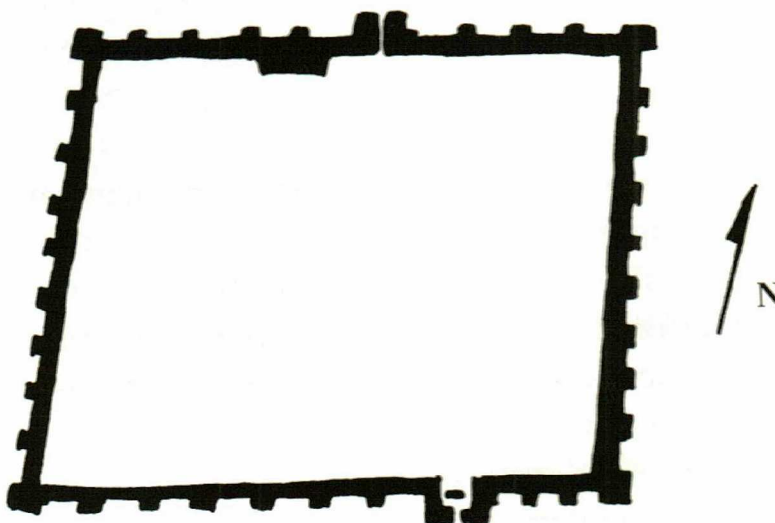


Fig. 8. Chilburj. Plan. (After Pugachenkova 1958)

the wall outline resembles a trapezium rather than a rectangle. Numerous square-shaped towers along the face of the wall are clearly visible; they protruded for 5.40 meters and they are 5 meters wide. The towers are located within the distance of 17-20 meters of each other. The buttresses in the corners are much more massive than those protruding from the curtain wall. In the northern part one of the gates was located. The gate is exceptional inasmuch as it was clearly outlined thanks to two massive towers flanking the entrance. The gate was constructed in such a way that the perimeter wall created something to the effect of a barbican or a labyrinth protruding from the curtain wall for 15-18 meters. The gate was blocked, so transportation must have consisted in going around the obstacle. For possible enemies it meant splitting into two groups.

The construction of the battlements was composed of two elements: the lower part made of pakhsa and a primary wall which was made of bricks measuring $41-42 \times 10-11$ cm. Inside the walls there was an inner gallery, which facilitated the access to the arrow slits of the battlements. Because the walls were erected on a foundation of leveled clay, which may also be considered a platform; though it is hard to believe while examining the description of the whole site.

When discussing Parthian fortifications we cannot omit Dev Kala site (Koshlenko 1963, p. 61). It is a large fortress. It was as big as 800×350 meters, so it covered an area of 28 hectares (Fig. 9) Therefore it should rather be called a fortified city. A rectangular citadel covering about 4 ha was located in its south-east corner.

The remaining forts located in the northern part of Merv oasis are Kishman Tepe and Jin Tepe. The first one, measuring 185×150 meters, was made of bricks $40 \times 40 \times 10$ or $41 \times 41 \times 11$ cm. (Francfort 1979, p. 32). The object also had battlements 3 meters high. Military towers were located in the corners and along the curtain wall (along the longer side there were three towers and along the shorter side there was one tower). A gate with a 'labyrinth' was built in the eastern part of the fort. The second fort, Jin Tepe, differs completely from Kishman Tepe (Koshlenko 1963, p. 64; Francfort 1979, p. 32). Its walls outline resembles an oval, not a polygon. Furthermore, near the fort there are traces of a very large settlement, which has never been surrounded by battlements.

The fortified sites mentioned above prove irrefutably how important the area of Kopet Dag plateau was (the provinces of Parthia and Margiana). The most crucial was the province of Margiana. That part of the state

