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The Palamas Archaeological Project 2024

A preliminary report of the Greek–Swedish collaboration in the municipality of Palamas, region of Karditsa, Thessaly

Abstract

Over the course of the 2024 season of the *Palamas Archaeological Project*, a number of archaeological sites in the vicinity of modern Palamas were excavated and surveyed. Excavations at the multiperiod urban settlement at Vlochos yielded evidence of the Hellenistic and Late Roman periods, including that of a probable stoa and of extensive metalworking industry. The fieldwalking survey on the nearby hill of Kourtikiano Vouno was concluded, followed by test trenches in the Early Byzantine fortified settlement on the hill-slope. A large late Medieval–Ottoman building complex was identified on a rocky ridge north of Metamorfosi. Several prehistoric sites (*magoules*) in the area were also rudimentarily surveyed, providing evidence for extensive habitation in the region in all periods of prehistory. Finally, geophysical prospection at the neighbouring site of Makrya Magoula at Pyrgos Kieriou yielded evidence for two monumental courtyard buildings.*

Keywords: Early Byzantine period, excavation, fieldwalking, geophysical prospection, Hellenistic period, Late Roman period, *magoula*, metal production, Ottoman period, prehistory, stoa

<https://doi.org/10.30549/opathrom-18-03>

* The project would like to extend its gratitude to a number of persons and organizations for their support and goodwill. The Hellenic Ministry of Culture for granting the permit for the 2024 season of archaeological fieldwork in Palamas. The Swedish Institute at Athens with its director Dr Jenny Wallensten, deputy director Dr Georgia Galani and the staff Mrs Eleni Androvic and Mrs Katerina Gabierakis for their never-ending support. Messrs Aggelos and Petros Davatzikos for their never-failing resourcefulness and great help. The Municipality of Palamas and especially mayor Sokratis Daskalopoulos and deputy mayor Dimitris Papamargaritis for supporting the fieldwork in so many ways. The inhabitants of Metamorfosi and Vlochos—exiled from their villages—for their continued interest,

Introduction

The *Palamas Archaeological Project* (PAP, to be undertaken 2020–2025) is a collaboration between the Ephorate of Antiquities of Karditsa and the Swedish Institute at Athens, with participating archaeologists from Greece, Sweden, the United Kingdom and Czechia.¹ The project is the natural successor and expansion of the *Vlochos Archaeological Project* (VLAP, 2016–2018), which was a non-invasive study of the large, multiphase urban site at Stroggylovouni near the village of

support and enthusiasm regarding our work in these difficult times. The Archaeological Museum of Karditsa and its laboratory, and especially conservators Mrs Margarita Tiliopoulou and Mrs Pavlina Zerva for promptly conserving the excavated finds. Finally, the project would like to thank the financial backers Gösta och Susi Enboms donationsfond, Herbert och Karin Jacobssons stiftelse and the Wenner-Gren Foundations. Robin Rönnlund's research is funded by the Wenner-Gren Foundations. Ian Randall's research is carried out under the auspices of the Programme JAC project *Ready for the future: Understanding long-term resilience of the human culture (RES-HUM)*, reg. no. CZ.02.01.01/00/22_008/0004593, implemented at the Faculty of Arts, Masaryk University, Czechia.

¹ The *Palamas Archaeological Project* is directed by Maria Vaïopoulou (Ephorate of Antiquities of Karditsa) and Robin Rönnlund (University of Gothenburg). The excavations at Stroggylovouni, Vlochos, were directed by Johan Klange and Fotini Tsiouka, with the participating archaeologists and students (in alphabetical order) Sotiria Dandou, Christina Graki, Tiger Huffinley, Ditte Kvist Johnson, Danai Kalogerini Samouri, Derek Pitman, Rich Potter, Ian Randall, Robin Rönnlund, Nikos Siaperas, Giorgos Tsioukas, Hilde van der Heul and Melanie Wikström. The survey and excavations at Kourtikiano hill, Metamorfosi, were directed by Ian Randall, with participating archaeologists and students Tiger Huffinley, Nikos Siaperas and Melanie Wikström. The survey of prehistoric sites in the area of Palamas was directed by Robin Rönnlund, with the participation

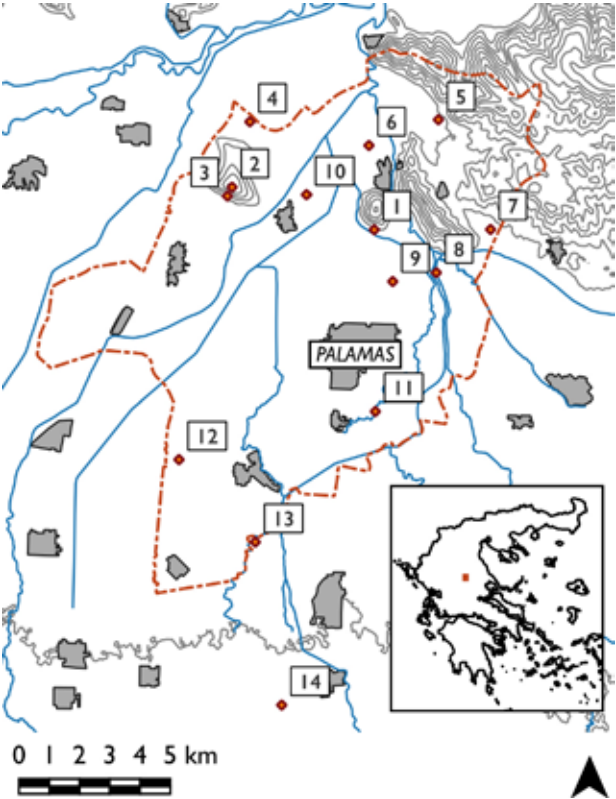


Table 1. The general chronological phases of habitation at the site of Stroggylovouni, Vlochos.

Phase 1	Late Archaic (?).
Phase 2A/B	Classical and Hellenistic (mid-4th–mid-2nd centuries BC).
Phase 3	Roman (3rd–4th centuries AD).
Phase 4	Early Byzantine (6th century AD).
Phase 5	7th–8th centuries AD.

Fig. 1 (left). Sites studied during the 2024 season of PAP. Dashed red line marks the extent of the Municipal Unit of Palamas. Grey areas denote present-day villages. 1: Stroggylovouni, Vlochos. 2: Kastro Kourtikianou, Metamorfofi. 3: Aspropetra, Metamorfofi. 4: Petromagoula, Metamorfofi. 5: Lykorema, Vlochos. 6: Magoula Keramaria, Vlochos. 7: Magoula Paparma, Agios Dimitrios. 8: Sofaditis Magoula, Palamas. 9: Magoula Diavatia, Palamas. 10: Magoula Rousioti, Metamorfofi. 11: Magoula Kalyvakia 2, Kalyvakia. 12: Magoula Ntáfetsiou, Markos. 13: Magoula Daskalopoulou, Gorgovites/Mataragka. 14: Makrya Magoula, Pyrgos Kieriou. Map by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

Vlochos.² The purpose of the present project is to continue the study of the site at Vlochos (now also employing invasive methods) as well as its surroundings, roughly corresponding to the present-day Municipal Unit of Palamas.³ The 2024 fieldwork took place at 14 sites within the study region (Fig. 1), with most focus on the urban site at Vlochos and the Late Antique–Early Medieval fortified settlement at Metamorfofi. Limited survey work was also conducted at some of the many prehistoric tell sites (*magoules*) in the region, aiming at acquiring a more complete view of their number, distribution and general chronology. A possibly Late Medieval–Early Ottoman building complex was also discovered through aerial photography at the site of Petromagoula near Metamorfofi, prompting the Ephorate to undertake trial trenches at the site. Finally, geophysical prospection was conducted at the multi-

period site of Makrya Magoula near Pyrgos Kieriou (ancient Kierion).

Overall, the 2024 season was successful and uneventful, presenting a stark contrast to the terrible flooding event caused by Storm Daniel the preceding year, when the team had to be evacuated from the area as several metres of water covered the plains. However, there were several infrastructural challenges to the work, mainly as the project presently lacks a permanent storeroom; the finds kept in the original storeroom were evacuated in 2024 to temporary storage as the building in Metamorfofi had suffered extensive structural damage after the 2023 storm. Apart from the finds of the 2023 excavation (which were on drying racks and consequently now mixed), the finds kept in the old school building had fared surprisingly well, with most of the 2020–2023 material retrieved.

of Fotini Tsiouka and Melanie Wikström. The ceramic materials were processed by Danai Kalogerini Samouri, Ian Randall and Kleoniki Tserga. The geophysical prospection at Makrya Magoula, Pyrgos Kieriou, was directed by Derek Pitman with participating archaeologists Josephine Hagan, Stelios Ieremias, Rich Potter, Ian Randall, Robin Rönnlund and Lawrence Shaw.

² Vaïopoulou *et al.* 2020.

³ The preliminary results of the project have been published previously in Vaïopoulou *et al.* 2021; 2022; 2023; 2024.

Stroggylovouni, Vlochos

The excavations in the multiphase settlement at Vlochos were resumed in 2024. The ancient settlement is located in a flat area immediately south of the hill of Stroggylovouni (1 in Fig. 1), where previous geophysical and architectural surveys had located evidence for extensive habitation. Three trenches were opened between 2021 and 2023 at locations identified



Fig. 2. Stroggylovouni, Vlochos. Coins found during fieldwork in the Patoma area, either on ground surface or during excavation. Numbered as in Table 2. Scale 1:1. Photographs by the Archaeological Museum of Karditsa. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

through the geophysical prospection as suitable targets for directed excavation, with a final fourth one opened in 2024.

CHRONOLOGY AND COINS

The site at Stroggylovouni presents a complex sequence of phases of habitation, originally identified through the stratigraphic relationship between various elements of the extensive fortifications at the site, as well as through the alignment of anomalies in the geophysics results. A central aim of PAP is to verify this sequence of phases (Table 1), and to provide them with accurate chronological spans. So far, this endeavour

has been successful, with excavations even adding a previously unknown and final phase of habitation at the site.

Phase 1 at Stroggylovouni still remains the most nebulous, as there is no surface or excavated material to be associated with it yet. Its remains are limited to the top and slope of the hill, consisting of a large hillfort with terraced roads on the slopes below. It is one of several similar structures in Thessaly, and probably dates to the Late Archaic period.⁴ The chronological extent of Phase 2, characterized by the large Classical-

⁴ Vaïopoulou *et al.* 2020, 28–36; Rönnlund 2024.

Table 2. Coins found during fieldwork in the Patoma area, Stroggylovouni, Vlochos. Numbered as in Fig. 2.

