

## *Extra-mural structures and paths at Kastro Apalirou*

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### **Abstract**

Κατά τη διάρκεια εργασιών πεδίου στο Κάστρο Απαλίου καταγράφηκε σημαντικός αριθμός κτισμάτων, ευρισκόμενων εκτός της οχύρωσης και κατά μήκος της κοπιαστικής διαδρομής ανάβασης προς το χώρο, η οποία διαρκεί 45 περίπου λεπτά. Η μορφή της ανάβασης και η θέα της πεδιάδας χαμηλότερα, εγείρουν ερωτηματικά σχετικά με την μεταφορά και την πρόσβαση στον οικισμό. Η έρευνα κατέληξε τελικώς, ότι παρά την δυσχερή φυσική διαμόρφωση της τοποθεσίας, η ύπαρξη ενός οικισμού είναι εφικτή, έστω και με κάποιους συμβιβασμούς. Το άρθρο πρόκειται να παρουσιάσει τις διαδρομές πρόσβασης στην περιοχή του κάστρου από την πεδιάδα, καθώς και στα άνδηρα με τις καλλιέργειες κάτω από τα τείχη. Τα άνδηρα αυτά αποτελούν σημαντικό στοιχείο στην μελέτη της λειτουργίας και της φύσης του οικισμού και υποδηλώνουν ότι οι κάτοικοι της πόλης χρησιμοποιούσαν τις πλαγιές κάτω από τα τείχη για καλλιέργεια. Η πληροφορία αυτή μας επιτρέπει να θεωρήσουμε το χώρο ως κατοικημένο σε μόνιμη βάση και συνεπώς δεν αποτελούσε απλώς ένα οχυρό καταφύγιο σε περίπτωση ανάγκης. Η έρευνα κατέληξε ότι τα άνδηρα με τις καλλιέργειες συνδέονται άρρηκτα με το Κάστρο Απαλίου ήδη από την πρώιμη περίοδο του χώρου.

Kastro Apalirou is contained and delineated by its defensive walls, however there are a number of related extra-mural structures important to the discussion regarding the function of the site. This article will present those structures lying outside the walls and discuss the access routes that lead to the site and link the surrounding landscape to the town.<sup>1</sup> As a new urban site, the foundation of Kastro Apalirou must have brought about a radical change in the infrastructure and economic structure on the island. Although substantial parts of the traditional road network are still preserved on Naxos, very little scientific research and study has been carried out so far. Most of the traditional local paths across the island are shown in the maps from the Greek military service, but their context and immediate surroundings, such as terraces, smaller agricultural structures, and farm enclosures have not been recorded. In short, we lack a proper historical and archaeological context for the traditional paths. The purpose of this short discussion is not primarily to correct this bias, but more to present some important points for further investigation and study, mainly: the routes leading to and from Kastro

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1. The separate settlement at Kato Choria below the site that is being investigated by a team from the universities of Edinburgh and Newcastle will not be discussed here, though it should be noted that a settlement with up to 50 dwellings, three churches and connected field and terrace systems has been identified and is currently being documented. Observations based upon ceramic finds and architectural details of the churches indicate that the settlement was probably contemporary with Kastro Apalirou. Further work and publication should allow a discussion of how these two settlements related to each other. See Manolopoulou, *et al.* in this volume.

Apalirou; and Kastro Apalirou and the wider network, particularly the question of ports and maritime communication (**fig. 1**).

Since there is only one gate at Kastro Apalirou, the starting point for any inquiry into its communications network is simple. On the other hand, the paths and tracks in the immediate vicinity of the site have not been in intensive use for many centuries and have not been maintained. This means that few roads are shown either on maps, aerial photographs or on the ground. The following proposals are therefore based on general topographic indications as well as a preliminary and superficial archaeological assessment of terraces and other extant remains that could be connected to the network of routes and terrestrial communication in south-western Naxos.

