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## Fortifications and town planning in Kyrros: its Hellenistic origin and its evolution

Jeanine Abdul Massih, Mathilde Gelin

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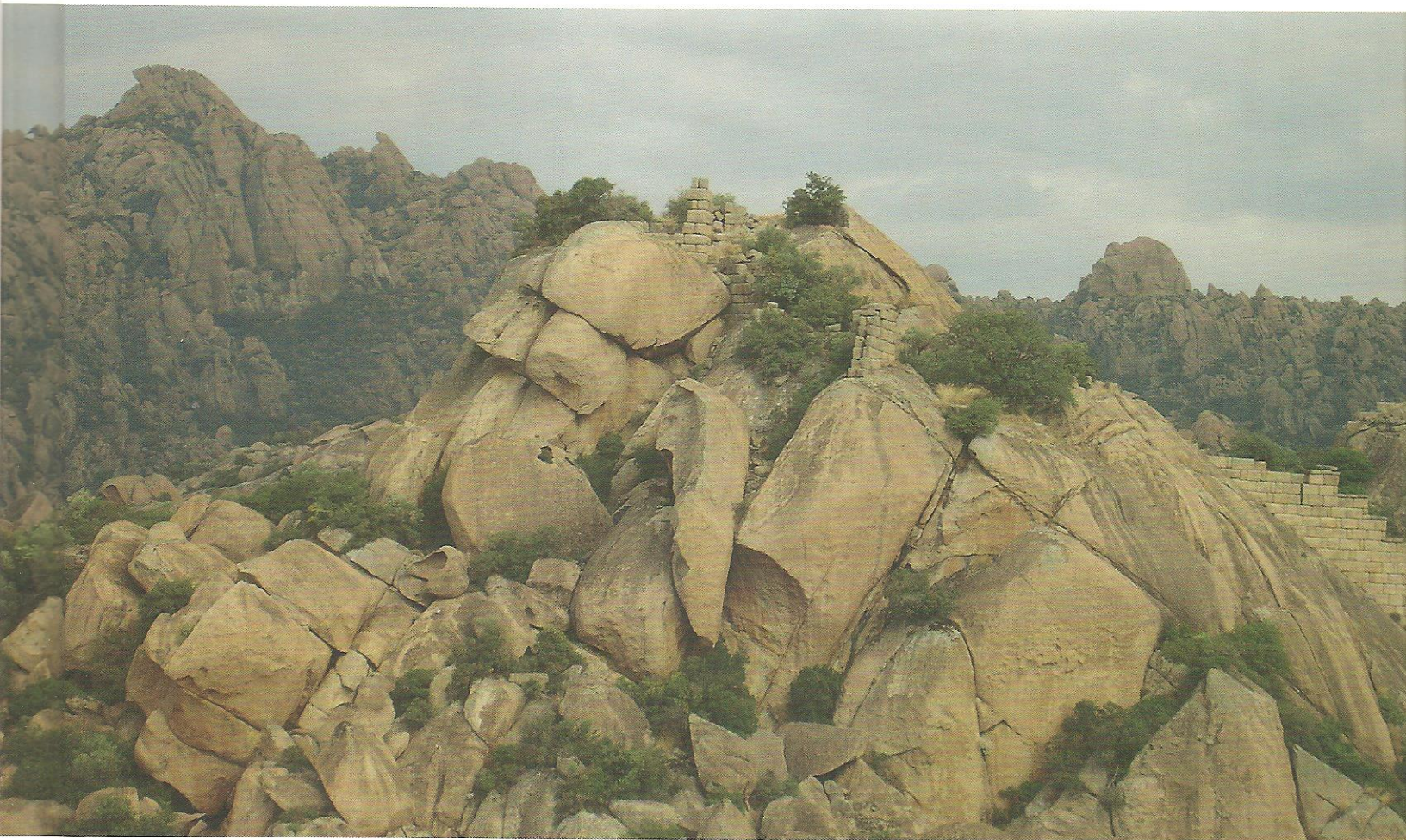
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# Focus on Fortifications

*New Research on Fortifications in the Ancient  
Mediterranean and the Near East*



Monographs of the Danish Institute at Athens, Volume 18



edited by

Rune Frederiksen, Silke Müth, Peter I. Schneider and Mike Schnelle

# FOCUS ON FORTIFICATIONS

New Research on Fortifications in the  
Ancient Mediterranean and the Near East

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*Front cover: City wall of Herakleia on Latmos (photo: S. Müth)*

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# FORTIFICATIONS AND TOWN PLANNING IN KYRRHOS: ITS HELLENISTIC ORIGIN AND ITS EVOLUTION

Jeanine Abdul Massih & Mathilde Gelin

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## Abstract

Kyrrhos/Cyrrhus in Syria, established during the Hellenistic period, is known as a Seleucus Nicator foundation. The polygonal rampart attributed to this period has been observed over nearly the entire city, except on a large part of the southern fortification. Since 2006, the Lebanese and Syrian Archaeological Expedition (Lebanese University – DGAMS) has been working on the site of Cyrrhus. The main research topics are the study of the fortifications and the evolution of the town planning. In this paper the latest results on the polygonal fortification of the first phase of occupation are presented along with analysis of the development of the early town: its limits and town planning and its evolution in the Roman (64 BC with Pompey's conquest), Byzantine and Islamic periods. The fortification in its actual state of preservation belongs, for the most part, to the Byzantine period. During the 6th century AD, under the reign of Justinian (527–65), the entire rampart was reconstructed, corroborated by several sources and inscriptions discovered on site. The study of the city wall uncovered some major interventions attributed to the medieval period. It is known that in 637, the city was conquered by the Arab army and named Qurus. It was re-occupied by the Byzantines in the early 11th century, and reconquered and dismantled in 1150 AD by Nur al-Din al Zengui.

