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The Hellenistic Fortification of Seleukeia Gadara (Umm Qays): An Example for the Transfer of Military Architectural Expertise to the Koile Syria

Introduction

The walls of Gadara have been uncovered since 1992 as part of the work of the German Archaeological Institute (Hoffmann 2000). Important sections were investigated in archaeological excavations, while other parts were cleared by the Jordanian authorities during the construction of the new car park.

The building stands out in the region with its good state of preservation and the high quality of its ashlar construction. However, the fortification is of particular importance for research because it can be dated relatively reliably by stratigraphy. This is absolutely rare in Hellenistic fortifications, so that the construction can serve as an important reference for others. The results of the archaeological investigations and the building research have now been presented in a dissertation (Jansen 2020).

Location

Gadara, the modern Umm Qays, is located in northwest Jordan on the edge of a plateau bordered by the Yarmūk Valley, the Jordan Valley, and the Wādī al-ʻArab. At the eastern end of this plateau rises a hill about 35 m high. Here the Hellenistic fortress was strategically located. At this point, the northern Yarmūk valley and the southern Wādī al-ʻArab are close to one another, so that the ridge giving access to the plateau from the Jordanian highland is narrow and easy to defend. Far-reaching visual relationships in all directions justified the strategic importance, while the fertile plateau formed a secure basis for life.

History

Gadara is located in an area that had long been disputed between the Ptolemies and the Seleucids. After the battle of Ipsos in 301 BC, it had initially belonged to the Ptolemaic Empire. In 218 BC it was taken by the Seleucid Antiochos III. In this context, Polybius (5.71.3) called it "the strongest

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place in the region." Nevertheless, the sight of the Seleucid siege works was enough for the Ptolemies to surrender.

There is, however, no pre-Seleucid fortress known in the area. There are indications that the predecessor settlement of Gadara is identical to the Tall Zira'a in the Wādī al-'Arab south of Umm Qays (Dijkstra 2005). On this tall, mighty defensive walls from the Bronze and Iron Age were uncovered (Vieweger and Häser 2012). The name likely referred to a settlement on this tall until the Ptolemaic period, when it was transferred to a Seleucid re-foundation on the hill.

In order to secure the region, Antiochos first had to withdraw, but was then able to take it *ca.* 200 BC in a second attempt. The next mention of Gadara in the literary sources is when it was besieged at the beginning of the 1st c. BC by the Hasmonean Alexander Jannaeus (Flavius Josephus *Jewish Antiquities* 8.356). After ten months of siege, he succeeded in taking the fortress. But after a defeat against the Nabataean Obodas I, the Hasmoneans had to give up their newly conquered Transjordanian territories. During this time the fortress of Gadara was repaired. An inscription gives an account of this action, which a certain Philotas carried out together with the polis of the Seleuceans in the year 85/84 BC (Wörrle 2000). In combination with numismatic finds from Gadara (Noeske 2013: 139 fig. 5), it can be assumed that it was the late Seleucid ruler Antiochos XII who restored the fortress because he wanted to use it as a military base for campaigns against Hasmoneans and Nabataeans (Jansen 2020: 49), but it only lasted for a short time. In 83 BC Alexander Jannaeus succeeded in a second attempt to take over the Transjordanian territories including Gadara. The Hasmonean rule ends with the Roman takeover by Pompey in 64 BC. While the neighbouring cities are only mentioned to be liberated, Flavius Josephus reports that Pompey rebuilt the city destroyed by the Jews (*Jewish Antiquities* 14.75; *The Jewish War* 1.7.7). For Gadara, a new age begins, which is clearly shown by the beginning of coinage and a new era.