The steepness of the slope and the access to the mountain from the valley floor excludes any form of wheeled transport up to Kastro Apalirou, such that pack animals would have been the only way to bring goods to the settlement along a network of tracks and paved paths. From the Sangri plain a road or route for wheeled transport would have been possible; either northwards towards Chalki or to present-day Chora, or southwards to the coast at Agiassos and other nearby bays. At some point, however, any goods carried by cart would have needed to be offloaded to pack animals for the climb up to Kastro Apalirou. Based upon topography the easiest route to the town from the plain would have broadly followed the present track to the site from the saddle (A on **fig. 1**). From here we can trace the remains of the path constructed as a paved track or *kalderimi* traditionally designed to facilitate hooved traffic through mountainous terrain. The remains of terracing to support the track and steps cut into bedrock are visible at a few places along the path from the saddle towards the main mountain (**fig. 3**). Based upon the physical remains of the *kalderimi* and that the one and only gate is situated in the central, western part of Kastro Apalirou, we are able to follow the main access route to the edge of the system of terraces running along the western slope below the fortifications. Along this route (which is largely defined by topography) we also have noted spolia from Apalirou lying along the track, which most likely was discarded during the course of stone removal that would have started in the early 13th century and continued into recent times, as well as a belt of ceramic sherds along of the route of the track.

There are no extant traces of the path as it climbed the last 50 metres towards the gate (**fig. 4**). As one approaches the site there is an increase in scree and loose rock from degraded terraces and rubble and waste derived from post-habitation processes, which generally obscures visibility on the ground. We assume that the main path to the gate into Kastro Apalirou branched, and that one or more of the long north-south cultivation terraces would also have been used to cross the slope to the extra-mural church on the south-western spur of the southern flank of the mountain.<sup>2</sup>

It is clear that a path would have descended the slope to the village at Kato Choria, and that there would also have been a route south to the Marathos plain along a narrow path in the direction of the church of Agios Stephanos. This path leading from Kastro Apalirou has so far not been documented in any detail and must await further study. It seems likely, however, that a series of braided terraces right to the south of the presumed village of Kato Choria could be connected to a *kalderimi* zigzagging down the mountain to meet the plain just north of the church of Agios Stephanos. Here the path would most probably have met a traditional hollow way (*sunken road*) leading to the coast at Potamides. This hollow way also leads eastwards into the Marathos plain where it connects to a *kalderimi* climbing up the mountain ridge at the eastern end of the plain, probably continuing in the direction of the Cheimarros tower, which was an important agricultural centre particularly for the production of olive oil during the Late Roman period.

The routes leading from Kastro Apalirou connected the town with the main settled and agricultural areas on the island, but they were also important for inter-regional contacts. Further archaeological work is needed to understand these networks. The ongoing Southern Naxos Greek-Norwegian Un-

2. See Ødegård this volume on the churches at Kastro Apalirou.

derwater Survey will hopefully give a much better understanding of the maritime contacts of southern Naxos,<sup>3</sup> and may even identify harbour installations. In this case the project will provide an important context for reconstructing the infrastructure and the economy of Kastro Apalirou and its environs.

### *The cultivation terraces*

The western slope of the mountain, when seen from a distance in the spring, has marginally more vegetation than other parts and seems to be able to hold on to a greater degree of moisture. The construction of terraces on this slope was undertaken to provide an agrarian production area for the community and is an important piece of evidence indicating that Apalirou was a normally functioning community with year-round and continual habitation, and not simply a fortified refuge. We have identified that the processing of agrarian produce was carried out in the town through the discovery of the base of an olive press.<sup>4</sup> In addition to the olive press, a threshing floor located in the terraces shows that cereals were also cultivated and processed on the slopes (**fig. 1 and 2**). There are some untended olive trees growing on the slope below the walls, perhaps representing the remains of a previously cultivated grove. Across the mountain today several large flocks of goats and sheep graze the slopes, and the remains of post-medieval and recent fences and farmsteads show the consistency with which the productive landscape of the mountain has been used. Since space at Kastro Apalirou was limited due to its topography, we should expect that areas in the immediate vicinity of the town were taken into use for various purposes. The band of at least thirteen cultivation terraces on the western slope below the walls, the threshing floor, and the small house down-slope of the extra-mural church are indications of this.<sup>5</sup>