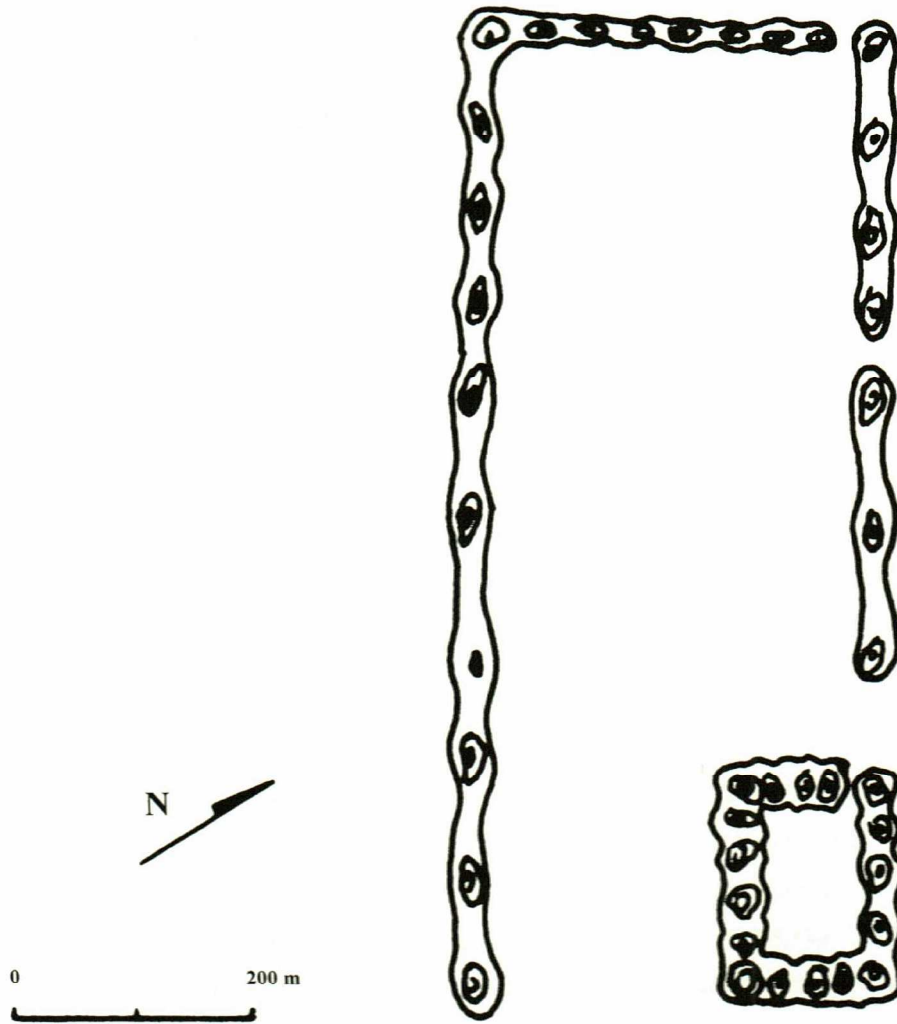


Fig. 9. Dev Kala. Plan. (After Koshlenko 1963)

played a critical economical and strategic role. It was located on the road leading towards Amu Daria, which was a river bordering with the state of Kushans. All economical and political functions aside, fortifications are of the highest significance. Their construction is indissolubly linked with not only its primary function being obviously the military one, but also with prestige and economy as well. Moreover, erecting military constructions testifies to the fact that there was a will to protect the area adjoining the forts and a fear of possible attack. Additionally, it manifests the level of centralization and good organization of Parthian state from its inception. It could clearly be seen in Margiana, the contemporary Merv oasis. Most of the fortresses known at present are located not farther than about 20 kilometers from Merv. The area performed important political and economical functions in the Parthian state which were the reasons for implementation

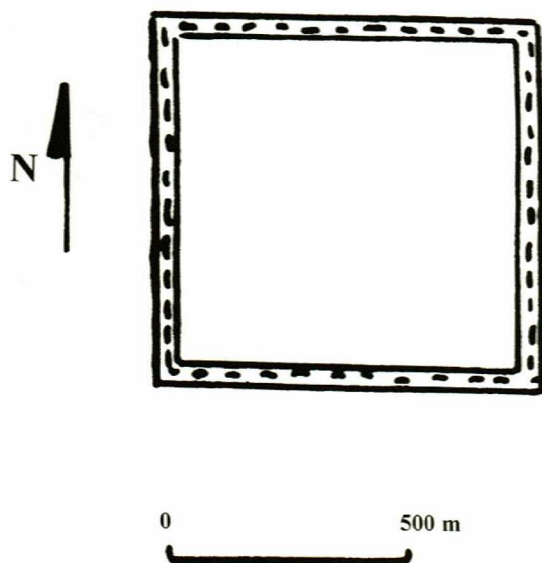


Fig. 10. Qaleh Daland. Schematic plan. (According to Kiani 1982)