Kyrrhos was founded at the beginning of the 3rd century BC. The strategic advantage of its establishment in a dominant position overlooking the region and near a river made it ideal for military purposes. Capital of the Cyrrhestic and built on the major communication routes, the site was connected with the main neighbouring cities and the Seleucid capitals. Fortified by its first occupants, the city is endowed with a citadel (Fig. 1). During Roman times, Kyrrhos appeared under the name of Cyrrhus and played an important defensive role throughout the Parthian wars. Several inscriptions and funerary stelae testify to the presence of a garrison of Roman soldiers, corroborated by the construction of a military camp in the western part of the city and the reconstruction of the fortifications, particularly on the southern rampart. In Byzantine times, Cyrrhus became an episcopal centre and was attributed the title of metropolis by Justinian, who undertook a huge reconstruction programme on the fortifications. Through the Islamic period, the city maintained its military role: different restorations and reconstructions were observed on the entire rampart of the city and citadel.

The fortifications protect the entire city. They are built in limestone with two faces of cut stone, between which stands a filling of irregular stones and small re-used blocks in lime mortar. The faces are of hard limestone or soft blocks extracted from the surroundings.<sup>1</sup> The use of these blocks is diverse, according to the phase of construction.

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<sup>1</sup> Observations made by J.-C. Bessac.

In some parts of the walls, a polygonal masonry is visible in the lower parts of the ramparts. The façades are constructed of large polygonal blocks, built without any use of mortar, and filled with irregular stones jointed with a reddish clayey compact earth. The blocks were extracted from the hard limestone of the surrounding surface.<sup>2</sup> The faces of the stones are rough, only the surface in contact with the other stones is slightly worked. They were placed directly on the bedrock which had been worked to create horizontal platforms to receive the foundations. On the slopes, the upper part of the polygonal foundation constitutes horizontal stages disposed 'in steps' following the slope, as is seen on the curtain 2-3 (Fig. 2). The elevation is in soft modular limestone.<sup>3</sup>

Thirty-two towers have been counted – beside the ones flanking the gates – surrounding the town and the citadel. They are constructed in different shapes: square, rectangular, and circular or horseshoe, and implemented irregularly along the city wall. There are several gates and posterns.

The walls of the lower town are nearly three kilometres in length, with twenty-two towers projecting to the outside. Four gates marked the main axes through the city to the north, south, east and west and one postern opens in the western rampart, on the 16-17 curtain wall.

The citadel,<sup>4</sup> established on the Qalaat hill, is rectangular in shape and measures 230 m north-south and 155 m east-west. The west and south ramparts continue the city walls, while the east and north ones are independent; a later square fort was built in the south-west angle. There are ten towers and two gates on the walls of the citadel. The monumental opening on the northern side connects the fortress with the lower town; the second is located on the junction between the citadel, the town rampart and tower I, overlooking the western side. The second opening seems to be more a postern giving access to the area outside the citadel than a real gate.

## The first rampart

The earliest fortifications represented by the massive polygonal blocks are generally hardly visible due to later repairs and reconstruction. Before our intervention, they had previously been revealed<sup>5</sup> in two sondages excavated outside the southern wall of the citadel, and on the northern and western gates of the city. They are visible at different points of the eastern and the southern rampart, particularly on the summit of the slope running from the citadel towards the lower town.

The polygonal construction has been identified as the base or foundation of a soft stone wall. This elevation

of the first rampart has entirely disappeared and was replaced by the Byzantine wall (Fig. 2). These observations were made on the northern wall of tower 3, on the eastern curtain of the tower on the slope, and partly re-used in the later elevation of the southern wall of the citadel. Frézouls dates this technique of construction to the Hellenistic period on the basis of parallels established with Seleucia Pieria.<sup>6</sup>

The research programme implemented for this study is built on surveys, topographical observations and archaeological sondages.<sup>7</sup> The first phase of our research concentrated on the southern rampart and study of the town planning of the southern part of the city.

<sup>2</sup> Observations made by J.-C. Bessac.

<sup>3</sup> Dimensions of nearly 102 × 54 cm, the height of a course is about 47-8 cm.

<sup>4</sup> The entire research programme on the citadel is under the supervision of M. Gelin.

<sup>5</sup> From 1952 to 1990 the site was excavated by a French expedition directed by E. Frézouls (Strasbourg University).

<sup>6</sup> Frézouls 1977, 179 and 191.

<sup>7</sup> Study was also undertaken on survey images issued from geophysical surveys undertaken by C. Benech. See Gelin 2013; Abdul Massih & Gelin 2010.