No. in Fig. 2.	Description
1	AMK 53634. Surface find, Patoma area. Bronze (<i>chalkous?</i>). Larisa. Late 4th–early 3rd centuries BC. Obv.: head of nymph facing right. Rev.: grazing horse facing left.
2	AMK 53640. Surface find (335249/4374155), Patoma area. Bronze. Unknown mint. Hellenistic? Very eroded. Obv.: wreath around perimeter?
3	AMK 53633. Surface find (335234/4374221), Patoma area. Bronze. League of the Thessalians. 180s BC. Obv.: head of Apollo facing right. Rev.: Athena Itonia walking towards right, with raised spear and shield. Owl sitting on right end of spear. Along both sides of figure ΘΕΣΣΑ Α ΩΝ. Along butt end of spear ΘΠΑ. Thrasylochos (son of Alexandros of Atrax) was <i>stratagos</i> of the Thessalians in 187/186 BC. ¹
4	AMK 53632. Surface find (335426/4374145), Patoma area. Bronze. League of the Thessalians. Mid-2nd century BC. Very worn in upper part. Obv.: head of Apollo facing right. Rev.: Athena Itonia walking towards right, with raised spear and shield. T M A across inner fields with ΘΕΣΣΑ Α ΩΝ in the outer. Timasitheos was <i>stratagos</i> of the Thessalians according to an inscription from Lamia. ¹¹ Kramolisch (1978, 65–66) (somewhat speculatively) puts his tenure in the years 146–134/133 BC.
5	AMK 53641. Surface find (335381/4374110), Patoma area. Bronze. League of the Thessalians. Obv.: head of Athena in Corinthian helmet facing right. Illegible text. Rev.: prancing horse facing right. Above and below horse ΘΕΣΣ Α ΩΝ. No exact parallels, but similar coins were produced by the League in the mid- to late 2nd century BC.
6	AMK 53638. Context 4011, Trench 4, Stroggylovouni, Vlochos. Bronze <i>folles</i> of Delmatius. AD 335–337, Constantinople mint. Obv.: bust of Delmatius facing right, laureate. [FLDELMATIV]SNOBC. Rev.: two soldiers holding spears and shields, with one standard between them and an “O” on the banner. [GLOR-IA EXERC-]ITVS. Mintmark: CONSL.
7	AMK 53637. Context 4008, Trench 4, Stroggylovouni, Vlochos. AE3, second half of 4th century AD. Unknown mint. Very worn. Obv.: bust of emperor (?) facing right. Rev.: emperor advancing right, holding labarum, dragging captive by the hair.
8	AMK 53639. Context 4012, Trench 4, Stroggylovouni, Vlochos. AE3 of Valentinian I. AD 367–375, Thessalonica mint. Much worn and eroded. Obv.: bust of emperor facing right, laureate and draped. [DN VALENTINI]-ANVS [PF AVG]. Rev.: emperor advancing right, holding labarum, dragging captive by the hair. [GLORI]A RO-MAN[ORVM]. B (?) in right field. Mintmark: TESS. Type <i>RIC</i> IX Thessalonica 26a, type xvii.
9	AMK 53635. Surface find, Patoma area. Bronze <i>folles</i> of Arcadius. ¹¹¹ AD 395–401. Constantinople mint. Very worn. Two holes have been pierced through coin, possibly to turn it into pendant. Obv.: bust of emperor facing right, laureate. Rev.: emperor (?) standing left with shield facing right, crowned by Victory to the left. Mintmark: CONS. Type <i>RIC</i> X Arcadius 60.
10	AMK 53636. Surface find, Patoma area. Bronze sestertius (?). Very worn. Hole has been pierced through coin, possibly to turn it into pendant. Obv.: bust of emperor (?) facing right. Rev.: standing figure (?).

¹ Kramolisch 1978, 50. The Armenian version of Eusebius (115) has Thrasimachos, which appears to be a mistake. For the magistrates mentioned on coins of the League, see Helly 1966.

¹¹ *IG* IX,2 69 (146–c. 130 BC). See also Scarborough 2015 for a new edition.

¹¹¹ Similar coins to this type were also minted by Arcadius' brother and successor Honorius, but in smaller quantities.

Hellenistic city at the site, can now be more precisely defined, as material from the quarry spoil-heap examined in 2020 contained no habitation-related material older than the mid-4th century BC,⁵ and the excavations in Trench 1 produced evidence for a final destruction event in the mid-2nd century BC.⁶ The lifespan of the Roman reinhabitation of the site in Phase 3 can similarly be refined; surface coin finds indicate activity at the site in the final quarter of the 3rd century AD, and this year's excavations in Trench 4 (see below) provide evidence for the end of this phase being in the 4th century AD. The Early Byzantine fortified settlement on the hill-slope can so far only be dated to the years of Justinian I (AD 527–565) through numismatic evidence and requires further study in the future to establish it as chronologically distinct. Finally, substantial reinhabitation of the site in the Early Medieval pe-

riod is becoming more evident, as so-called “Slavic ware” pottery has been found in all four trenches at site, with associated architectural remains appearing in Trenches 1 and 4.

A glimpse into the chronology of the site is further provided by the coins found during the course of the fieldwork. In 2024, ten coins were found either by chance on the ground surface or during excavation (Fig. 2), which—together with coin finds of previous years—both support and nuance the suggested general chronological scheme of the project.

Relatively few coins of the Classical period have been found in the Patoma area at Stroggylovouni, but the small bronze issues of Larisa (such as the **AMK 53634**, No. 1 in Table 2) could possibly date to this period. The most common type associated with Phase 2 are the federal issues of the League of the Thessalians produced after the reinstatement of the League by the Roman general Flamininus in 197 BC, typically depicting Athena Itonia on the reverse together with the name of the *stratagos*. The examples found at Patoma generally belong to the early to mid-2nd century BC

⁵ Vaïopoulou *et al.* 2021, 59–62; Jeremias & Rönnlund 2023.

⁶ Vaïopoulou *et al.* 2024, 30–31.



Fig. 3. Stroggylovouni, Vlochos. Section of fortification wall exposed in irrigation canal. Looking south-east. Photograph by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

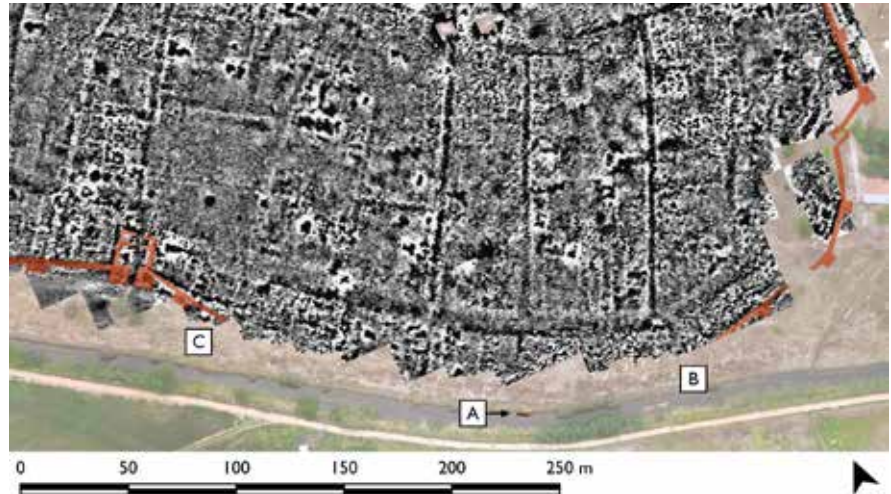


Fig. 4. Stroggylovouni, Vlochos. Magnetometry plot superimposed on aerial photomosaic. Position of recently discovered wall section in irrigation canal (A); area with displaced stones (B); excavated section of fortification (C). Known extent of the Classical-Hellenistic (Phase 2) fortifications marked in red. Plan and plot by D. Pitman and R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

(such as **AMK 53633** and **53632**, Nos 3 and 4 in Table 2). One coin belonging to the second phase of the Roman-period League (**AMK 53641**, No. 5 in Table 2) shows that the site might have survived as a settlement even after the Fourth Macedonian War of 146 BC. Apart from a single coin of Hadrian,⁷ there is a subsequent numismatic hiatus at the site, ending with an antoninianus of Aurelian, marking the probable beginning of Phase 4.⁸ The small bronze coins of Delmatius (**AMK 53638**, No. 6 in Table 2) and Valentinian I (**AMK 53639**, No. 8 in Table 2) found in Trench 4 (see below) indicate that the Roman-period settlement survived far into the 4th century AD. Coins of later emperors have been found on the site, including one of Arcadius (**AMK 53635**, No. 9 in Fig. 2), but as these are pierced with holes to turn them into pendants, it is probable that they were not used as currency and should not be seen as definitively indicative of contemporaneous habitation. Two coins of Justinian I found on the ground surface below the Phase 4 fortification⁹ provide the most reliable evidence for the 6th-century AD date of this reinhabitation.

NEW SECTION OF FORTIFICATION WALL

As a result of the 2024 summer drought, many rivers and irrigation canals in the survey area contained next to no water at the start of the excavation season in August. This was especially the case with the wide artificial canal demarcating the archaeological site at Stroggylovouni to its south, which had a water level at least 1.5 m below the usual level.

The low water level not only revealed the previously observed bridge remains,¹⁰ but also previously unknown remains of the foundation of the Classical-Hellenistic (Phase 2) city wall (Fig. 3). The position of this segment (at A in Fig. 4) is approximately 20 m south of where the line of the wall had been expected to be located. The construction of the irrigation canal in the 1960s at the location had created a high bank which had hindered geophysical prospection in this area. The many large dressed stones found scattered in and around the bank (at B in Fig. 4), however, had indicated that the excavating machines had at least partially cut through the wall. The new segment puts the wall trace more in line with the segment excavated some 20 years ago by the Ephorate (at C in Fig. 4).

Surprisingly, this new segment of the wall is located at 86.5 m above sea level (masl), at a considerably lower depth than the nearest previously known segment (at C in Fig. 4), which is at c. 89 masl. This suggests that the stone base of the fortification wall is preserved to a considerable height underground (potentially up to 2.5 m) but covered in alluvium

⁷ Vaïopoulou *et al.* 2020, 67 (**AMK 17444**).

⁸ Vaïopoulou *et al.* 2022, 86 (**AMK 34837**).

⁹ Vaïopoulou *et al.* 2020, 68 (**AMK 17725**; **17726**).

¹⁰ Vaïopoulou *et al.* 2022, 89–90.



Fig. 5. *Stroggylovouni, Vlochos*. Locations of trenches excavated 2021–2024. Plan by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

and colluvium, similarly as was similarly discovered at nearby Paliogardiki near Petroporos.¹¹ Whether this is the case can only be determined through targeted excavation.

Excavations in the Patoma area, Stroggylovouni, Vlochos

The excavations in the Patoma area at Stroggylovouni continued in 2024, as work was resumed in Trench 3 and the new Trench 4 was opened in the eastern part of the site (Fig. 5). The work was carried out over a course of three weeks in the late summer, employing the same set of techniques as outlined in previous reports.¹²

¹¹ Hatziangelakis 2012, 168.