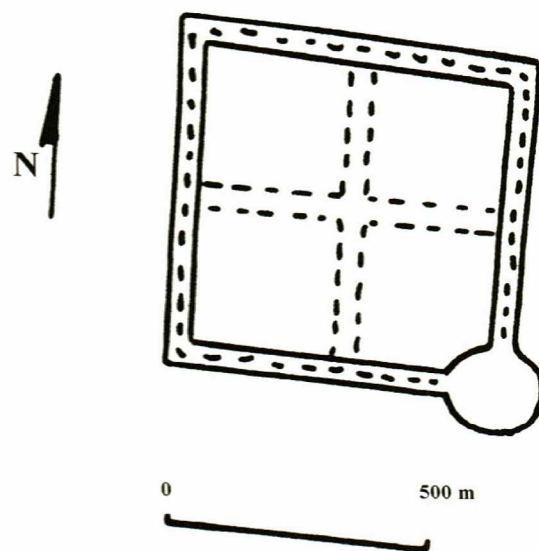


Fig. 11. Qaleh Kharabeh. Plan. (After Kiani 1982)

of increased security measures it was so carefully protected in case of any possible invasion. The distance between the local residence of the authorities and the economical centers in the whole area of the Parthian empire must have been organized in the same way, but unfortunately, we have no archeological data at our disposal to verify this assertion. Although we find some elements of this organization in the area of Parthia province (so in the area adjoining slopes of Kopet Dag), these are just rare examples and they are located mainly near the capital of Nisa. Additionally in the area of Gurgan Plain which at this point is worth mentioning, we find a certain number of fortified sites which may confirm that Parthians were familiar with military organization of rich, fertile lands. Of course, the walls from Gurgan Plain are known as Alexander's Walls, thus deriving from a completely different tradition of military architecture than the one which is the subject of our current dispute (Kiani 1982). However, in the whole of the area no evidence has been found that the battlements were built in the times of Alexander the Great or, as well, in the times when these lands were under Seleucids' influence. The beginning of the complex must be date to the Parthian period when there was a danger of raids performed by nomadic tribes from Dahistan. However, we can assume that the Gurgan walls reached its final shape not before the Sassanid period. Like in Parthia or Margiana, most of the forts known as Parthian ones have an outline of a square or a rectangle. We can mention here some sites like Qaleh Daland (Fig. 10), Qaleh Kharabeh (Fig. 11),

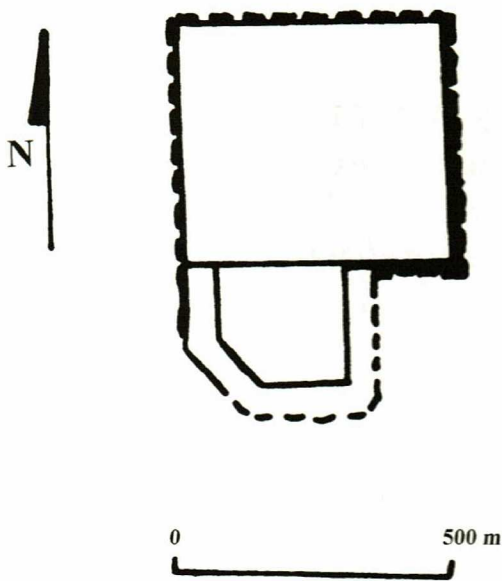


Fig. 12. Qaleh Yasaqi. Plan.
(After Kiani 1982)

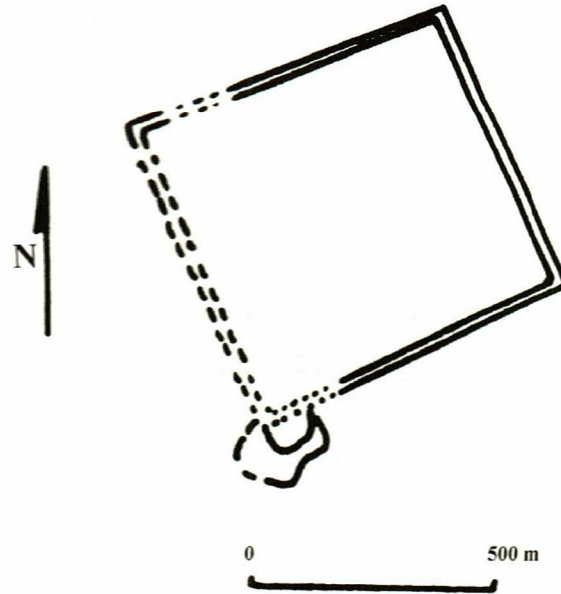


Fig. 13. Qaleh Gug. Schematic plan.
(After Kiani 1982)

Qaleh Yasaqi (Fig. 12) and Qaleh Gug (Fig. 13) where the outline of battlements had a shape of a square (Kiani 1982).