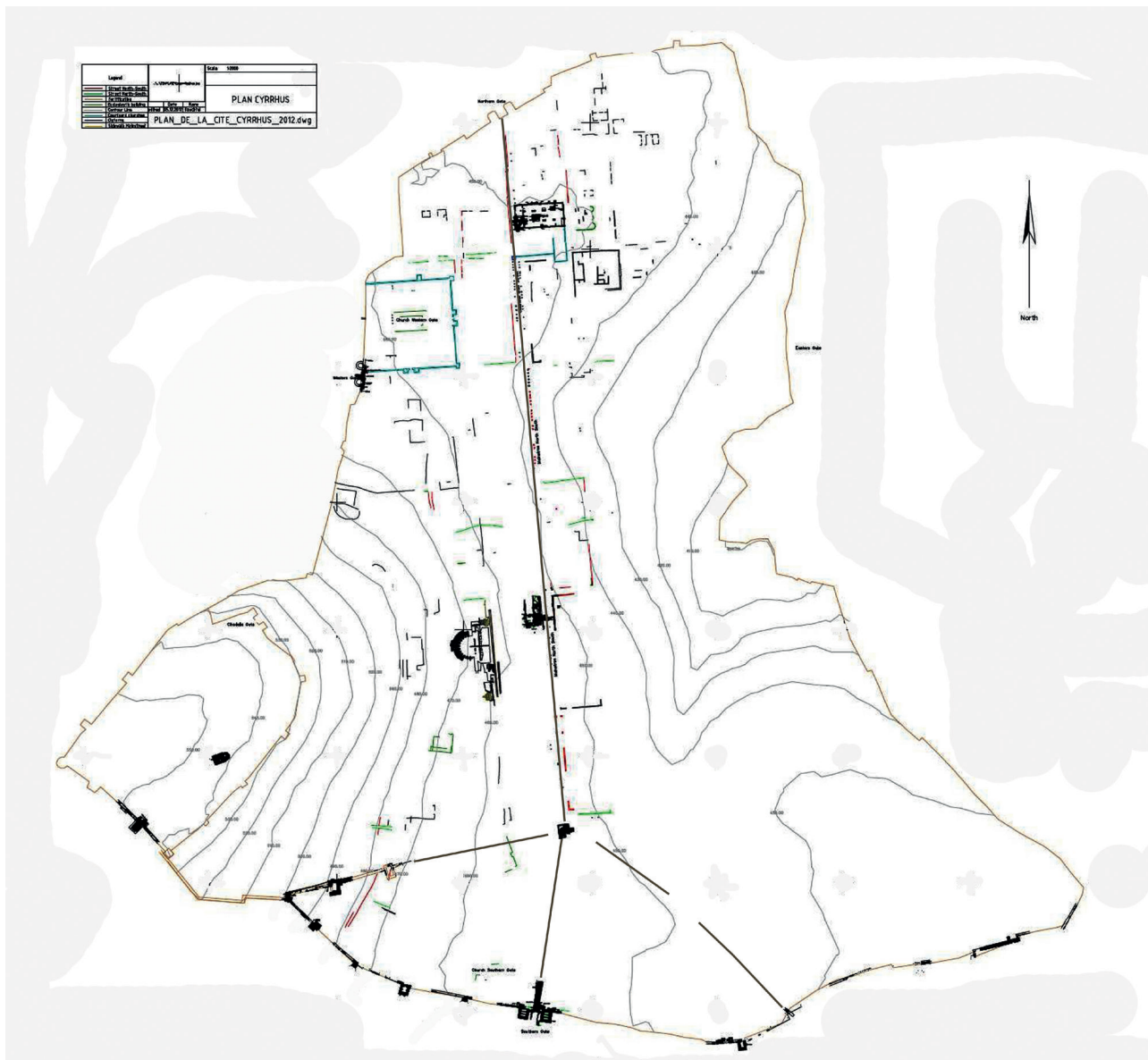


Fig. 1 Map of the site of Cyrrhus: results of all the works of the Lebanese-Syrian Archaeological Expedition (2012. S. Baier & S. Knechtel). © Lebanese-Syrian Expedition of Cyrrhus-Nebi Hour.

Wider observations were also conducted on the entire fortifications of the lower city and the citadel.

### The southern rampart of the citadel<sup>8</sup>

The excavations undertaken at the citadel brought new light on the early phases of the fortifications. First, the

sondages undertaken by Frézouls at the base of the southern rampart were cleaned to observe and document the remains of the oldest construction of the wall. A new sondage was implemented beside the previous one, on curtain wall 2-3, outside the citadel, to establish the stratigraphy relating to the architectural installations.<sup>9</sup> Unfortunately, no archaeological material was collected in direct connection with the first rampart. Succeeding levels, however, revealed material from the Hellenistic

<sup>8</sup> Research undertaken by M. Gelin.

<sup>9</sup> The excavation notebooks of the former expedition did not give any information about the discoveries from these sondages.



Above: **Fig. 2** Citadel, southern rampart, view from the north. Polygonal masonry in the foundation and Byzantine elevation.

Right: **Fig. 3** The northern wall and the door of the polygonal tower.

Left: **Fig. 4** Foundation of the polygonal tower under the Byzantine tower. View from the east.

All images ©Lebanese-Syrian Expedition of Cyrrhus-Nebi Hour.



period (curtain 2–3) and the beginning of the Roman period (Tower 3).