The western slope below the defensive walls has a steep gradient of 30 - 50 % and terracing would have been necessary for cultivation in order to counter erosion and to create a depth of soil able hold on to moisture. Although the steepness is at the limit of what was normal for constructing terraces, it is still within the bounds of what is known from other mountainous landscapes in the Aegean.<sup>6</sup> The longest terrace is 193 m and the shortest is 40 m. In total, the thirteen visible terraces measure 1164 metres long (**fig. 5**). The structures are heavily degraded and have collapsed, but we are able to observe that the average cultivation width was 3.5 metres which gives a total cultivation area of 4074 square metres. This figure would have been higher as we have only plotted the line and extent of the terraces that were clearly visible; we believe that the total length of terracing may have been double what is visible today. This would give a maximum potential cultivable area of up to 80 ha. We observed that terraces were present on all suitable areas of the slope except for a belt extending outward from the defensive walls for around 46 m, which was seemingly kept clear to provide a strategic line of sight below the walls.

The terraces are constructed of large to medium roughly hewn blocks and filled with quarrying waste, characterised by small uneven stone chips in large amounts that must be a result of the extensive quarrying and stone cutting needed to build the structures within the walls (**fig. 6**). Where terrace walls have collapsed, large areas of loose stone and debris are spread across the slope giving the appearance of a dynamic scree slope. This downslope movement of loose rubble is on-going and will eventually cover the remaining visible terraces. Amplified by the steepness of this area, it has created challenging conditions for the survey.

3. For a presentation of the project, which had its first field season in autumn 2016, see <http://www.norwinst.gr/research/current-projects/southern-naxos-greek-norwegian-underwater-survey/>.

4. Hill on the urban topography and structures in this volume.

5. The church is described by Ødegård in this volume.

6. Beven and Conolly (2004); Hill (2016), pp. 94-98.

The absolute dating of cultivation terraces is generally difficult, but there are several elements that allow us to say that they were contemporary with the community within the walls. Firstly, the terraces respect the defences and it is clear that an open zone in front of the walls was maintained for strategic purposes. The second aspect is that the construction of the terraces uses considerable amounts of stone chippings and waste from quarrying and stone cutting as fill to build up a level surface. This suggests a date close to the initial or main construction phases of the town. In addition, large amounts of pot sherds from the town deposited within the material of the terraces show the existence of a long-term manuring strategy.<sup>7</sup> It would have been necessary to deposit waste from Apalirou on the terraces in order to build up adequate soil and to improve fertility. A further point to be made is that the terraces are closer to Apalirou than to the lower settlement and must relate to the urban community. The Byzantine village at Kato Choria has its own system of braided terraces that are wider and larger in area.<sup>8</sup> This settlement is not only further from the Apalirou terraces, but there is also a clear drop in slope from the lowest terrace to the village below that represents a natural delineation between these two areas.

With an estimated maximum capacity of 1500 inhabitants, or even with a more likely smaller population, activity at Kastro Apalirou would have generated waste material valuable for manuring. In addition, we should assume that donkeys, mules or horses would have been kept within the walls, adding to the waste. Normal agrarian patterns in the Aegean can be expected to produce two harvests a year between the autumn and the early summer. Cereals and olives were clearly harvested on the terraces and we should assume other crops such as pulses and vines were also grown. A threshing floor, indicative of cereal cultivation, was found at the northern end of the lowest terraced section. Measuring 6 m in diameter, it has a stone floor and raised stone edge. Below the final terrace of this section, the slope falls sharply away to the village at Kato Choria below.

The extra-mural church and connected house and cistern located to the southwest of the slope is interesting. The church is the second largest on the mountain after Agios Georgios and has an imposing narthex. The church had been further extended in a later phase by the addition of a second apse.<sup>9</sup> The main question is whether the church was constructed outside the walls because the topographic constraints within the walls disallowed the construction of a second large church there, or whether it relates to a monastery located away from the urban community. The presence of a house below the church and at least one cistern may point in the direction of an extra-urban ecclesiastical community; and further work will need to be carried out to determine whether other structures are present. The 7th to 14th-century rural monastery at Kaloritissa 4 km to the north is the closest known contemporary monastery to Apalirou and is an example of the range of diverse settlement components in the Sangri Plain contemporary with activity at Kastro Apalirou.<sup>10</sup>

## ***Discussion***

The identification of an agrarian component to Kastro Apalirou is of interest. The nature of the intra-mural buildings and structures is urban, though we have not as yet identified any specialised economic or commercial activity within the walls. The balance between production and consumption is also a central issue to our understanding of the socio-economic status and function of the community. The extent to which the inhabitants at Apalirou were able to produce food stuffs for their own con-

7. The secondary dispersal of pot sherds from urban to extra-urban contexts through manuring strategies has been noted by field survey in Boeotia, see Bintliff and Howard (2007).