We can assume based on the currently known Hellenistic fortifications, which are mostly located in the area of Asia Minor, that not many of them have a shape resembling a square or a rectangle (Mc Nicoll 1997). This is due to the fact that those fortifications were often built around existing cities. Furthermore, they were built in a way to take full advantage of terrain configuration and natural military qualities. However, some features like square-shaped towers are typical of both Hellenistic and Parthian architecture. Of course, in Central Asia, compact clay (*pakhsa*) and bricks made of mud were commonly used as construction materials, whereas the builders of Asia Minor, used stones which were of frequent occurrence in the area and have better parameters in terms of a construction substance. Although obtaining stones is much harder than producing a brick, using stones allows erecting at thinner construction while preserving military advantages at the same time. Walls made of stone have a higher level of resistance to attacks launched by means of machines and rams.

The usage of construction materials is often dependent on the occurrence of those materials in the area in question. In areas where stones are frequent, builders used them not only to build military constructions but to

erect other structures as well. Since stones are hard to obtain in Central Asia, bricks made of mud were commonly used.

Builders of the Parthian epoch must have been well aware of the fact that much had changed in the strategy of a siege since Alexander's invasion. Greeks brought siege machines which were able to crush or heavily damage military constructions in their critical and most exposed points where wall joints were weaker or where an unprotected zone existed making it possible for attackers to carry on with the onslaught and destroy constructions without the danger of counteraction.

In the first case, corners with wall joints were the most exposed ones. Pressure caused by the siege machines is of highest impact in the said places. Therefore, corners were fairly easy to damage.

In order to diminish the disadvantage, massive towers were erected in the corners of the said constructions. Do notice that these towers were built in forts of Akcha Tepe, Chichanlik Tepe, Durnali, Chilburj. Thanks to this solution not only was the military construction considerably improved, but also a new element was created. The new element protruded from the face of the wall and reduced the unprotected zone in the corner of the military complex.

Surprisingly enough, fortifications from the period in general, beside massive battlements, other walls are constructed, with inner corridors often used as battle galleries. Equipped with rows of arrow slits in order to have higher firing efficiency, these galleries were placed in several levels of perimeter walls. This type of architectural solution seems to be not only a protection against enemies who did not have heavy equipment at their disposal, as is assumed by Francfort (Francfort 1979, pp. 40-43). It also results from the reference to tradition of military construction known in the area of Central Asia.

It must be remembered that Parthians converted from nomads into settlers relatively late. Besides, as new people and so far without own building tradition, they adopted the one which they found on a conquered area. In addition, an ideological factor could be quite important. Both Parthians and Greeks could be perceived by natives as invaders, since from their point of view there was no difference between them. Therefore, it can be assumed that resuming older building traditions could have two meanings. The first one was about using local potential; the second one was a clear signal of propaganda: *We the people of Parthian Iran build the same fortifications as our ancestors, so we are different from*

those who brought other building methods. Besides, because we know how our ancestors built, we are their heirs, so again, we lawfully rule the conquered lands.

However, the tradition was not only referred to implicitly. New but tested solutions were used as well. We can mention here for example massive military towers, which were built without inner rooms. On the tower constructed this way, even heavy throwing machines could be placed without fear of the roof collapsing due to their weight. Proteichisma is another element brought by the Greeks; it was not used in Parthian constructions. The only examples of its usage come from Merv and possibly from Old Nisa. In the first case we cannot completely preclude that the construction was built as far back as when Margiana was ruled by Greeks. In the case of Old Nisa, it is hard to maintain that a ramp construction adjacent to the outer side of the battlements was proteichisma or that the structure performed functions of the proteichisma. We should rather think that the ramp was built mainly in order to control traffic in front of the gate, so that not too many people would stand nearby at the same time.