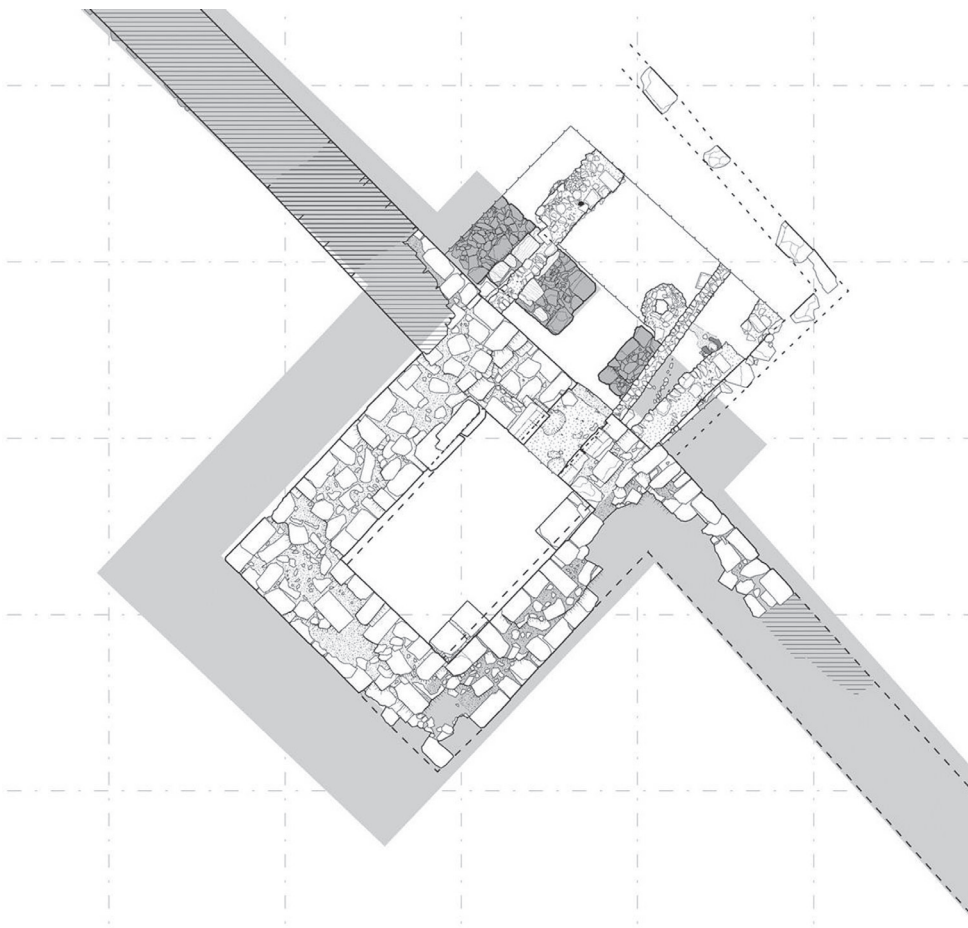
Our studies focused on tower 3 of the southern fortifications, in the sector where polygonal construction was identified and because it was most probably built on the remains of a previous tower. In its current state, tower 3 proved to belong to the Byzantine period. The tower, measuring  $8.6 \times 8.3$  m, is connected to the rampart and projects towards the exterior of the citadel. On its eastern side, the excavations showed that the defensive monument was founded on an older tower (Figs 3 and 4) of larger dimensions (external width N–S of 12 m), partly destroyed during the construction of the later phase, which employed re-used blocks extracted from the earlier building, mortared with a very hard lime plaster of dark colour. These techniques of construction were observed in the foundations of the northern and western walls.

The tower with polygonal masonry, observed underneath tower 3, overlaps the rampart. Its northern wall and its entrance project from the face of the rampart towards the inside of the citadel (Fig. 5). The level of the floors and the threshold showed that after a short phase of abandon-

ment, the building was reoccupied in the Roman period.

Though no archaeological material was found to date the initial rampart precisely, there are several associated factors that give us the opportunity to date these earliest defensive installations: 1) The city has a fertile territory with water resources. This is observed at other Hellenistic cities such as Apamea on the Orontes; 2) The city wall is established on the edge of a natural slope using the relief to reinforce the defensive system. This characteristic is widespread in Hellenistic military installations; 3) The construction of the foundation in polygonal masonry is similar to other Hellenistic fortifications of the region such as Seleucia Pieria and Apamea on the Euphrates; 4) The masonry of the elevation, composed of modular blocks of soft limestone fitted with white mortar, is of widespread use in Hellenistic fortifications in Syria, as can be seen at Antioch, Ibn Hani, Apamea on the Orontes and Dura-Europos on the Euphrates; 5) The lack of associated material underlines the fact that the polygonal installation represents the first phase of occupation of the sector; 6) The tower in polygonal masonry is situated under tower 3 and earlier than the first Roman occupation of the 1st century BC.<sup>10</sup>

<sup>10</sup> The material uncovered in the first layer above the bedrock revealed one pot sherd of the second half of the 2<sup>nd</sup> century BC (unpublished study undertaken by Abdallah Alaeddine). The sondage A revealed several Hellenistic sherds (identified by Sandrine Elaigne).



**Fig. 5** The polygonal tower (in grey) under the Byzantine tower (J. Humbert). © Lebanese-Syrian Expedition of Cyrrhus-Nebi Hour.

These elements allow us to attribute the first rampart to the Hellenistic period, confirming the written sources. The current state of our research makes it impossible to propose an accurate date of construction. It can be related to a period that goes on for more than two centuries. We founded our research for the study of the citadel as well as for the southern sector of the city on this hypothesis.

### The first citadel<sup>11</sup>

A series of towers built simultaneously with the curtains of the rampart comprise the citadel's defences. Its eastern and northern defensive walls, composing a single wall, are distinct from the rampart encircling the lower city which is connected to the southern and western rampart of the citadel.

The polygonal wall, visible on the southern rampart, is totally absent from the eastern and the northern walls of the citadel which are built entirely with dressed stones and founded directly on the bedrock. A sondage was excavated in the exterior angle of the southern and eastern walls showing the link between the angle of tower 4 and the eastern rampart.<sup>12</sup> The foundation of the eastern wall stands directly on the natural bedrock. The base of the northern wall is visible and is readable without excavation.