¹² The excavations were conducted using an adapted single-context methodology by which archaeological strata were divided into contexts representing the physical remains of single events such as a single building phase of a wall, a destruction layer, a cut for a pit, etc. Each context was recorded separately but in relation to each other according to their stratigraphical relationships. Groups of contexts were further created in order to define archaeological features such as a phase of use of a building, or a destruction event. Finally, these groups were linked to the general chronological periodization scheme of the site. Vaïopoulou *et al.* 2022, 78–84; 2023, 68–77; 2024, 26–31.

The first trench (Trench 3) was situated in the western part of the settlement area. The excavation was the continuation of work begun in the 2023 campaign, when a 12.5 × 2 m trench was opened to investigate a large stoa-like building that had been identified in aerial photographs and in geophysical and architectural surveys of the site.¹³ Due to the previously mentioned catastrophic floods, the excavation was abruptly ended after only the topsoil levels had been excavated. The excavation had, however, managed to reveal the northern exterior wall of the stoa-like building, and the aim of the continued excavation in 2024 was to reach the foundation levels of this building.¹⁴

The second target, Trench 4, was situated in the eastern part of the Patoma area, where a 6 × 4 m trench with a 1 m extension to the east was opened. This is an area which would have been in the eastern part of the Classical–Hellenistic city (Phase 2), but at the centre of the Late Roman town (Phase 3). The positioning of the trench was prompted by the results of both the geophysical and the aerial photography surveys of the site, which showed a complex of buildings arranged around a courtyard.¹⁵ The aim of the excavation was to acquire dating evidence for the structures of Phase 3, as these had previously only been dated based on stylistic features and appar-

¹³ Vaïopoulou *et al.* 2023, 65.

¹⁴ Vaïopoulou *et al.* 2024, 26–31.

¹⁵ Vaïopoulou *et al.* 2023, 63.

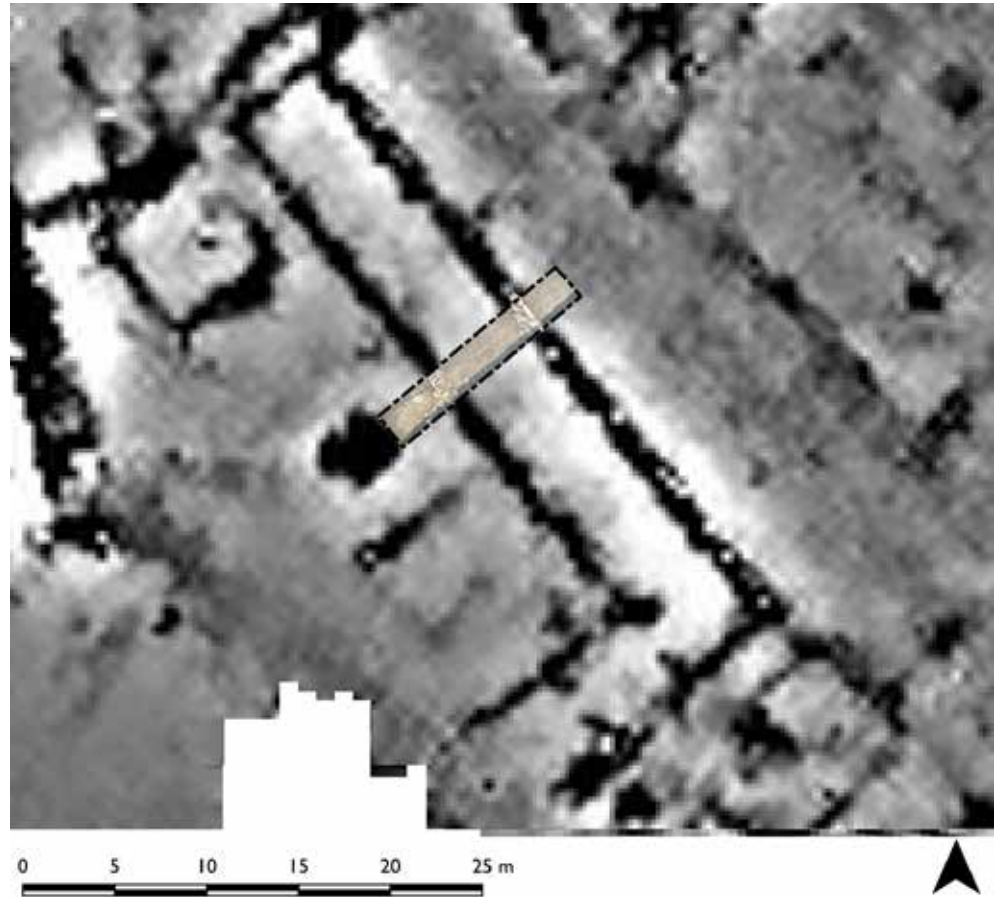


Fig. 6. Stroggylovouni, Vlochos. Trench 3 with 2024 excavations results superimposed on earth resistivity plot. Drawing and plot by D. Pitman and R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

ent sequences of structural overlaps in the data provided by the aerial and geophysical surveys.¹⁶

Due to the time frame of the fieldwork, neither of the excavations reached the lowest archaeological strata during the 2024 season, and we plan to complete all trenches in the final 2025 season.

Trench 3

The 2024 excavations of Trench 3 were conducted both inside and outside a stoa-like building (**Building 3**). The trench was orientated perpendicular to the axis of the building, and the aim of the excavations here was to investigate the building's interior, the avenue-like street north-east of the building, and a possible courtyard on the south-western side of the building (Fig. 6).

The stratigraphic sequence uncovered within the trench can be divided into two chronological phases of use, likely

corresponding to the Hellenistic (2nd century BC, end of Phase 2) and the Late Roman period (late 3rd–early 4th centuries AD, Phase 3). Apart from remains of these phases, the topsoil contained a mix of finds ranging from the Classical–Hellenistic to the Early Modern period. As the trench has not yet been excavated to the lowest archaeological stratum, the stratigraphical sequence for the Hellenistic period (Phase 2B) only provides evidence for its end of use. As for the Late Roman period (Phase 3), the end-of-use evidence consisted neither of a destruction level nor of activities that had intentionally covered the remains, but instead comprised deposits that had gradually accumulated on top of the architectural remains, thereby making it impossible to discern the exact moment of abandonment. Nor could the beginning of use during the Late Roman period be identified, as those deposits were found immediately on top of the last period of use of Phase 2, despite the hiatus of settlement activity between these two phases. It is thus possible that deposits were cleared away at the beginning of the Late Roman reuse of **Building 3**. In the north-eastern part of Trench 3, the lowest Late Roman strata were not reached, making it

¹⁶ Vaïopoulou *et al.* 2020, 45–47; 2022, 94–98; 2023, 62–65.

Table 3. Stratigraphic groups in Trench 3, Stroggylovouni, Vlochos.

Group no.	Description of group	Phase	Contexts (no.) belonging to group	Chronological span of finds from contexts in group
1	Topsoil reflecting Early Modern and Modern land use.	Post-Antique.	3001.	Classical–Hellenistic, Late Roman, Early Byzantine, Late Byzantine, Early Modern.
2	Robber trench.	Post-Antique.	3018, 3019.	–
3	Lower levels of topsoil likely reflecting the accumulation of backfill in and around Building 3 after its disuse.	Post-Antique.	3002, 3003, 3005.	Classical–Hellenistic, Late Roman.
4	Disuse and backfill of Building 3 and Road 1 .	Post Phase 3.	3004, 3007.	Classical–Hellenistic, Late Roman.
5	Pit likely connected to the use of Building 3 .	Phase 3?	3012, 3013.	Not excavated during the 2024 excavation.
6	Reconfiguration of Building 3 and construction of Road 1 .	Phase 3.	3011, 3014.	Classical–Hellenistic, Late Roman (reused Late Roman 1 amphora in road surface).
7	Disuse and backfill of Building 3 .	Phase 2.	3006, 3008, 3020.	Late Archaic, Classical–Hellenistic.
8	Destruction level of Building 3 .	Phase 2.	3009, 3017.	Classical–Hellenistic.
9	Construction of Building 3 .	Phase 2.	3010, 3015, 3016, 3021.	–

possible that future excavations will shed light on the intermediate period.

Starting from the top of the archaeological strata, the first level of archaeological significance was the topsoil layers that represent the post-Antique land use of the area of the site (Group 1 and 3, *Table 3*). The finds from these deposits show some limited activity in the area around Trench 3 after the Late Roman period, including single sherds of Early Byzantine so-called “Slavic ware” and of yellow-glazed pottery of the Late Byzantine period. At some point after the Late Roman period, a robber trench was cut into the north-eastern wall of **Building 3** (Group 2, *Table 3*) which likely removed some upper stones in the foundations of the walls. However, this did not leave a backfill deposit of stone debris which is usually indicative of such activities.

The excavated remains of **Building 3** showed that the building was 6.8 m wide, consisting of two exterior walls, here named the North-eastern and the South-western wall (respectively A and B in *Fig. 7*). The North-eastern wall was 0.96 m wide, built in two rows of worked stones, 0.45–0.9 m large, set in an upright position with the flat surfaces forming the face of the wall, and smaller stones filling the intermediate gaps. The exterior (north-eastern) side of the wall is constructed in somewhat trapezoidal masonry and is higher than the interior (south-western) side of the wall, with the highest parts just protruding above the ground surface, making it partially exposed prior to excavation (*Fig. 8*). What is possibly the lower half of a drain cut was noted in the stone at the northernmost point of the excavated part of the wall (C in *Fig. 7*, *Fig. 8*), indicating that the foundation of **Building 3** had originally at least one further course of stones. Unlike the North-eastern wall of the building, the South-western wall did not protrude through the topsoil but was instead uncovered at 0.2 m below

ground level. The South-western wall was 0.84 m wide, built using two rows of stones set so that a flat surface was created along its exterior surface with small stones filling the core of the wall. The South-western wall further differed from the North-eastern wall in that it was built using 0.20–0.45-m-large stones placed horizontally instead of in an upright position.

Below the topsoil, accumulated backfill deposits relating to the final abandonment of **Building 3** were noted (Group 4, *Table 3*). These deposits contained finds from the Classical, Hellenistic and Late Roman period as well as many fragments of tile. The latter were often small and weathered, and not the large intact pieces expected from a destruction deposit, but instead indicating a slow and gradual soil accumulation.

Below the backfill deposits, the remains of a repair or a reconfiguration of the South-western wall of **Building 3** and a road surface were revealed (D and E in *Fig. 7*, Group 6 in *Table 3*). The reconfiguration or repair of the South-western wall had been executed using small stones in a fashion that indicates that it was repurposed as a foundation for a mud-brick wall rather than for a heavy stone superstructure, as suggested by the stoa-like shape of the original building. The road surface, found immediately north-east of the building, consisted of pieces of slag, small stones, sherds of pottery and tile fragments. The existence of this avenue-like road had been suggested by the magnetometry survey conducted here in 2016–2018, showing that it originally ran from the west (“Pharkadon”) gate to the east (“Peirasia”) gate of the Classical–Hellenistic (Phase 2) settlement.¹⁷ The excavation of the topmost stratum of the road showed that it was bordered along its southern side by a 0.2-m-wide line of pieces of slag

¹⁷ Vaïopoulou *et al.* 2020, 34 fig. 32.