Unfortunately, we can only guess some of the solutions, as most of the mentioned fortifications were either not investigated or excavations were conducted very cursorily; therefore we have not much evidence at our disposal which would support our suppositions. Even the issue of a platform existing in some of the fortifications mentioned above may be a disputable one because without excavations we cannot ascertain if a construction was erected on a platform, tell (tepe), or if it was built on a completely flat land, and what is now perceived the construction of this type is in fact a result of erosion and destruction of perimeter walls.

Gate systems known as labyrinth or barbicans are peculiar to Central Asian fortifications. The constructions of this type, which are quite complicated complexes, were perfectly assigned for the functions they were supposed to perform. Passing a gate was usually proceeded in the way of following a bent axe, and the entrance was protected with strong bastions or towers located nearby. These solutions perfectly prevent use of an accelerated battering ram against a gate since the battering ram loses its impact at the moment when it must be turned in the narrow gate space. The same rule refers to an infantry assault and the moment when attackers force their way through the first gate. Then intruders could be undoubtedly attacked from the top level of the gate. Usage of this construction in the case of main gates was very practical, because it considerably improved

security level of fortifications. At the same time, a construction of this type had psychological and representative meanings. Complicated gate systems must have inspired confidence in the durability of the fortifications and at the same time they must have commanded respect from possible attackers.

As it has been mentioned before, the gates with bent inner axis were usually built as protruded elements and they became characteristic of the whole military complex. It does not mean that there were no other types of gates. Generally, other gates were direct and were located along a wall curtain near military towers. This location of a direct gate devoid of inner rooms was quite risky, because towers alone did not always suffice as a protection. However, sometimes, like in Chilburj, we find gates, which may resemble barbicans from outside, however these gates are direct, and strengthened by massive towers distinctly protruding from the curtain of the perimeter wall. The gates that have a representative-ceremonial character, they may be referred to as a 'barbican'-type gate, other gates are direct and they do not visibly protrude from the curtain. On the other hand, sometimes, like in Durnali, some of the gates leading to the inside of a fortress are direct, with no adjacent flanking towers. Again, in the case of Akcha Tepe, apart from the fact that the gate located there is a direct construction, it is perfectly protected by a neighbouring corner bastion and a military tower located in the immediate vicinity.

To recapitulate, it must be mentioned that most of the sites discussed above were military complexes built on a layout of a square or a rectangle. It is possible that it is what distinguishes the fortifications from the Parthian period. This can be assumed not only based on the materials from Central Asia, but also thanks to excavations conducted in the area of present Iran. In his brief reconnaissance, Kleiss has found a few Parthian fortresses, which he was able to date based on some pottery. We should mention here forts like Tepe Coragi, Kharkon near Malayer or a small, nameless fort located 4 km to the north-west of Malayer (Kleiss 1975). An outline of a structure is, of course, the most obvious element suggestive of Parthian fortifications. It should be noted however that Parthian structures differed in shapes from e.g. Merv, Kyrk Tepe, Akcha Tepe, Alty Baba and Nisa. In the cases like of Merv and possibly of Kyrk Tepe, the shape of the walls outline resulted from the fact that the walls were built outside of oval forts built as far back as the Achaemenid period. Due to technological and

architectural development, the oldest elements of these constructions began to perform the function of a citadel. Moreover, it is hard to call the construction of the complexes mentioned above a pure Parthian tradition, because, at least in Merv (Gyaur Kala), perimeter walls were built in the time of Greek rule. As for other examples, it seems that their shape resulted, like in Old Nisa, from the configuration of the area on which those constructions were built.

If it is possible to locate the development of the Parthian military system and architecture in historical reality it could be connected with some events known from the historiography of Parthia.

First process of final development of the fortifications in the Parthava province could be linked with activity of Antioch I Soter who tried to protect Iran against "barbarian" tribes around 281 B.C. During that time, the name of the capital city of Margiana was changed once more to Antiochia Margiana. Supposedly, during Antioch I some architectural activity was observed inasmuch as some Greek elements appeared in the fortifications of Parthava.