The western wall is more complex. A sondage was opened in 2011<sup>13</sup> at the foot of the rampart outside the citadel, on an area that was relatively well preserved from the accumulation of destroyed substructure. The foot of the wall, lying on the bedrock, consists of a foundation made of re-used polygonal blocks embedded in dark lime mortar. It is the same technique that was observed on

<sup>11</sup> Research undertaken by M. Gelin.

<sup>12</sup> The junction with the elevation of the tower is visible; the bases are hidden by a glacis made of large slabs.

<sup>13</sup> Sondage excavated by J.-M. Gelin.

the northern and the western wall of tower 3, dating to the Byzantine period. However, on the western rampart we could not find the original masonry from which the blocks were taken. Only future research can determine the exact location of the original masonry. The re-used blocks can only suggest the proximity of the polygonal rampart.

These observations suggest that the original surface covered by the citadel was different from the actual preserved one. It is possible that it did not cover the entire surface but that it was established on the old line of the southern wall and very close to the western one. Several areas of the southern and the western fortifications suggest the position of the limits of the first citadel which can only be uncovered through archaeological intervention.<sup>14</sup>

### The First Wall: the southern rampart of the city

The remains of the first wall were uncovered on the eastern limits of the southern rampart. However, no trace of this installation was found on the southern gate or on the major part of the southern wall from about 40 m west to tower 5 to about 50 m east of tower 10. On this portion of the southern rampart of the city, the foundation of the defensive wall lies on the Roman line of fortifications followed later on by the Byzantine fortifications<sup>15</sup> From these observations, we had to determine and identify the

southern limit of the first rampart of the city.

Immediately to the east of the citadel, we found an alignment of polygonal blocks, projecting outwards and then running towards the city to the east. The polygonal rampart then turns to the north-east, inside the city, before it disappears at about 150 m east of the eastern wall of the citadel. In the extension of this wall the polygonal masonry is replaced by a regular shaped blocks of various dimensions, most probably re-used stones (Fig. 6). The junction between these two masonries creates an angle from which the new wall runs to the south-west towards the actual southern gate.

Following the logic of the builders, using the relief of the land and the direction and axis of development of the polygonal wall towards the north-east, we completed a survey on the slope where several blocks appeared lying directly on the surface near the washed natural bedrock. The cleaning of the alignment and levels indicated a progression towards the lower town. Nevertheless, the junction between these remains and the upper ones on the city wall did not develop on a regular line.<sup>16</sup> Therefore, a sondage was dug at the point of contact between the polygonal and the later rampart on both sides of the wall (Fig. 6). Behind the junction, inside the city, the bedrock immediately appeared, with traces of pickets. These marked sectors show where the bedrock was levelled to prepare horizontal surfaces that could correspond to places of missing blocks constituting the faces of the rampart. Some blocks were still preserved on

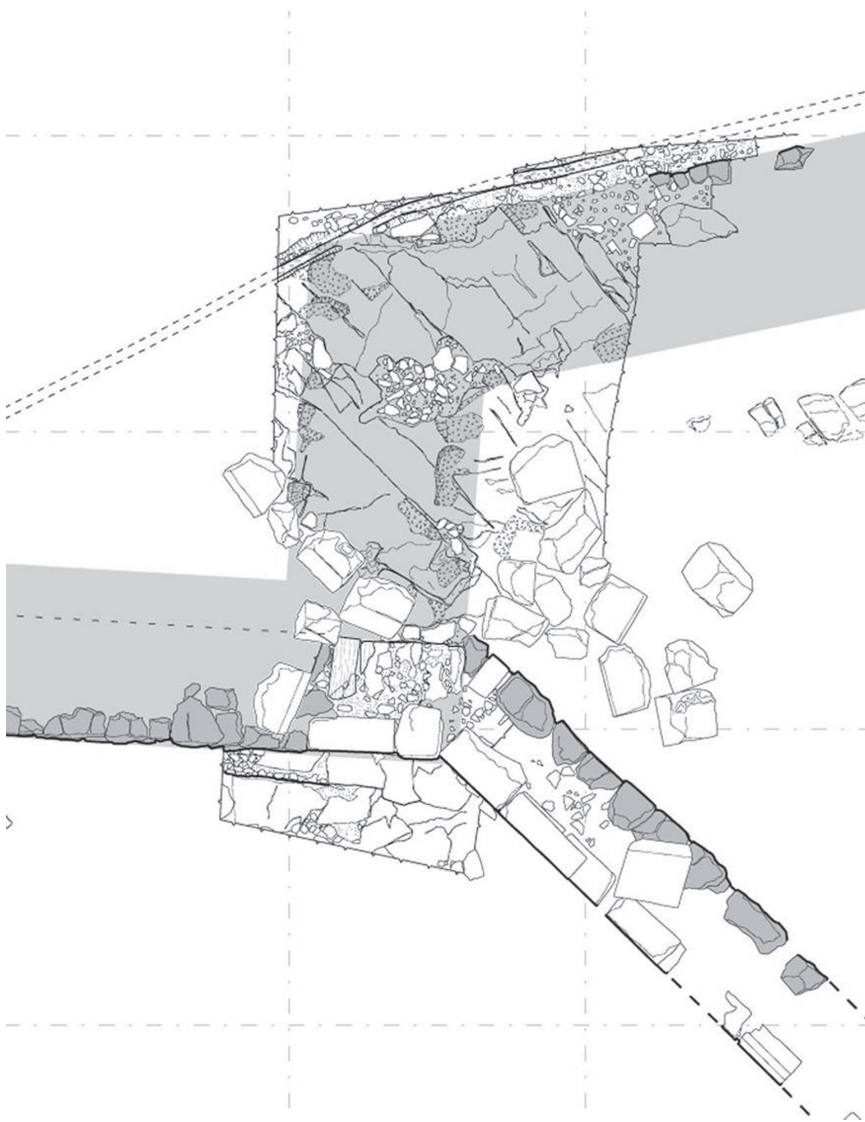


Fig. 6 Junction between the polygonal Hellenistic and Byzantine ramparts in re-used ashlar blocks. View from the north-east. © Lebanese-Syrian Expedition of Cyrrhus-Nebi Hour.