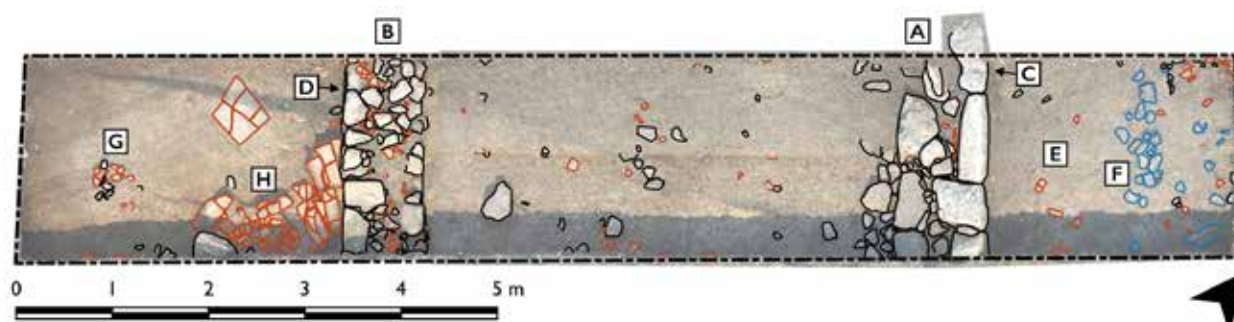


Fig. 7. Stroggylovouni, Vlochos. Plan of the remains in Trench 3, at the end of the 2024 excavations. Black: stones. Red: tile fragments. Blue: slag fragments. Digital drawing overlaid on orthographic photomosaic. Drawing and photographs by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.



Fig. 8. Stroggylovouni, Vlochos. Trench 3. North-eastern wall with possible drain cut into wall (the right-most stone in the photograph). Road surface with line of slag at front. North-eastern face of the wall, view looking south-west. Photograph by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.



Fig. 9 (right). Stroggylovouni, Vlochos. Trench 3. Line of slag and furnace lining demarcating the south-western side of road surface. Photograph by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

and furnace lining (F in Fig. 7, Fig. 9). A large fragment of a Late Roman 1 amphora set into the road surface (see below, Fig. 24) provides a *terminus post quem* for the latest surface of the avenue-like road.

At some point, possibly relating to the reuse of **Building 3**, a pit was cut into the area outside and south of **Building 3** (G in Fig. 7, Group 5 in Table 3). The pit was not excavated during the 2024 campaign.

Set immediately below the deposits of the final use of **Building 3** were the remains of deposits connected to the disuse and backfill of the Hellenistic period (Group 7, Table 3). Inside the building, this consisted of a deposit containing most

notably fragments of a Late Archaic (?) terracotta protome (AMK 51660, Fig. 10), and large fragments of 3rd-century BC pottery, including that of a conical-base kantharos (Fig. 11). The finds suggest that the building was abandoned after the 3rd century BC, possibly during the first half of the 2nd century BC, but that objects of an earlier date could have been in use within the building at that time.

On the outside of **Building 3**, a possible alluvial deposit highlighted the abandonment of the site in the late Hellenistic period. Below this (and the backfill deposits inside the building), a destruction layer was discovered (Group 8, Table 3). Inside **Building 3**, this consisted of scattered stones on top



Fig. 10 (far left). Stroggylovouni, Vlochos. Trench 3. Fragment of terracotta protome (AMK 51660). Scale 1:1. Photograph by the Archaeological Museum of Karditsa. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

Fig. 11. Stroggylovouni, Vlochos. Trench 3. Fragment of conical-base kantharos (c. 3rd century BC). Photograph by the Archaeological Museum of Karditsa. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.



Fig. 12. Stroggylovouni, Vlochos. Trench 3. Roof tile collapse (centre) outside the South-western wall (to the left) of the stoa-like building, looking east. Photograph by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

of an even surface, likely corresponding to a floor surface, but the destruction level could mainly be discerned in the form of a collapsed roof (H in Fig. 7, Fig. 12) found just outside the South-western wall of the building. The roof tiles were of a similar type to those found in Trench 1 and 2, which likely dates them to the late Hellenistic period and the middle of the 2nd century BC.¹⁸

The excavations were concluded just below this destruction level on what likely represents the remains of a Hellenistic-period construction phase (Group 9, Table 3). As the foundation levels for the walls of **Building 3** were not reached, we cannot at present identify the date when the stoa-like building was originally constructed, and excavations are planned to resume here in the coming fieldwork season.

¹⁸ Vaïopoulou *et al.* 2023, 71–72, 75–76.

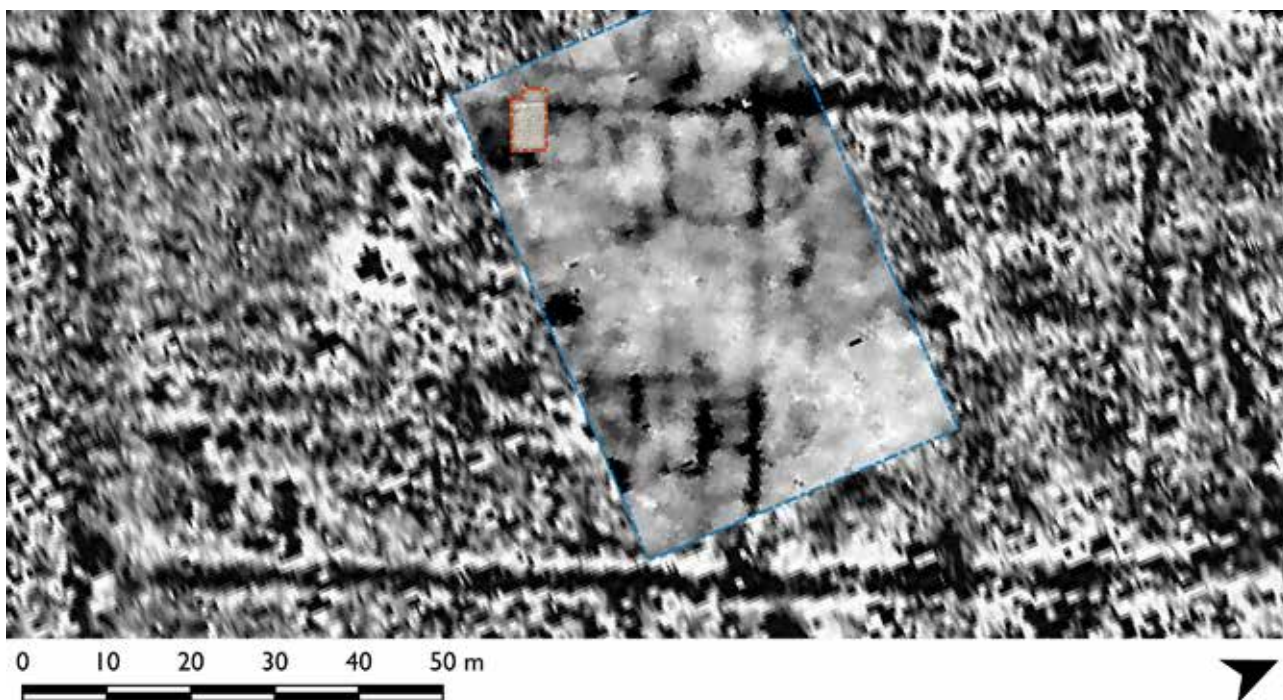


Fig. 13. Stroggylovouni, Vlochos. Position of Trench 4 (marked in red), as overlaid on earth resistance (extent marked in blue) and gradiometry plots. Note direction of north. Plots by D. Pitman. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

Trench 4

The centre of the Late Roman (Phase 3) town reinhabiting the site of the Classical–Hellenistic city (Phase 2) is dominated by a complex of large courtyard buildings, so far only discerned in the geophysical and aerial photography surveys.¹⁹ The aim of Trench 4 was to acquire architectural and stratigraphic evidence for the use of one of these buildings (**Building 4**), and was positioned in order to investigate two of its rooms. The trench was extended in the west to include part of a probable road surface directly to the west of the building (Fig. 13).

The stratigraphical sequence of deposits excavated in Trench 4 in 2024 can be divided into two chronological phases of use, likely ranging from the Late Roman to the Early Byzantine period (Phases 3 and 5). The lowest-reached strata showed indications that parts of the Late Roman remains were built reusing the foundations of a Hellenistic structure or building. Although the trench was excavated down to a maximum depth of 1.1 m below ground surface, the bottom of the archaeological strata was not reached. The excavation was halted above a destruction level connected to the end of use of the Late Roman phase (Phase 3).

Although the archaeological strata proved to be deep in Trench 4, the topsoil (Group 1, Table 4) only reached a depth of 0.2 m below ground surface, which likely is due to the eastern part of the Patoma area being slightly elevated compared to its surroundings, making the area less prone to accumulating colluvial or alluvial soils. Finds from the topsoil included pottery from the Classical–Hellenistic, Late Roman as well as the Early Byzantine periods. Immediately below the topsoil were archaeological remains in the form of deposits that formed two possible structures, probably belonging to the 7th or 8th century AD activities (Phase 5) at the site (Fig. 14).

Due to the shape of the structures in plan, they were named the **Angular structure** (A in Fig. 14; Group 4, Table 4) and the **Rounded structure** (B in Fig. 14; Group 5, Table 4). Both structures consisted of 0.35–0.45-m-wide lines of 0.1–0.3-m-large stones and pieces of tile that had been laid in up to three courses. The **Angular structure** covered an area of approximately 4.7 × 3.2 m and, based on its curvature, the **Rounded structure** would (in its complete state) form a complete circle with a diameter of 3.3 m. It is uncertain what the structures represent, but they could possibly be the foundations for semi-permanent structures such as huts. The deposits in and around the structures were interpreted as representing their disuse and abandonment phase (Group 3, Table 4); among

¹⁹ Vaïopoulou *et al.* 2020, 61; 2022, 86–88.

Table 4. Stratigraphic groups in Trench 4, Stroggylovouni, Vlochos.