The tide turns again when Gadara is awarded to Herod in 30 BC. After his death it becomes part of the province of Syria. Historical sources then report that it is involved in the Jewish uprisings (Flavius Josephus *The Jewish War* 2.18.1). Possibly in the course of the administrative reorganization after the war, the Decapolis was founded as a union of the Poleis Hellenides, the Greek cities. As part of this alliance, Gadara experienced periods of economic and cultural prosperity, which are reflected in numerous monumental new buildings and the expansion of the city area far to the west (Hoffmann 2013: 19–27).

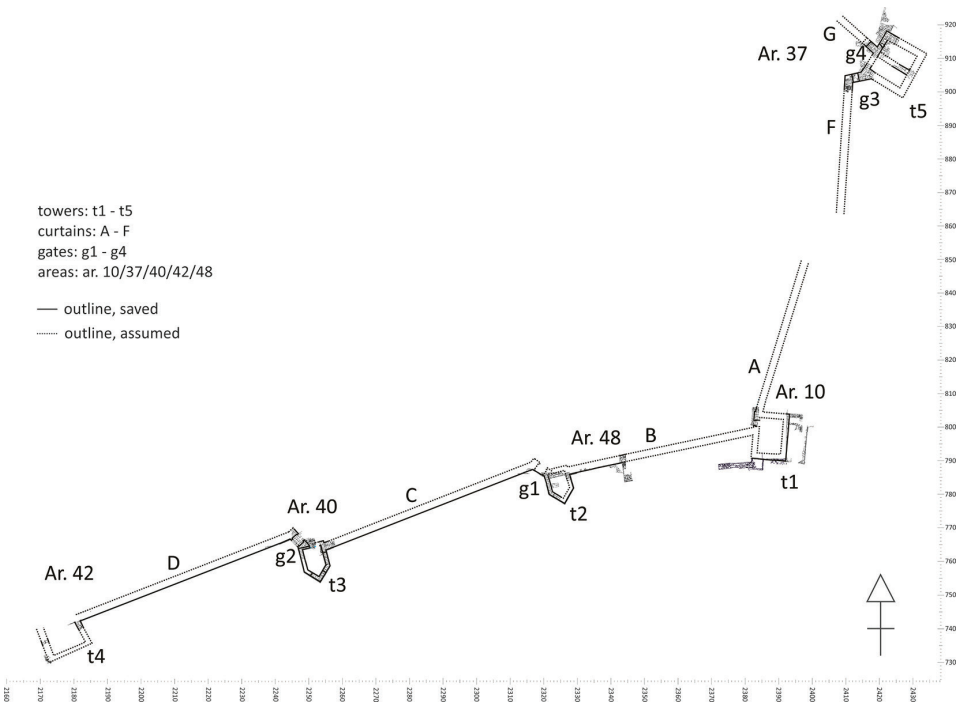
Layout and Architecture

The topographical map of Gadara shows the Roman imperial city at its greatest extent, covering almost 30 ha. The Hellenistic fortress, on the other hand, was completely limited to the hill (Fig. 1). It covered an area of 4–5 ha only. The western and northern flanks of the Hellenistic fortification were covered by the Roman city expansion, so that their course can only be postulated. The 235 m long southern flank is well studied. Another corner tower is known from the eastern flank, so that its course can be retraced (Fig. 2).

The main feature of the southern flank is an indented trace with gates in the offsets, each protected by a tower. The angles are marked by rectangular towers. Thus, three rectangular towers are known with a side length between 10 and 15 m. The largest one is the north-eastern tower which is also the only one with an internal cross-wall. The two pentagonal towers of the southern wall are about 8 x 12 m.