<sup>14</sup> We were not able to achieve this.

<sup>15</sup> See Abdul Massih 2012.

<sup>16</sup> This was achieved by the entire team of archaeologists and workers abandoning their sector to obtain rapid results on this discovery.



**Fig. 7** The changes in direction of the rampart (left in polygonal, right ashlar blocks). The sondage revealed traces on the bedrock of preparation for the construction of the polygonal wall (Plan J. Humbert). © Lebanese-Syrian Expedition of Cyrrhus-Nebi Hourri.

site. It was then possible to reconstruct the line of the earlier fortifications, similar in construction to the one observed on the upper part of the hill, which composed an angle allowing the line of the wall to turn towards the north-east (Fig. 7).

Further down the slope, about 50 m south-east of this portion of wall, an imposing tower about  $12 \times 16$  m was uncovered<sup>17</sup> (Fig. 8). The tower, overlapping the rampart, is built of polygonal stones similar in dimension and technique of construction to tower 3 discovered on the citadel. The elevation of this structure was preserved in several courses on the eastern curtain. The similarity (same width) to the tower under the tower 3, visible

only on its north side, offered us the possibility of reconstructing its entire plan. Finally, about 50 metres to the south-east of this newly revealed tower, in the middle of the slope, several alignments of polygonal blocks made it possible for Jean Humbert to reconstruct another tower of same dimensions as the two previous ones.

The tower at the south-east angle of the citadel and the two angled portions of the rampart are regularly spaced out at a distance of approximately 50 metres. On the plan of the remains, Jean Humbert showed, in a definitive and convincing way, that the tower on the angle was also built on a line of fortifications that could be connected to the curtain wall leading to tower 3, with

<sup>17</sup> Work conducted by Sh. Al Shbib.





**Fig. 8** The polygonal tower on the slope of the citadel. Modular blocks constitute the curtain of the wall (Photo Y. Guichard). © Lebanese-Syrian Expedition of Cyrrhus-Nebi Hourri.

the same angle or discontinuity in alignment. We can also observe that the length of the curtain walls and the tower is approximately 100 cubits.

To sum up, the first rampart, in polygonal blocks, is composed of curtains of about 50 m long, punctuated with 'angles' or large towers. On the southern rampart (in part on the citadel and a portion on the slope leading to the lower town), three towers and three 'angles' were revealed.

It is clear, therefore, that the polygonal rampart was constructed following the topography of the relief. In the higher sectors, the wall is located on the edges of the slope, following a line of development towards the north to form a curve that turns towards the south-east. Again following the general relief, in the lower part of the curve a sondage was excavated on the axis of the main street, with the aim of revealing the first entrance related to the original defensive system, the southern gate of the first town.<sup>18</sup>

#### THE FIRST SOUTHERN GATE

Archaeological investigations were conducted on the main street at the exact location of the change in direction to reveal the first entrance to the city (Fig. 9). The concordance between the axis of the main street and the early fortifications offered us the opportunity to uncover a huge threshold in white limestone built on the width of the street. The remains discovered date to the latest phase of building before the extension of the city wall towards the south. The entire remains of the original entrance have been destroyed by successive occupation. Only the threshold is preserved, delimited on the southern side by the basalt pavement of the street which strikes against the threshold of the original entrance. On this pavement the remains of the emplacement of the door, the sockets, were found: they are about 180 cm apart and about 20 cm in diameter. Study of the closing mechanism is still ongoing.<sup>19</sup> It is possible to confirm the date of the threshold and the pavement of the street to its south to the same period

<sup>18</sup> Research conducted by J. Abdul Massih.

<sup>19</sup> It is not impossible that the closing system belongs to a later phases. Future research will give us the opportunity to identify the chronology of the sector.



Fig. 9 Excavation of the first southern gate (2010). ©Lebanese-Syrian Expedition of Cyrrhus-Nebi Hourri.

as the last phase of occupation before the extension of the city wall and the town to the south.

#### THE EASTERN RAMPART OF THE FIRST CITY WALL

From this location, the rampart should turn towards the south-east, which consequently explains its absence from the southern wall and its presence in the south-east angle of the site, on the head of a slope above the river Saboun. These results gave us the opportunity to

retrace and present a first restoration of the original line of the southern fortifications. These first conclusive results, as well as our suggestions on the continuation of the alignment of the rampart, were confirmed by the geophysical survey implemented on the lower town on the southern sector.<sup>20</sup> The geophysical maps gave us the opportunity to firm up several details and potentially to discover new fundamental elements of the defensive system, such as a new gate and a probable advanced line of defence (Fig. 10).



Fig. 10 View of the south-west part of the fortifications, combining the geophysical mapping and the archaeological results (Plan J. Humbert, S. Baier & S. Knechtel; geophysical mapping C. Benech). ©Lebanese-Syrian Expedition of Cyrrhus-Nebi Hourri.

<sup>20</sup> Studies undertaken by C. Benech. See Abdul Massih, Benech & Gelin 2009; Benech 2013.