Group no.	Description of group	Phase	Contexts (no.) belonging to group	Chronological span of finds from contexts in group
1	Topsoil reflecting Medieval to Modern land use.	Post-Antique land use.	4001.	Classical–Hellenistic, Late Roman, Early Byzantine, Late Byzantine, Early Modern.
2	Disuse and backfill of possible Angular and Rounded structure .	Phase 5.	4002, 4004, 4005, 4006, 4010.	Classical–Hellenistic, Late Roman, Early Byzantine.
3	Use of possible Angular structure .	Phase 5.	4003.	Classical–Hellenistic, Late Roman, Early Byzantine.
4	Construction of possible Angular structure .	Phase 5.	4007.	Classical–Hellenistic, Late Roman, Early Byzantine.
5	Construction of possible Rounded structure .	Phase 5.	4009.	Classical–Hellenistic, Late Roman, Early Byzantine.
6	Accumulated deposit.	Post-Phase 3.	4008.	Classical–Hellenistic, Late Roman.
7	Robber trenches.	Post-Phase 3.	4015, 4016, 4017.	Classical–Hellenistic, Late Roman.
8	Disuse and backfill of Building 4 and Road 2 .	Phase 3.	4011, 4012, 4013.	Classical–Hellenistic, Late Roman (including early 4th-century AD coins).
9	Destruction level of Building 4 and of Road 2 .	Phase 3.	4014, 4018.	Classical–Hellenistic, Late Roman.
10	Construction of Road 2 .	Phase 3.	4019.	Classical–Hellenistic, Late Roman.
11	Construction of the Northern and Southern rooms in Building 4 .	Phase 3.	4020, 4021.	Classical–Hellenistic, Late Roman.
12	Original construction of Building 4 .	Phase 2 (?).	4022.	–



Fig. 15. Stroggylovouni, Vlochos. Trench 4. Sherds of so-called “Slavic ware”. Photograph by the Archaeological Museum of Karditsa. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

the finds were sherds of so-called “Slavic ware”, supporting the suggested 7th or 8th century AD date (Fig. 15).

The lines of stones and parts of the inside of the **Angular structure** were further covered by a thin layer of grey clay, possibly representing a floor level connected to the structure (Group 3, Table 4). Below the structures was an accumulated deposit that likely represents the ground surface prior to the Phase 5 activities at the location (Group 6, Table 4). This contained pottery of the Classical–Hellenistic and Late Roman

periods. In the intermediate period between the Early Byzantine and Late Roman period, three small robber trenches were dug into the eastern part of Trench 4, but only their backfill (consisting of small stones) could be discerned (Group 7, Table 4). The robber trenches were likely dug into features belonging to the Late Roman (Phase 3) building (**Building 4**), which was the original target of the excavations in the trench.

The remains of **Building 4** within Trench 4 consisted of two walls, the first of which (A in Fig. 16) was an external wall aligned north-north-east–south-south-west. The second wall (B in Fig. 16) is an internal wall that was built up against the first wall at an angle slightly off the perpendicular, creating two rooms in the building. These will be referred to as the Northern (C in Fig. 16) and the Southern room (D in Fig. 16). The way that the two walls relate to each other (battered rather than bonded) suggests that the interior wall was built at a later stage than the exterior, and possibly even that the second wall represents a reuse of an older structure. The external wall is 0.8 m wide and consists of two rows of densely placed stones with smaller stones filling the gaps in the core of the wall. The outer of the two rows was constructed out of cut stones ranging in size from 0.8 to 1.3 m, forming an outer face in trapezoidal masonry (Fig. 17). The inner row consisted of stones ranging in size from 0.32 to 0.58 m placed flat on the ground on a slightly lower elevation. In the southern end of the trench was an opening in the wall with a stone placed flat, likely functioning as a threshold for a doorway. The internal wall had the same width as the external, but this was constructed using

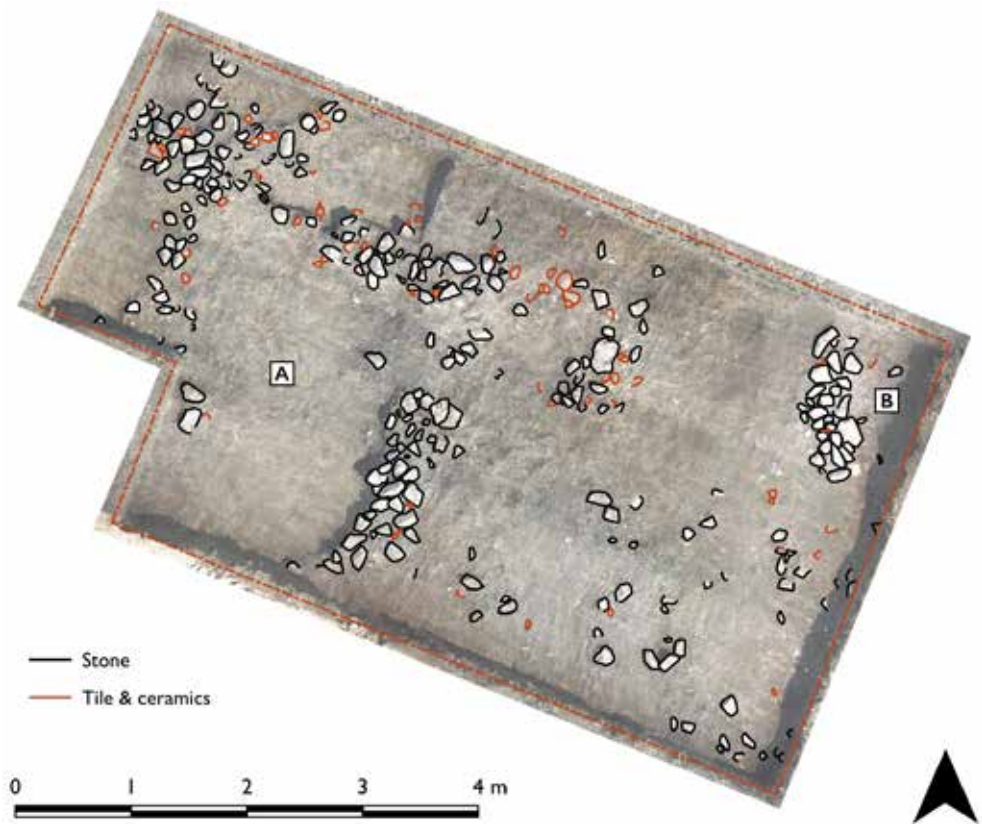


Fig. 14. Stroggylovouni, Vlochos. Trench 4. Plan of the Phase 5 remains. Digital drawing overlaid on orthographic photomosaic. Drawing and photographs by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

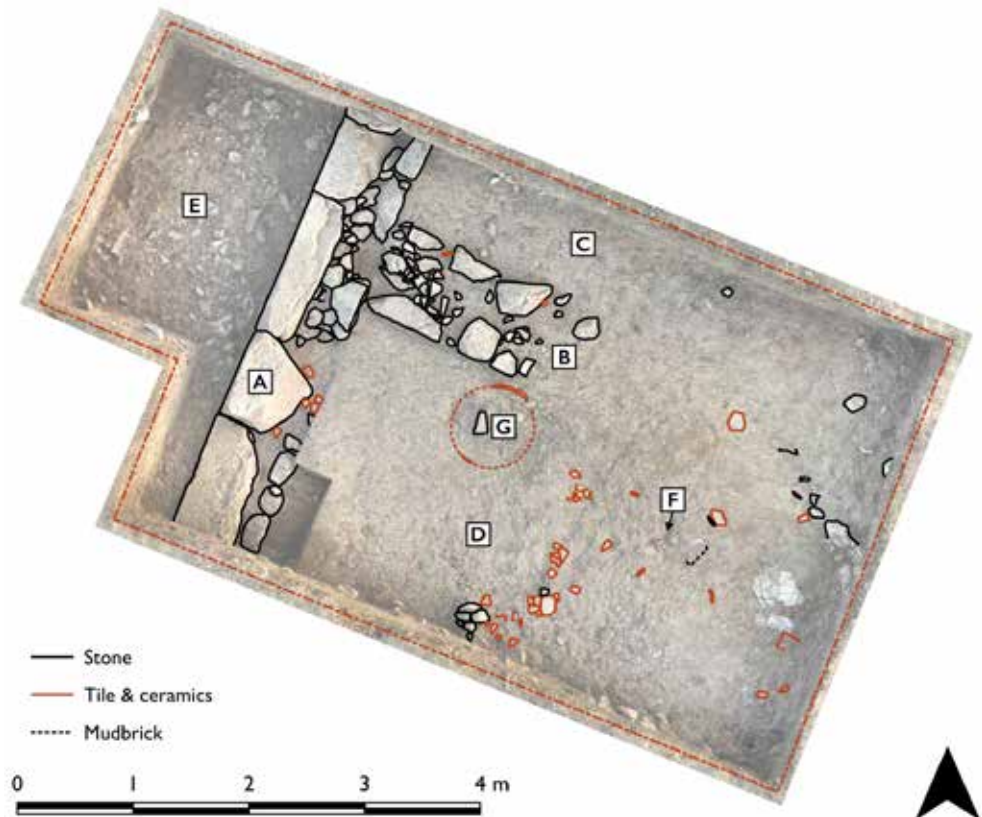


Fig. 16. Stroggylovouni, Vlochos. Trench 4. Plan of the Phase 3 remains. Digital drawing overlaid on orthographic photomosaic. Drawing and photographs by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.



Fig. 17. Stroggylovouni, Vlochos. Trench 4. Outer wall of **Building 4**, and street surface, looking south-east. Photograph by R. Potter. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.



Fig. 18. Stroggylovouni, Vlochos. Trench 4. Ear pick/spoon (AMK 52285). Photograph by the Archaeological Museum of Karditsa. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

stones ranging in size from 0.3 to 0.7 m, with two less closely placed rows of stones forming the faces and smaller stones filling the core of the wall. Both rows were set at roughly the same elevation, which also makes the wall different from the style of the exterior wall. To the west, just outside **Building 4**, a road surface was uncovered by the excavation, **Road 2** (E in Fig. 16, Fig. 17).

At the top of the stratigraphical sequence connected to **Building 4** and **Road 2** were a group of deposits relating to the abandonment and backfill of these structures (Group 8, Table 4). The deposits were rich in finds, which apart from an abundance of fragments of glass vessels and pottery dating to the Classical–Hellenistic and Late Roman periods also contained several Late Roman bronze artefacts. Among these, we may note two ear picks/spoons (one is AMK 52285, Fig. 18), a fibula and a small bronze coin of Delmatius (AD 335–337, AMK 53638, No. 6 in Table 2). The pottery mainly consists of plain, undecorated wares, with storage (pithoi, amphorae) and table vessels (bowls, plates, jugs) dominating the picture. Evidence for textile production was also noted in the shape of six loom weights, two bobbins and two spindle whorls. The backfill deposits also contained pieces of charcoal, possibly

indicating that **Building 4** was abandoned after a fire. Finally, fragments of red-painted wall plaster were found in the backfill deposit, most notably in the Northern room.

A destruction level (Group 9, Table 4) was uncovered below the backfill deposits in the form of a collapsed wall, probably made up of mud-brick. Pieces of one mud-brick were recovered *in situ* with pieces of mortar and red painted wall plaster still clinging to it (at F in Fig. 16). In addition to the collapsed wall, the destruction level also consisted of a deposit on top of **Road 2**, which likely is to be seen as contemporary to the destruction inside **Building 4**.

The excavations were halted just above the collapsed wall that covered a part of the Southern room of **Building 4** as well as its exposed wall foundations, both likely to be dated to the Late Roman period (Phase 3). The construction composition of **Road 2** (Group 10, Table 4) showed that its surface was made up of small stones, pieces of tile and sherds of pottery (E in Fig. 16, Fig. 17).