In the offsets, gates are inserted. Another gate opens through the curtain on the other side of the north-eastern tower. The width

1. Seleucid fortification with suggested reconstruction (after Hoffmann and Bührig 2013: Beil. 1).

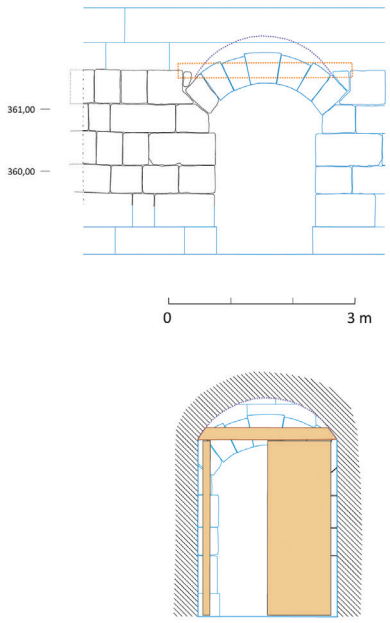


2. Outline of the southern and eastern flank.

3. Approach of a segmental arch over Gate 3.

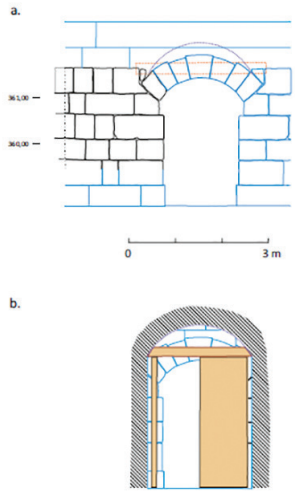
of the gates is between 1.8 and 2.6 m. From the gates next to the north-eastern tower we know that they were spanned by segmental arches (Fig. 3). The doorway itself was covered by a segmental vault (Fig. 4). From the discovery of two basalt-stones with bronze pivots in the western gate, we know that the gates were closed by double-winged doors. The recess for a bar in the northern jamb of the same gate proves that the doors could be locked with a beam.

Different techniques were applied for the masonry of the curtain walls and towers (Jansen 2020: 102–5). Pseudoisodomic and isodomic masonry are used. Differences in technology are not due to different construction phases, but are dependent on the thickness and function of a wall section. A more or less standardized stone size was used. The modular blocks

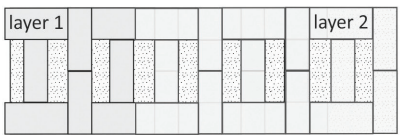


4. Reconstruction proposal for Gate 4: a. field side, b. city side.

could then be used as headers or as stretchers. The stretchers were partly set as orthostats, partly lying according to the geological stratification. An orthostatic arrangement was actually avoided, since the ashlars, in which the natural layering of the stone is directed outwards, are more resistant to attack by the enemy. But this special care was only observed on the particularly endangered rectangular towers, which could only be flanked on two sides by an adjacent tower. For other wall segments, more rational masonry forms were used.