Therefore, it is now possible to reconstruct the defensive system of the first city, in a way which is typical of Greek fortifications: regularly spaced towers overlapping the rampart, gates, one of which is probably composed of two great towers protecting the passageway, and an outside wall – or moat (?) – doubling the line of the fortifications.<sup>21</sup>

Based on the observations made in the field and through archaeological research, we were able, in 2008 – the second year of the expedition – to determine the alignment of the entire original Hellenistic rampart. This early city occupied a more restricted area than the later phases but used all the possibilities offered for its defence – both active and passive – with natural elements such as the relief playing a determining factor. The Hellenistic fortifications were conceived to exploit these possibilities at their best. The extension towards the south, visible today through the final rampart and the late southern gate, goes back to the Roman and Byzantine periods.

### The Urban Plan and the Southern Gate<sup>22</sup>

The main street runs from the northern gate toward the south on a rectilinear alignment and constitutes the main axis of reference for the orthogonal urban plan (Fig. 1). This Hippodamian design, implemented during the earliest occupation, seems to have been respected during later phases of occupation since it is still visible on site. Divided into regular *insulae*, it aligns on the main street delimited by the two main gates. The excavation of the original southern gate gave us the opportunity to note a destroyed area on the northern side of the door and to reveal the presence of the basalt pavement on the southern side. The uncovering of the pavement gave us the opportunity to verify the extension of the street outside the limits of the early city.

Two routes were defined running out from the early entrance. The first one developed towards the south-east, toward the southern rampart at its lowest topographical point near tower 10. The street is indicated, in our excavation on the early gate, by a row of rectangular limestone bases aligned along the basalt street. This road was most probably used to connect the city to the

river where remains of bridges testify to the presence of a major communication route leading towards the east to the city of Zeugma. Very few remains of this road can be identified on site. There was no archaeological work conducted in this area and on the geophysical maps it appears as a shadowed perturbation, due to its earth constitution, and is likely to have been entirely destroyed by later occupation. The second street develops from the early southern gate towards the south-west. This paved street was uncovered for about 15 m and was re-used by the alignment of the extended main street. On the basalt pavement and on the threshold, traces of wheel ruts incised in the stones in a curved alignment towards the southern entrance testify to the changes of direction towards the south-west to the actual southern gate.

The chronology of the building of the street was established according to the results obtained in the sondage on the main street, near the church located east of the theatre<sup>23</sup> (Fig. 1), along with observations made on the southern gate and on the portion of the main street located between the two southern gates. The limits of the original street are the borders of the *insulae* giving a width of 17 m to the passageway.

During the Roman period, the urban plan retained its characteristics and underwent several modifications such as the implementation of a new axis of circulation connecting the two new openings, the western and eastern gates of the city.

On the two perpendicular main streets, porticos were installed on both sides, with a width of 5 m. The main street became a colonnaded street with a 7 m passageway between the porticos. At this time the entire street was paved with basaltic stones. This pavement was observed in a sondage located east of the basilica, on the church situated east of the theatre and on the southern gate.

This entirely paved street remained in use until the Byzantine time when it was raised in some sectors by a second row of basalt. This street respects the general axis of circulation and the urban plan of the city. In the first Byzantine phase, the main street used the former Roman installations, including the porticos. Later on, the street was encroached, occupying the porticos. The construction of the church located east of the theatre,

<sup>21</sup> See Gelin 2013.

<sup>22</sup> The programme of research on the town planning and the evolution of the urban plan, along with the studies on the southern gates, have been undertaken by J. Abdul Massih. See Abdul Massih 2013b.

<sup>23</sup> This sondage and the entire excavation undertaken on the church were opened by the previous excavators. Unfortunately, there is no documentation in the archives or publication of these works and only few pictures were uncovered in Frézouls' archives. See Frézouls 2012.

in the last phase of occupation, reduced the width of the street by incorporating the porticos into the constructed building.

Later, in the Islamic period, the passageway was reduced to less than 4 m in width. Several structures of these late periods were found on the street at higher levels than the basalt pavement.

The chronology of the main street located between the north gate and the change of direction needs to be completed by future research. The investigations to be conducted on the extension of the main street to the south will lead us to the identification of the nature of the late buildings in the southern area of the city and will help us to correlate the phases between the built up area and the defensive system.

### The late southern gate

The research undertaken on the late southern gate was based on the establishment of the chronology of the different defensive constructions and the study of their

relation with the main street. Sondages were opened on the north face of the eastern tower (inside the city) and at the junction of the western tower with the western curtain wall (in the exterior angle) (Fig. 11). These investigations did not reveal any occupation or level of circulation earlier than the Roman period. The lack of evidence of earlier occupation and construction confirms the results of the investigations made on the polygonal fortifications. The information given by the sondages and the analysis of the phases of construction of the gate and its surroundings gave us the opportunity to establish a relative chronology and to propose a date for the buildings in the sector based on study of the ceramics. The earliest proposed date for this sector belongs to the Roman period and more precisely to the 2nd century AD<sup>24</sup> corresponding to the southern extension of the city. As for the first reinforcement observed, it may be related to the rise in Sassanian threats at the beginning of the 3rd century.<sup>25</sup>

About 50 cm beneath the actual level of the paved street, remains of an earlier pavement in basalt were discovered in the sondage against the northern façade of the eastern tower (Fig. 12). The slabs of hexagonal shape of this first street are well arranged, covering a drain with long flat



Fig. 11 Aerial view of the southern gate and the main street (Photo Y. Guichard). ©Lebanese-Syrian Expedition of Cyrrhus-Nebi Hourî.