8. Manolopoulos *et al.* in this volume.

9. See Ødegård in this volume on the churches at Apalirou.

10. The monastery has been dated to the 7th century on the basis of preserved frescos on two frames depicting the apostles.

sumption is important to estimate the scale and type of transport that would have been needed to supply the settlement. In addition, how far the intra-mural population carried out activities elsewhere on the island will also be a factor in considering communication to and from Apalirou on a daily or weekly basis. The establishment of rural activities outside defensive walls has been noticed in other urban contexts from the same period.<sup>11</sup> It is clear that a strict delineation between urban and rural should not be expected, but rather a flexible economic duality. The cultivation terraces would have represented a meaningful productive component, so much can be observed in the size of the terraces and the continual manuring that would have been needed to maintain them. So far we have not been able to identify any sign of specialised commercial activity, or any structure related to meaningful production. It seems more likely that the community was one of net consumers rather than net producers; the terraces show that the opportunity to produce food was not wasted, but we cannot expect that these areas were enough to provide the community (at its maximum size) with all of its needs. Although current data does not provide answers to these questions, future fieldwork will highlight the socio-economic differences between the community within the walls and rural communities elsewhere on the island.

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11. For the establishment of an agrarian zone immediately outside the walled urban community at Hierapolis in the Middle Byzantine period, see Arthur (2006), p. 125; Arthur (2012), p. 299; Hill (forthcoming).

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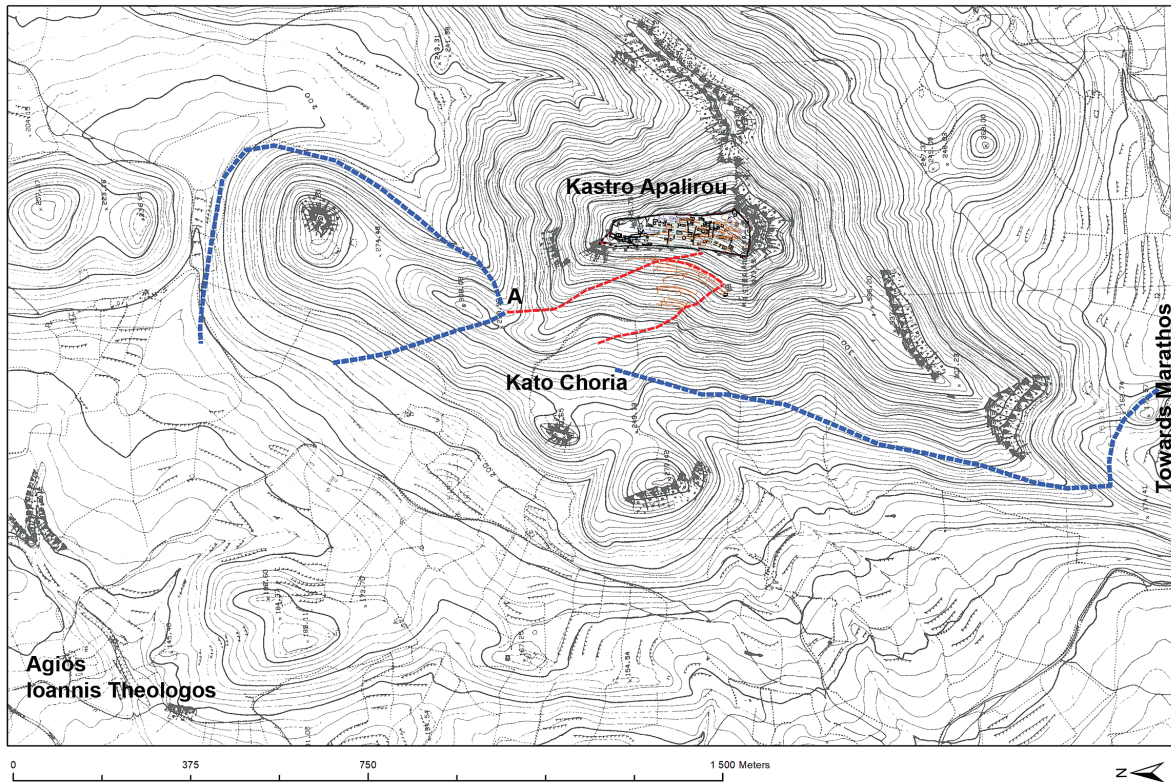


Figure 1. Map showing the immediate landscape around Kastro Apalirou. The red dashed line marks the visible traces of paths, the blue dashed line marks routes defined by topography.