5. Masonry techniques.



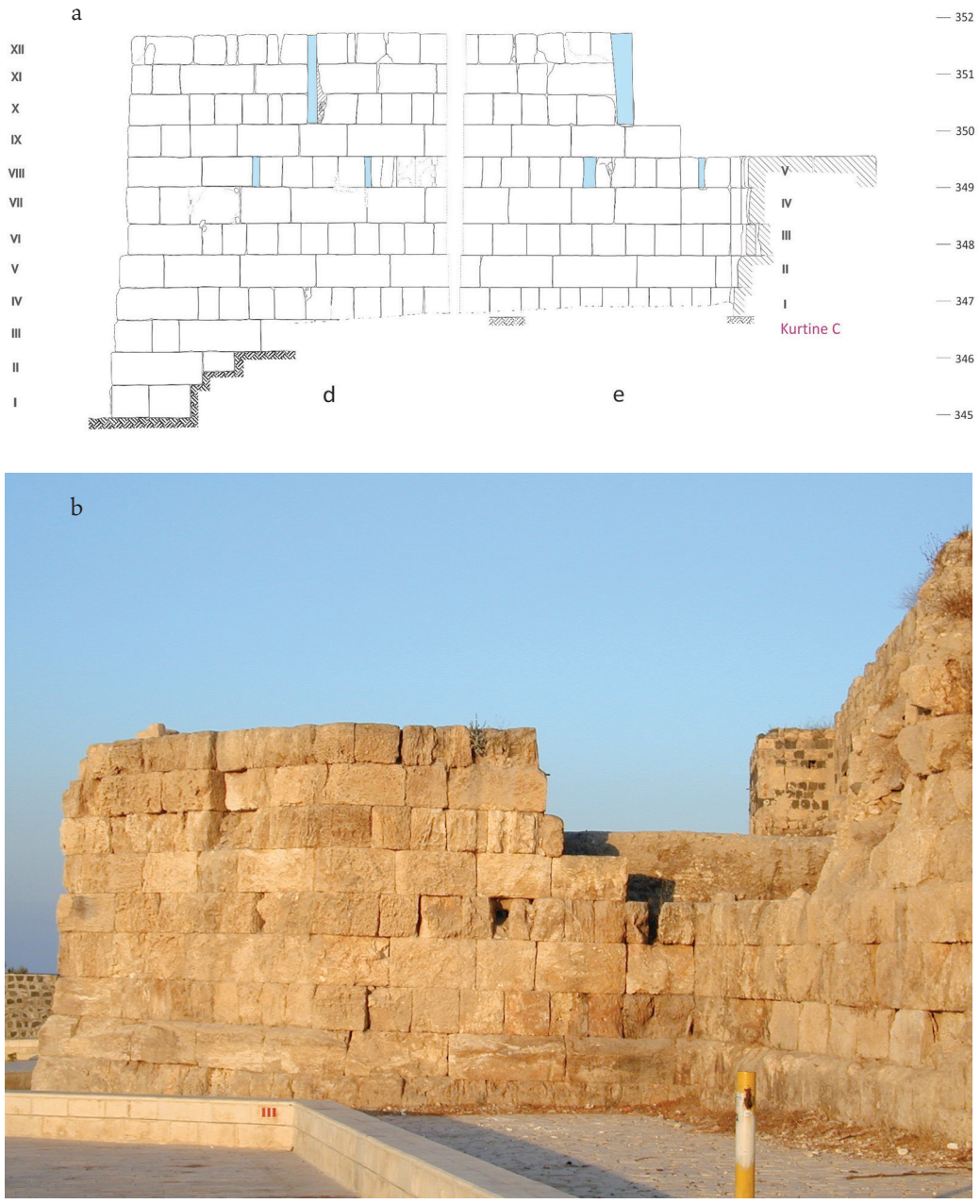
6. Curtain C: detail of compartment wall.

So, the walls of the towers are formed by layers of stretchers alternating with layers of headers (Fig. 5a, b). As the stretchers of the rectangular towers are lying, while the stretchers of the pentagonal towers are standing, the height of the layers varies. The tower walls are between 1.1 and 1.7 m thick. The curtain walls are 2.2 m thick (Fig. 5c). The protruding socle is made of layers of headers alternating with layers of stretchers. The masonry above the socle consists of regular layers of alternating headers and stretchers. Here, the walls are not massively layered through, but are designed as compartment walls (Fig. 6).

The length of the curtain walls is 56 to 67.5 m, so that they could be flanked well by the neighbouring towers. The pentagonal towers are well preserved so that we know that there existed two levels with loopholes, one with smaller openings of 57 cm, and an upper story with larger slits of 159 cm in height (Fig. 7a, b).

Military Function

It can be assumed that the smaller slits were used for standing archers and the larger slits for small torsion bolt shooters. There are hints that a third story existed, which most likely contained windows for catapults (Jansen 2020: 122–4). From the ground area we can conclude that the towers could host, beside archers, torsion bolt shooters and small stone catapults. The north-eastern tower with a slightly bigger foundation could have hosted medium stone throwers. These conclusions from



7. Tower 3 from the east.

the ground area can be compared with the stone bullets found during excavation. In total, 47 bullets were found. The biggest concentration of stone bullets was found around the north-eastern tower. They were all made of basalt and had a spherical form. Most likely they were intended to be used for catapults. From their weight, we can conclude that they were deigned to be used against persons and catapults.