<sup>24</sup> Study of the pottery is still ongoing. Some sherds dated to the 1st century AD.

<sup>25</sup> The date is confirmed by the pottery excavated from the sondage by the eastern tower of the southern gate.



Fig. 12 Sondage against the northern façade of the eastern tower of the southern gate of the city. ©Lebanese-Syrian Expedition of Cyrrhus-Nebi Hourri.

stones of basalt. One of the covering stones is a base of a limestone column that, by its position, belongs to a colonnade portico of an earlier street.

During the second Roman phase, the city extended towards the south and the final line of fortifications was constructed cutting through the buildings of the first Roman period. During the Byzantine reconstruction ordered by Justinian, the southern gate was installed on the alignment of the Roman wall and the main street. It comprises two towers built with re-used blocks, probably taken from a nearby monument, as observed on the façade of the entrance, the only portion remaining of the original construction. The passageway between the two towers of the main gate is characterized by a street paved with basalt inserted between two sidewalks of limestone (Fig. 12). A threshold in limestone separates the inside of the city from the outside.

The internal structure of the towers and of the entire gate was subject to repairs and reconstruction during the Islamic period.<sup>26</sup>

### The fortifications in ashlar masonry

The study of the fortifications proved that the actual visible elevation, belonging to the Byzantine period, is mainly

built on the polygonal wall and had late modifications and restoration. During the Byzantine period significant reconstruction was undertaken on the defensive wall, as attested on several areas of the fortifications. The entire ramparts of the city and of the citadel were rebuilt with the same technique of construction<sup>27</sup> and were reinforced by towers and bastions. The number of flanked structures was frequent in this period, like additional towers built on the wall curtains that were judged, at an earlier phase, naturally defensible.

The date of these architectural modifications are determined from the finds, as ceramic was collected in numerous sondages. Analysis of the ceramics is still ongoing. Nevertheless, the excavations undertaken on tower 3 gave us ceramic material belonging to the Byzantine period. Other archaeological material such as inscriptions and the written sources gave us further indications. On site, three inscriptions were found dedicated to the emperor Justinian as constructor of the fortifications of Cyrrhus.<sup>28</sup> Procopius corroborates the inscriptions by mentioning the reconstruction works undertaken by the emperor at Cyrrhus. This reconstruction programme established by Justinian to reinforce the defence of the Empire is attested at several other sites, such as Halabiya, Resafa, Sourra, Circesium, Dibsi Faraj, Barbalissos, Membidj (in Syria), Constantinople, Dara, Amida and other sites (in Turkey), along with several ones known in Asia and North Africa.

In spite of the differences in topography and geographical position, and of the type of interventions and history of all these sites (presence of earlier phases), parallels can be established on the composition of the defensive system and the type of techniques and material of construction.

In several cases, as in Cyrrhus, the Byzantine settlements are re-occupations of Hellenistic sites; however, other foundations specific to the Byzantine period clearly show the use of topography for the new development,<sup>29</sup> as in Halabiya, Tall As-Sin, Dara, or Caričin Grad. The topography of the site and the position and role of the fortifications determine the distances between the towers. No specific regularity of implementation was observed in Cyrrhus, except on the southern rampart where the towers are spaced 62 m apart.<sup>30</sup>

<sup>26</sup> Important deposits of the Omayyad period were unearthed from the southern gate. See Abdul Massih 2013a.

<sup>27</sup> Abdul Massih 2013a

<sup>28</sup> See Alpi 2011 341–9; Frézouls 1969 27–34; *IGLSI* 145–7 (date 529–32 or 542).

<sup>29</sup> Foss & Winfield 1986, 7–35; Diehl 1896, 138–45; Giros 1993, 30–53.

<sup>30</sup> The distance varies from site to site: it is 35 m at Halabiya and Tall As-Sin, 45 m at Caričin Grad (the towers of the acropolis), between 45 m and 75 m at Resafa, and 50 m at Dara.

The building of stone fortifications and the multiplication of towers with different shapes, for example square, rectangular, circular, pentagonal and polygonal models, their implementation and regularity, are considered as characteristic of this period.<sup>31</sup> Three forms are represented in Cyrrhus: square, rectangular, and circular or horseshoe. Finally, the excavation of the Byzantine fortifications at Cyrrhus revealed the presence of a new technique, alternating towers and bastions<sup>32</sup> (Fig. 1).

## Conclusion

To conclude, we can present two major phases of construction of the fortifications of Cyrrhus. The earlier one goes back to the Hellenistic period and the second phase is attributed to the Byzantine. Nevertheless, we observed several modifications and reconstructions during the Roman period that for the time being remain unstudied. The evidence uncovered on tower 3 of the citadel, on the southern gate and on the fortifications belonging to this period, need to be examined and new investigations must be initiated in the near future to determine the nature of the Romans' defensive programme.

Finally, the archaeological investigation revealed and confirmed the presence of a later phase of fortifications belonging to the Islamic period. Several repairs and restorations were observed on the rampart of the city and it is most probably during this phase that the entire internal line of fortifications of the citadel was implemented in its final location.

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<sup>31</sup> Diehl 1896, 155; Duval 1983, 149–85. At Resafa three other types are in use: round towers for the angles, three towers with a U shape, three pentagonal towers and rectangular ones, Gregory 1996, 88–166. On other fortifications only rectangular towers were utilized, as in Halabiya, Zalabiya and Tall As-Sin. Nevertheless, the majority of the towers at Dara are of horseshoe form.

<sup>32</sup> This technique is observed on other sites such as Dara, Amida and Tall As-Sin: Al Shbib 2009, 169–86.