The second stage of the fortification activities could be associated with two events. The first one being the political activity of Andragoros, who instigated separatist tendencies, which made him fear the reaction of the Seleucids. The second event was the invasion of Arsaces of the Parthava province. After this conquest, Arsaces could anticipate the reaction of Seleukos II who around 238 B.C. tried to regain that territory. The reign of Arsaces I (238-217? B.C.) and Arsaces II (217-191? B.C.) was a period of conflicts with the Seleucids, so both kings had to prepare cities and strongholds in the center of the state for military action to be taken. Even later during the time of glory of the Parthian empire under Mithridates I and Mithridates II the military system needed evaluation. The best example of the stronghold from that time is Mithridakert i.e. Old Nisa fortress, organized as the Parthian capital city. During that time, Margiana became a part of the Empire, so because of the strategical position it needed to be well prepared as the frontier province of the Parthian state.

If our estimate of the dates are correct, we can assume that in the Middle East rectangular shaped fortifications occurred much earlier than did the square-shaped Roman forts. It seemed for the time being that it was a Roman fort, which was an example for later Parthian and Sassanid fortifications. It would be true while considering the period after Diocletian's reforms when square-shaped forts with distinctly protruding corner towers

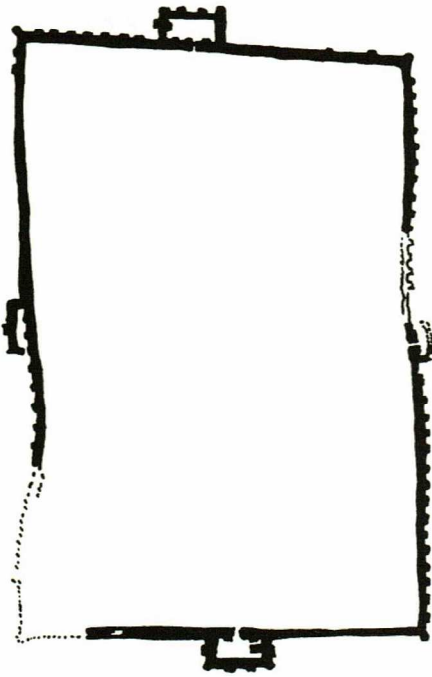


Fig. 14. Kalaly Gyr. Plan.
(After Lavrov 1950)

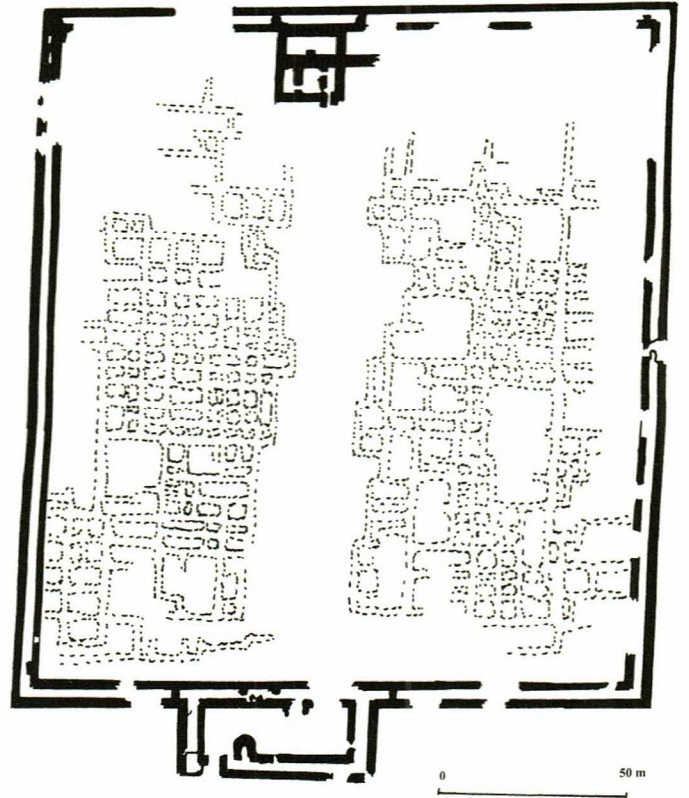


Fig. 15. Djanbas Kala. Plan.
(After Lavrov 1950)