Inside **Building 4**, the construction levels consisted of the interior wall as well as a levelling deposit that likely created a floor surface (Group 11, Table 4). Attached to the wall, along the western side of both of the rooms, and on the



Fig. 19. Stroggylovouni, Vlochos. Trench 4. Line of wall plaster in situ, north-western wall of Northern room. Photograph by R. Potter. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.



Fig. 20. Stroggylovouni, Vlochos. Trench 4. Pitbos-like vessel in situ in floor surface, Southern room. Photograph by R. Potter. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

northern side of the Southern room, faint lines of mortar were documented running perpendicular to the walls at a distance of about 0.06 m, likely representing the wall surface coating inside the rooms (Fig. 19).

Further, the excavations uncovered the bottom half of a pitbos-like vessel that had been dug into the floor level of the Southern room. The vessel had a visible diameter of 0.75 m, and its content could possibly contain closed deposits connected to the last use of **Building 4** (G in Fig. 16, Fig. 20).

As the excavation was halted after just uncovering the layers of abandonment of **Building 4**, many questions remain to be answered. However, it appears highly likely that the Late Roman phase (Phase 3) within Trench 4 ended in the 4th century AD. No apparent function could be established for the building and its two rooms. Judging from the fragments of plaster found collapsed into the Southern room, the Northern room had red-painted walls. The Southern room likely functioned as a passage between the courtyard and the street (**Road 2**) to the west of **Building 4**, and that it had a rammed earthen floor. Additionally, the large storage vessel dug into the floor might provide further information as to the function and usage of the room.

Finally, the monumental masonry in the outer wall (Group 12, Table 4), facing the street, presents an interesting possibility of Late Roman-period reuse of Hellenistic architectural elements. Similar foundations demarcating the outer perimeters of *insulae* have previously been discovered in Thessaly at Kallithiro²⁰ and Magoula Plataniotiki,²¹ making it possible that this was a common custom while laying out

the street grids in Hellenistic cities. Whether the trapezoidal North-eastern wall in Trench 3 at Stroggylovouni should also be seen in this light remains to be seen.

Evidence for metal production at Stroggylovouni, Vlochos

The 2024 excavations at Trench 3 identified a significant quantity of industrial debris produced by high-temperature activities, most notably used as a packing material in the Roman-period main avenue road surface (Fig. 21). Given the likelihood that material used for road packing was produced nearby, this presents the possibility that high-temperature industry was taking place on, or near, the site.

Assessment of the types of material identified—which include slag-like material and furnace lining—along with a reassessment of the geophysical data of 2016–2018,²² give additional insight into industrial practices of the Roman-period occupants of the site. This section presents a preliminary assessment of the material, based on morphology and visual identification, acting as a baseline for future investigation into industry on the site.

As with other material types, industrial debris includes diagnostic elements which allow specific processes to be identified. High-temperature industrial debris, broadly speaking, can relate to a range of technologies, typically ceramic, glass and metal production.²³ The morphological characteristics of

²⁰ Intzesiloglou 1997, 16–21.

²¹ Stissi *et al.* 2015, 109–111.

²² Vaïopoulou *et al.* 2020, 24–28.

²³ Henderson 2000, 1–7.



Fig. 21. Stroggylovouni, Vlochos. The north-eastern end of Trench 3, looking north-east. Spread of metallurgical slag used as road-packing material. Photograph by R. Rönmlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.



Fig. 22. Stroggylovouni, Vlochos. Trench 3. Two large fragments of slagged furnace lining. Photographs by D. Pitman. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

the material identified in Trench 3 are such that it was produced at a temperature far exceeding that of ceramic production. While glass production can produce highly vitrified material, it requires a suite of resources—namely silica (typically beach sands) and an alkali flux (such as natron or potash)—which are found in specific geographies such as coastal, salt-lake or forest locations and which are not present in the immediate Palamas region.²⁴ The lack of suitable resources for glass production, coupled with the morphology of the debris, strongly suggests it was related to metallurgy.

The metallurgical process involves a range of practices and materials. In Late Antiquity, the main metal types used *en masse* were iron and copper (typically alloyed to produce bronze). Both such metal industries produce significant amounts of debris on a scale consistent with that found in Trench 3.²⁵ In both cases, broadly speaking, the production process can be divided into primary metallurgy, the extraction of metal from ore, and secondary metallurgy, the production of objects from the metal itself. Identifying which step and which material is being used is key to understanding the practices taking place.

Of the fragments found in Trench 3, the bulk can be identified as furnace lining.²⁶ This can be characterized as a refractory clay of c. 8–10 cm in thickness with a highly vitrified interior surface and a poorly fired exterior (Fig. 22). The sizes of the fragments are substantial, some measuring 50 cm in length. This suggests they were derived from a significantly large piece

of metallurgical architecture. The second class of material found can be characterized as “furnace conglomerate”. This type of slag forms within a furnace, typically during the extractive, or “smelting”, phase of the process. Coupled with the likely large-scale furnace infrastructure, this strongly suggests that primary, extractive metallurgy was taking place on site. It is also to be noted that no fragment found can clearly be associated with metal smithing or casting. Secondary production, in the form of smithing and casting, typically takes place in smaller furnaces than extractive metallurgy, which has yet not been identified on site. Further excavation may, naturally, reveal such evidence.

In terms of the type of metal produced, without more detailed analysis it is impossible to say with certainty whether it was copper or iron. However, the lustre and character of the slag fragments are more visually consistent with iron production than with copper.²⁷ In addition, none of the fragments assessed contained any copper corrosion or visible incisions, which further suggests that they relate to iron production. It is reasonable, based on visual analysis alone, to hypothesize that primary iron production was taking place at Stroggylovouni, Vlochos. This raises important questions regarding where exactly this took place, and what resources were exploited. The latter question requires significant geological study of the local hinterland, but based on an appraisal of geological maps of the area and of the local landscape, there is potential for iron resources to be present in the hills to the north-east of the site, in the surrounding plain in the form of bog ore, or in the form of iron-rich sands. The former question gives cause to reassess our existing geophysical data with the aim of identifying pos-

²⁴ Henderson 1985.

²⁵ Craddock 1995, 156.

²⁶ Bachmann 1982, 10.

²⁷ Bachmann 1982, 2.

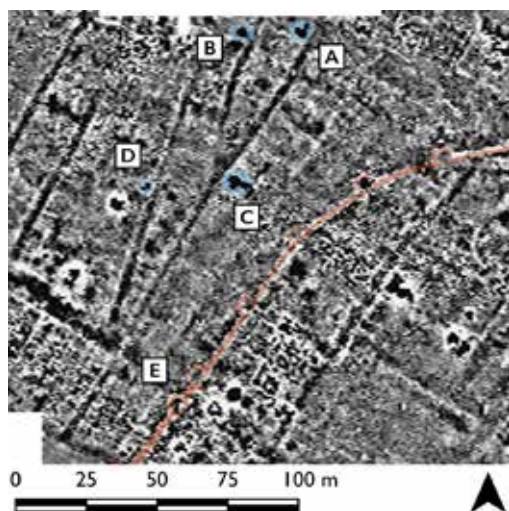


Fig. 23. Stroggylovouni, Vlochos. Detail of gradiometry survey results (2016–2018), showing area immediately outside and inside the Phase 3 fortifications (marked in red). Data clipped to 5/-5 nT. Potential furnace features (A–D) are marked in blue in area north of gate (E). Plot by D. Pitman and R. Römlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.



Fig. 24. Stroggylovouni, Vlochos. Trench 3. Fragments of slag material and Late Roman 1 amphora in road surface. Photograph by D. Pitman. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

sible furnaces that were previously assumed to relate to later lime-production activities.

There are several features within the magnetometry survey of the Patoma area at Vlochos that have a high enough magnetic response to be industrial in nature. Some can easily be identified on the surface as later (Early Modern?) lime kilns, but others are less distinctive and likely represent a greater depth of soil accumulation. In the area to the north-east of the Phase 3 fortified town are four such features which appear to align to the earlier, Phase 2 street layout. Their magnetic profile shows a “keyhole” shape with enrichment greater than the surrounding features but less than that of the Modern lime kilns (A–D in Fig. 23). Their location is archaeologically significant, as high-temperature industrial processes are commonly located outside urban settlements. While remaining only a hypothesis at this stage, it is possible that this area represents an industrial zone that makes use of earlier building foundations.

Survey and excavations at Metamorfosi

The multi-method study of the remains on the Kourtikiano hill just north-west of the village of Metamorfosi was resumed in 2024. The fieldwalking survey that was initiated in 2022²⁸ was completed, and the architectural survey of the fortifica-

tions was resumed. To acquire stratified chronological evidence, two trial trenches were opened up in the Aspropetra area at the steep southern slopes of the hill, where a settlement of the Early Byzantine period had been assumed previously.

SURFACE SURVEY ON KOURTIKIANO HILL

In 2024, the fieldwalking survey of ceramic surface material atop Kourtikiano Vouno (2 in Fig. 1) was finally concluded,²⁹ having been interrupted in 2023 by the arrival of Storm Daniel and the attendant catastrophic flooding. Only a small portion of the hilltop had been left unfinished at the end of the 2023 season and very little additional information was obtained in the 2024 survey season, largely due to the dense vegetation which resulted from the heavy rainfall of the previous year. Although much of the diagnostic material from the survey was lost as a result of the destruction of the project storerooms during the floods, a few minor points can be added to the analysis of previous years. While small amounts of Classical, Roman and Late Roman material were found on the hilltop, as well as an ephemeral Medieval and even Neolithic presence, the vast majority of the surface finds dated to the Hellenistic period. Heavy concentrations of pottery and tile were found scattered

²⁸ Vaïopoulou *et al.* 2023, 78–79; 2024, 33–34.

²⁹ The work employed the same methodology as in previous seasons to maintain consistency, see Vaïopoulou *et al.* 2023, 78–79; 2024, 33–34.