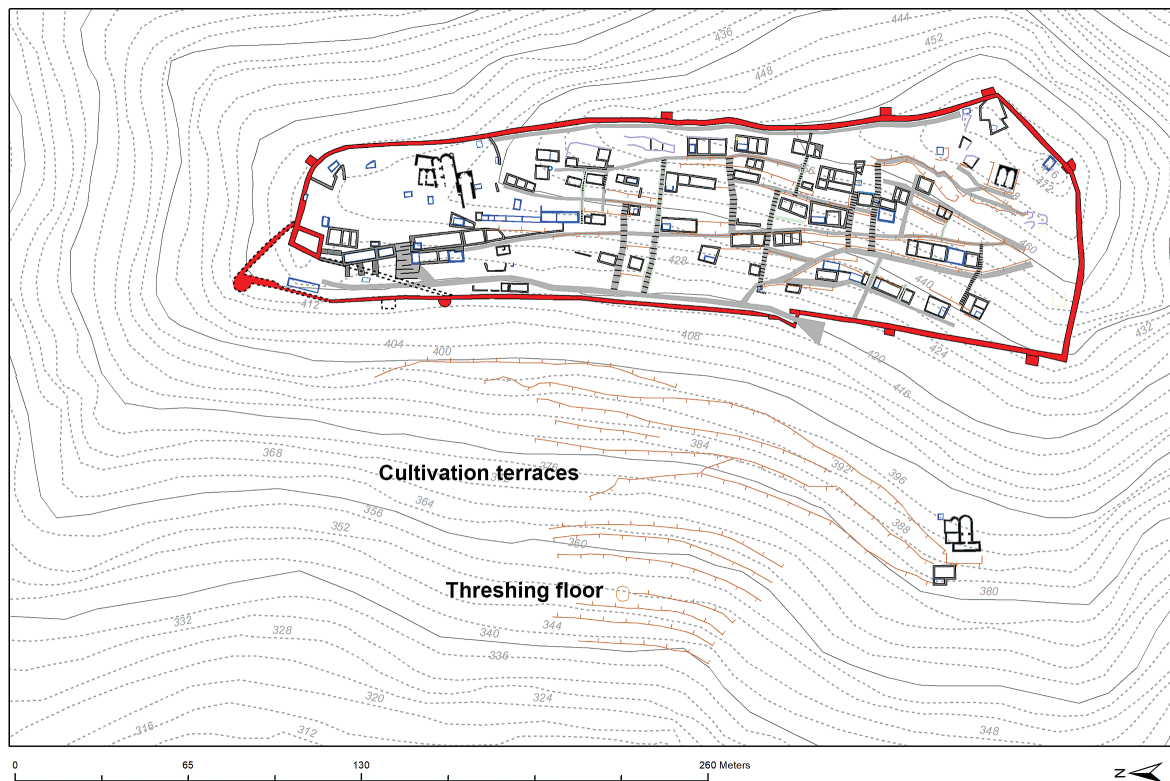


Figure 2. Plan of Kastro Apalirou showing extra mural structures and terraces.



*Figure 3.*  
Photo showing a section of the terraced path (foreground) and a section of rock-cut steps (background).



*Figure 4.*  
Photo of the approach to Kastro Apalirou from the northwest showing remains of steps in the foreground.



*Figure 5.*  
Photo showing an intact terrace wall acting as a barrier to erosion material from a collapsed terrace above. Note the large amounts of quarrying waste flowing over the terrace.



*Figure 6.*  
Photo showing the fill material at the base of the terraces below the topsoil that is made up of quarrying waste mixed with fragments of ceramics.