Another element related to the military function were posterns which could be used for sallies against the enemy in front of the wall. There was a postern in the side wall

of both of the pentagonal towers (Jansen 2020: 124). Leaving the fortification through the narrow openings, the defenders could re-enter through the neighboring gate. Obviously, these posterns did not fulfill their task for long because they were blocked with masonry not long after their construction (Fig. 8). This might indicate that the commander did not have a sufficient number of soldiers to achieve the active strategy of defense on which sally ports rely.

8. Blocked sally port.

Origin of Military Architecture and Building Technology

Pentagonal Towers

The outstanding form of the pentagonal towers is regarded as typically Hellenistic. Their form was considered as being especially sturdy, and it aimed to increase the field of fire in the direction of the curtains they flanked (Fig. 9). But although the form was also recommended by the military theorist Philon of Byzantium, only a small number of examples are known. Therefore, this tower form is particularly well suited to our understanding of how the knowledge about poliorcetics and military architecture

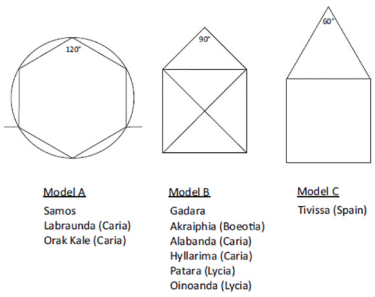
9. Tower 3 with Gate 2.

was imparted across these huge Hellenistic kingdoms.

I could find 13 fortifications with pentagonal towers beside Gadara, ignoring firstly examples from the Late Antique period (Jansen 2020: 152–7). The geographical frame stretches from Spain to Pakistan. Of all the towers published on a sufficient scale, I have examined their basic form, and it turned out that it is predominantly, and very precisely, based on geometric basic forms. Three different models can be identified (Fig. 10). Model C, which consists of a square with an equilateral triangle in front, can only be found in a single example in Tivissa, Spain. Model A is constructed on the basis of a regular hexagon, where the tip facing the curtain is omitted. The corner facing the enemy has an angle of 120°. Examples can be found in Samos, Labraunda, Orak Kale, and probably also in Kos. Most of the known pentagonal towers, including those in Gadara, are designed following Model B, which consists of a square with an isosceles, right-angled triangle in front. The distribution map shows an interesting concentration of similar constructions in the area of Lycia and Caria. A single example was identified in Akraiphia in Boeotia, which like Gadara follows the basic design very closely.

None of the fortifications in Asia Minor and Greece has been dated by stratigraphy. Based on historic or constructional reasons, dates ranging from the late Classical or Hellenistic periods have been proposed. Given the better dated towers in Gadara, we can propose a model for their distribution. We know that the fortification of Gadara was initiated by Antiochos III or his immediate successors. Also, the regions in Western Asia Minor were under Seleucid control after the Third Syrian War until Antiochos had to release them after the peace treaty of Apamea in 188 BC. And Boeotia belonged to the territory of Antiochos III as well, even if only for a short time in 192/191 BC.[1]

Given that we assume for Gadara that the construction of its fortification was initiated shortly after the Seleucid dominion in Boeotia, Caria and Lycia, it is most likely that the design of all these fortifications followed the same building code. These instructions must have been in the hands of the military architects of Antiochos III and his successors, and they must have contained a detailed description of the design of the towers, and probably also drawings.



10. Models of Hellenistic pentagonal towers.

Compartment Walls

Another characteristic of the wall that can be examined for the origin of its technique is the construction of the compartment wall with modular blocks, which was used for the curtain walls above the base (see Fig. 6). In the exterior view it results in a very regular header-stretcher masonry, which should correspond to the "emplekton" described by Vitruvius (Jansen 2020: 143–7).