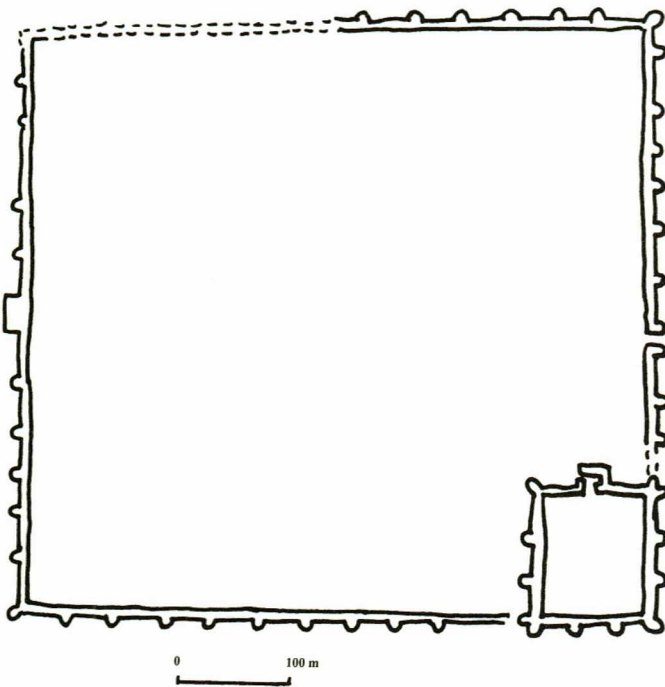


Fig. 16. Bazar Kala. Schematic plan.
(After Lavrov 1950)

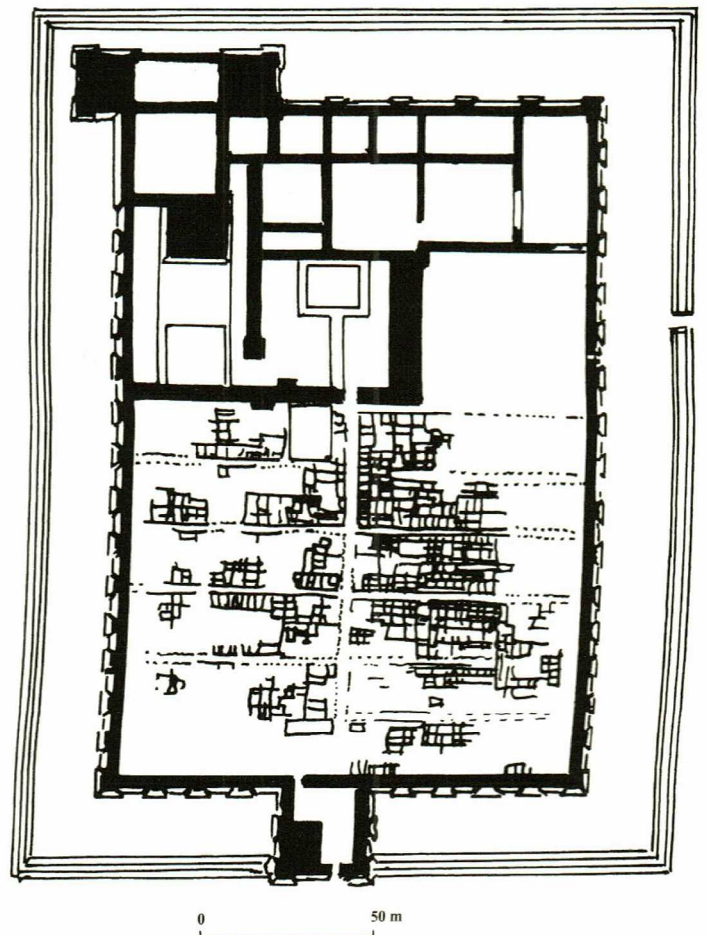


Fig. 17. Toprak Kala. Plan. (After Lavrov 1950)

were built along the east borders of the Roman Empire (Parker 1986; Gregory 1997). However, based on the available evidence, we could attempt to suppose that the form, considering its handiness and military advantages, could be used and introduced irrespective of Roman patterns. The more so, there are numerous examples of earlier Central Asian fortifications which have shapes resembling squares and rectangles. We should mention here a few of the fortifications: Kalaly Gyr (Fig. 14), Djanbas Kala (Fig. 15), Kunja-uaz, Bazar Kala (Fig. 16), Toprak Kala (Fig. 17) (Lavrov 1950, pp. 8-65). Precisely the battlements of this type are marking development of tendencies in military architecture, which evolved in the area of Central Asia, then reached Iran and Mesopotamia, and could be linked, to the Parthian art of building fortifications.

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