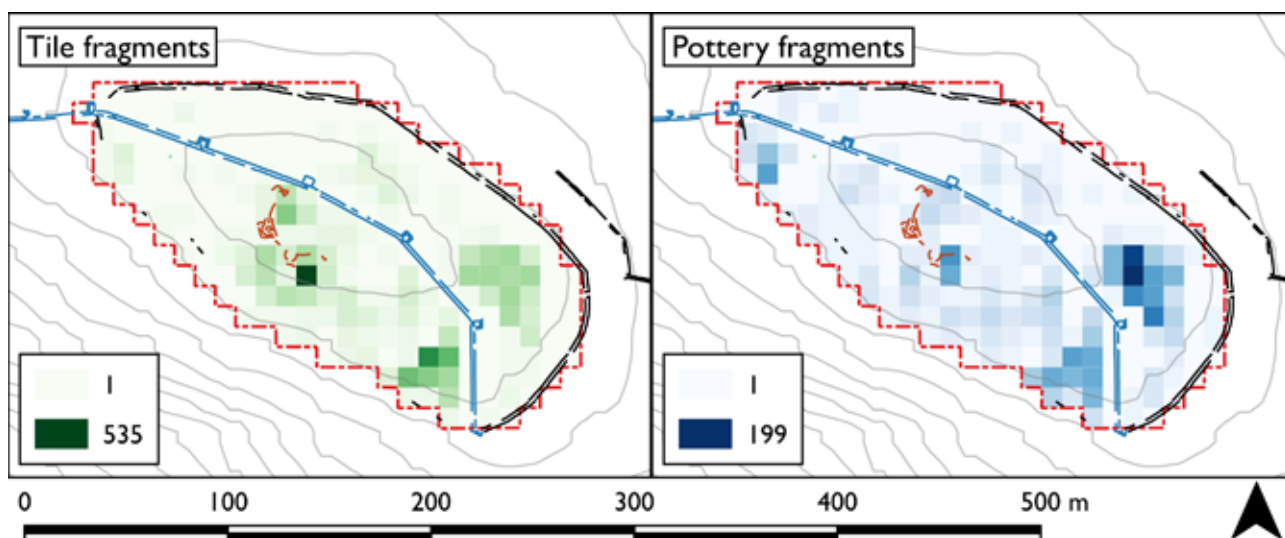


Fig. 25. Kourtikiano hill, Metamorfofi. Diagram with tile and pottery fragments distributions on the summit, superimposed on results from architectural surveys (2021–2022). Dashed red line marks the extent of the 2022–2024 fieldwalking survey. Black: Archaic–Classical(?) fortifications. Red: Hellenistic fortifications. Blue: Early Byzantine fortifications. Plan and diagram by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.



Fig. 26. The Aspropetra area and the southern slopes of Kourtikiano hill, Metamorfofi, looking north. Photograph by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

over the south-east of the fortified area (Fig. 25), either in a narrow, but steep depression leading down to the southern slope of the hill, or in a flat area just inside the eastern “gate” identified in the Archaic/Classical wall. Textile production materials, such as loom weights and spindle whorls, were also found in this area, while slag appeared in the narrow depression. That habitation and domestic production were taking place on the hilltop in the Hellenistic period seems unquestionable, probably associated in some way with the substantial remains of the hexapyrgion at the hill’s summit. The very small amount of Late Roman material would seem to indicate that the Byzantine fortifications

stretching across the hilltop were to complete the defensive area enclosing the settlement at Aspropetra, and did not encompass any hilltop habitation during this period.

ARCHITECTURAL SURVEY AT ASPROPETRA

The survey of the fortification remains on the Kourtikiano hill had nearly been completed in previous seasons,³⁰ with the

³⁰ Vaïopoulou *et al.* 2022, 97–99; 2023, 76–78.

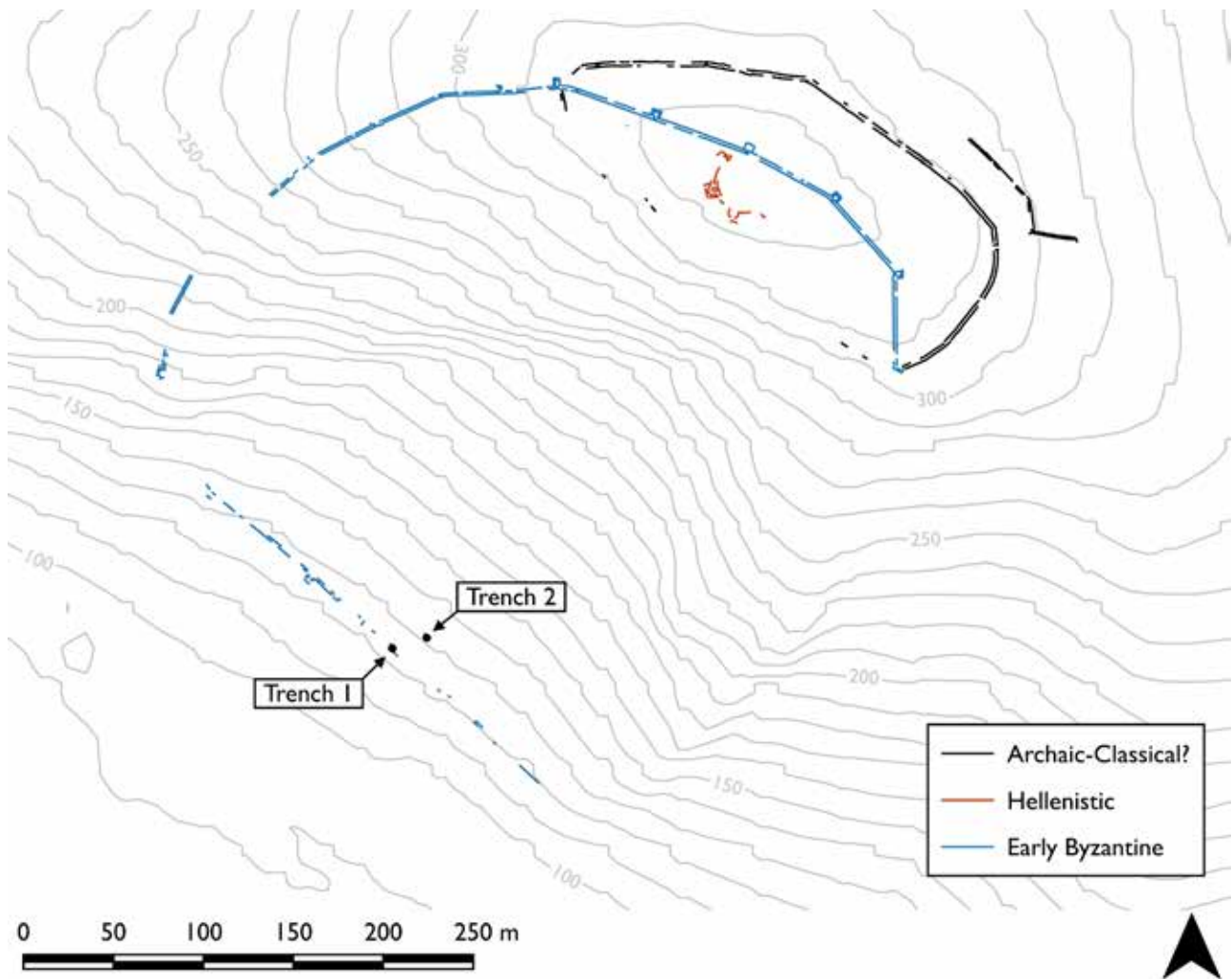


Fig. 28. Kourtikiano hill, Metamorfofi. The fortifications (surveyed 2021–2024) with trench locations in the Aspropetra area. Plan by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

lower fortifications of the Early Byzantine phase remaining to be documented in more detail. Due to the 2023 Storm Daniel, this could not be done as planned, and the completion of the survey was thus scheduled for 2024.

The torrential rains of the 2023 storms had caused several erosion ravines to open up in the slopes below the hill, most notably in the Aspropetra area (3 in Fig. 1, Fig. 26). At locations, the rainwater had revealed the extensive natural stratigraphy that had formed in this colluvial fan both before and after antiquity, with terrace walls visible in the scarp (Fig. 27). Even if such serendipitous discoveries were welcome, the new ground situation made surveying more difficult, if not dangerous. Several sections of the fortification wall had now been covered in erosion debris, while at the same time, new sections had been revealed elsewhere. This meant that the survey could



Fig. 27. Aspropetra, Metamorfofi. Building or terrace wall revealed in slope through erosion caused by Storm Daniel in 2023, looking north. Photograph by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

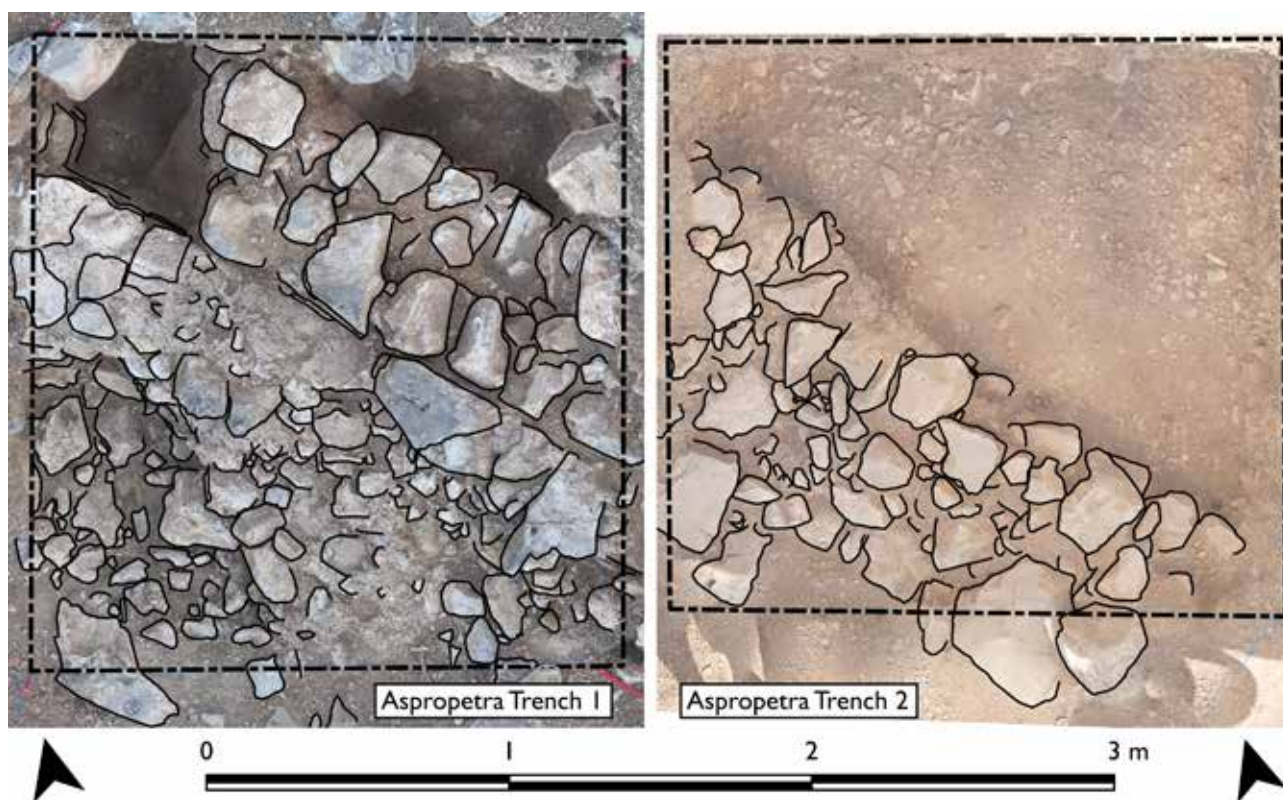


Fig. 29. Trenches in the Aspropetra area, Kourtikiano hill, Metamorfosi. Orthorectified photomosaics with overlay digital drawing. Black lines denote stones. Dashed black line marks extent of trenches. Photograph and drawing by M. Wikström, N. Siaperas and R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

again not be completed, but several additions to the picture were made (as can be seen in Fig. 28), including the back face of the fortification wall.