Comparitive examples point in a different direction than the pentagonal towers. Direct comparisons for this construction technique can be found in the Syrian area, especially in the middle Euphrates

[1] The ground plan of the towers of Taxila is published only on a very small scale. Antiochus III probably reached Taxila with his campaign in India in 206 BC. But the role of the fortification there can only be investigated when its architecture is better known.

and in Ibn Hani near Laodikeia (Balandier 2008:109–12). The fact that the material with easily cut soft limestone is similar in these places might have promoted the comparable construction method. According to Claire Balandier, the technique was probably developed in the zone under Lagidic control and later adopted by the Seleucids. The reason that the technique was used especially in the construction of fortifications is certainly due to the rational, and at the same time stable, construction that can be created in this way. Compared to a filling masonry with irregularly inserted headers or with chains of headers at larger distances, a higher stability is achieved, but compared to a massively layered wall, material and working time are saved.

Segmental Arches and Vaults

A particularly unusual construction element of the fortress of Gadara is the segmental arches, for which there are no parallels in the region for this period. For later times, segmental arches and vaults are quite common both at Gadara and in the region in general. Thus, the passages of the monumental gate in Gadara were spanned by segmental vaults (Bührig 2008). And in tomb architecture in Petra, segmental arches became a popular motif for façade design.

But for the Hellenistic period, comparable buildings are still missing, so the origin of the architectural form has not yet been sufficiently determined. However, it is very likely that the form is derived from Ptolemaic architecture (Lauter 1971: 170–1). Since there are only a few remnants of Alexandria's buildings, the path of derivation is only incompletely known. But the influence of Alexandrian architecture on buildings such as Iraq al Amir or those in Petra can also be understood in terms of other decorative elements. It can therefore also be assumed that the segmental arches and vaults in Gadara are derived from buildings in the region built during the Ptolemaic period but which are unknown today.

Flow of Peoples and Flow of Ideas

Finally, a brief reference should be made to the topic of the conference. Fortifications were built in times of crisis, and constant armed conflicts led to the military installations playing a central role in urban architecture. The development of new offensive techniques during the Hellenistic period led to increasingly sophisticated adaptations of defensive architecture. In addition, the constant war campaigns of the Diadochoi and the Hellenistic kingdoms led to many people moving over great distances. The question is to what extent this flow of peoples also involved a flow of artifacts and ideas and what impact it had on the architecture and its role in the urban culture of Gadara.

First of all, the use of the exact same basic form of the pentagonal tower in Transjordan as in western Turkey and Greece testifies to a transmission of guidelines for military architects throughout the vast Seleucid Empire. It is not known whether the architects also moved around with the army, but at least there were written instructions that were spread throughout the empire.

A closer look at the pentagonal towers of Gadara and Oinoanda in Lycia (McNicoll 1997: 120–6) reveals that, although they have exactly the same basic shape, the buildings are constructed with different types of masonry. This shows the limits of the overriding requirements, since the choice of masonry depended to a large extent on the material available on site (Bessac 2016: 132).

Local stone material is not the only factor responsible for different variations of the same ground plan. Another factor could be the use of regional building techniques. The gates in Gadara and the temporary gate in Dura-Europos have exactly the same ground plan (Abdul Massih 1997: 48; Jansen 2020: fig. 45), but the one in Dura-Europos

was spanned by a semi-circular arch, while the gates in Gadara were spanned by a segmental arch. Presumably this is a local building tradition that is derived from Ptolemaic building techniques. The use of the efficient technique of the compartment wall, which may have been developed by builders on Cyprus or at the Euphrates, also shows that technical ideas were probably brought in by the builders. Some of them may have moved around with the army, while others were engaged locally.

Nevertheless, the result—the fortress of Gadara—demonstrates that ideas were transmitted globally but were modified according to the influence of interregional or local traditions.

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