The erosion process had further revealed an abundance of terraces and building foundations further up the slope in the Aspropetra area, strongly indicating a relatively dense inhabited area within the main fortification wall. The 2024 excavations in the area (as detailed below) took place here, but it is clear that further and systematic documentation of surface remains needs to be conducted on the slope.

EXCAVATIONS AT ASPROPETRA

As part of the 2024 campaign, test excavations were conducted at Aspropetra, in the area of the hypothesized Early Byzantine settlement,³¹ located within the fortification walls

on the southern slope of Kourtikiano Vouno. Two *c.* 2 × 2 m test trenches were laid out to cut across architectural features that were partially exposed on the surface (Fig. 28). Trench 1 was situated across the large fortification wall that ran between two spurs of the hill and across a colluvial fan set into the southern slope. Trench 2 was placed across a small, exposed wall, 17 m north-east of Trench 1. The aim of both trenches was to investigate the nature of settlement on the southern slope, determine the relationship—if any—to the fortification walls, and as near as possible to determine a site chronology.

Trench 1

The location of Trench 1 was selected due to the preponderance of surface finds in the area of a relatively undamaged section of fortification wall emerging a few centimetres above the topsoil. These surface finds included Late Roman amphora sherds and a spindle whorl, hinting at the presence of household production at the site. Excavation (left in Fig. 29) showed that the 1.56-m-thick fortification wall, which extended diagonally across the trench, was solidly constructed,

³¹ A tentative date of the Early Byzantine period (roughly 6th century AD) had been previously assigned based on surface finds and a rough estimation of the fortification wall's date, established through construction methods employed.



Fig. 30. Aspropetra, Kourtikiano hill, Metamorfofi. Trench 1 at the end of excavation, looking south. Photograph by M. Wikström. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

using substantial facing stones and a rubble core, held together with large amounts of cement-like bonding. Brick spacers, a typical feature of Byzantine wall construction,³² were absent. Adjacent to the fortification wall, abutting the interior face, another wall was discovered, of much rougher construction and only 0.65 m in width, utilizing fieldstones of moderate size and no cement bonding. This wall extended from the east baulk for 1.45 m, parallel to the fortification wall, before executing a 90° turn to the north-east and disappearing into the north baulk (Fig. 30).

Excavation within this apparent structure produced alternating stratigraphic levels of apparent gravel pack produced by erosion. At or near the level of the base of the smaller wall, a thick grey concentration of clay was found, extending over the entire area interior to the wall, possibly either a floor or dissolved mud-brick. Finds included significant amounts of Late Roman pottery, a loom weight, a small piece of iron, animal bone fragments and a coin of Justinian I (AD 527–565. **AMK 53642**, Fig. 31). Beneath the clay level and the base of the small wall, the alternating stratigraphic levels of erosion gravel pack continued, and cultural material was almost entirely absent. A sondage was conducted in the north-west corner of the trench, outside the small wall but inside the fortification wall, to find the base of larger construction. At a depth of just over 1.5 m, the sondage reached bedrock, upon which



Fig. 31. Aspropetra, Kourtikiano hill, Metamorfofi. Trench 1. Nummi of Justinian I (mid-6th century AD). Thessalonica mint. Obv.: bust of emperor facing right, laureate. Eroded letters along rim. Rev.: AISP at centre, with star-cross-star above. Mintmark TES. Scale 1:1. **AMK 53642**. Photograph by the Archaeological Museum of Karditsa. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

the fortification wall was sitting. Almost no cultural material had been found in the sondage.

Trench 2

Trench 2 was placed upslope from Trench 1 and thus within the fortification wall. Two small, perpendicular walls appeared to be emerging a few centimetres from the topsoil. Excavation showed one of the walls to be ephemeral, while the other resolved into a substantial, 1-m-thick wall with a rubble core and no cement bonding.³³ This wall ran diagonally across the southern end of the trench for roughly 2.25 m, passing from the south and east baulk into the west baulk. The alternating stratigraphic levels of erosion gravel pack seen in Trench 1 continued here, north of the wall, constituting all excavated levels. Small amounts of pottery (including so-called “Slavic ware”), tile, animal bone and charcoal appeared at upper levels, as well as a small piece of worked (boar?) tusk and an iron bracelet or handle. Near the base of the wall, substantial portions of a Late Roman Amphora 2 or 5 were resting, appearing to have been smashed *in situ*.

Analysis

Finds at or near the level of the base of the structure inside the fortification wall in Trench 1 and at the base of the possible retaining or terrace wall in Trench 2 were primarily

³² More properly, the use of “brick” in wall construction at Kourtikiano Vouno corresponds to the inclusion of reused roof tile, but there is no academic discussion currently on this differentiation outside its use in a decorative context. See Kontogiannis 2022, 73.

³³ However, two chunks of cement, roughly 20 cm diameter, were found near the wall.



Fig. 32. The low ridge of Petromagoula, Metamorfosi, looking north. The prehistoric magoula is visible as a soil mark to the right. Photograph by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

of the Late Roman/Early Byzantine period. Moreover, the presence of a coin of Justinian I largely substantiates the association of the fortifications, and the settlement at Aspropetra, with an Early Byzantine date. None of the structures excavated as part of the 2024 season showed signs of multiple phases of construction or repair, which may indicate a relatively brief window of occupation on the south slope. Considerable amounts of tile, the presence of the remains of household production, and the size of the fortification walls reinforce the impression of a substantial settlement. During the 2024 season, the remains of dozens of structures were apparent at ground level at Aspropetra, peaking through the topsoil in areas of more substantial erosion. Further excavation is needed to assess both the character of the settlement and the extent of habitation down into the flat area near the base of the hill, beyond the fortifications, and to provide a tighter chronological determination.

Aerial survey and test trenches at Petromagoula, Metamorfosi

Approximately 1 km north of the church of Metamorfosi tou Sotira near Metamorfosi is the low ridge of Petromagoula (4 in Fig. 1, Fig. 32), an isolated rocky feature c. 400 m from the larger mountain body of Kourtikiano Vouno. The ridge is c. 900 m in length, with a maximum width of c. 300 m. At its south-easternmost point is a Neolithic *magoula* (A in Fig. 33,

6 in Fig. 35),³⁴ which was partially surveyed by the project in 2022.³⁵ Until the catastrophic floods of 2023 the area was used for the grazing of animals, and an abandoned sheep pen lies in ruins near the northern spur of the ridge. Apart from an unsubstantiated identification of the site with ancient Limnaion,³⁶ Petromagoula has previously escaped scholarly attention.

Satellite photographs had previously revealed the outlines of a larger structure in the flatter northern part of the ridge, but the dense vegetation and fences surrounding the hill made surveying difficult. Employing a small drone, a Digital Elevations Model (DEM) of the hill was produced via structure from motion (SfM), allowing for topographic features to be more easily studied. The DEM (Fig. 33) showed the structure in detail (B in Fig. 33), revealing it to be roughly pi-shaped, 51 × 78 × 27 m in size, and uniformly c. 8 m wide. Fourteen compartments or rooms can be discerned, with eight in the central wing, two in the south-eastern wing, and four in the north-western wing. The latter appears to have been constructed separately to the rest of the structure, as it does not share an inner wall with the central wing. The compartments or rooms are all relatively rectangular but of different sizes,

³⁴ Nikolaou & Firfiris 1999, 63.

³⁵ Vaïopoulou *et al.* 2023, 80–82.

³⁶ Stählin 1924, 83–84. Stählin clearly mistakes the toponym Petromagoulon [*sic*] as referring to the larger mountain body of Kourtikiano Vouno to its south.

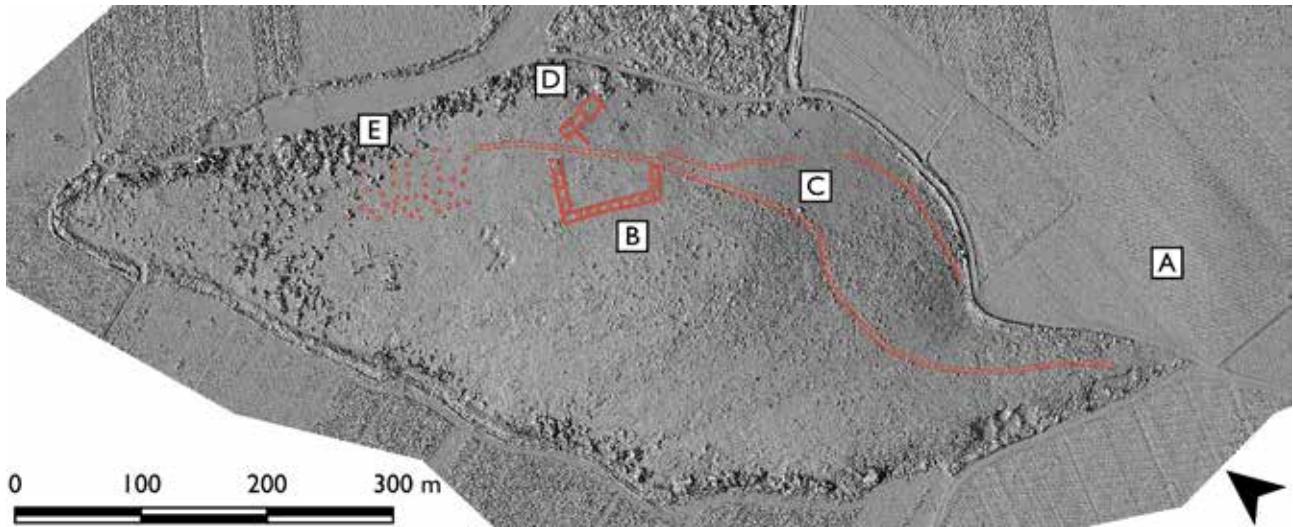


Fig. 33. Petromagoula, Metamorfosi. Hill-shade rendering of DEM (generated from SFM) of the ridge. Note direction of north. A. Prehistoric magoula. B. Rock-cut paths. C. Large structure. D. Building complex. E. Area with small heaps. Photograph and drawing by R. Potter, D. Pitman and R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.



Fig. 34 (right). Petromagoula, Metamorfosi. Green-glazed pottery from Ephorate trial trenches. Photograph by the Archaeological Museum of Karditsa. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

ranging from *c.* 27 to 50 m². The alignment of the central part of the building (roughly north-west–south-east) follows the natural topography, with a flat space acting as a yard between the wings. Running across the yard are the outlines of a rock-cut path or track leading across the ridge from the south-east to the north-west (C in Fig. 33). Another, less visible track joins the main one at the tip of the south-eastern wing of the structure.

Across the track from the pi-shaped structure are the less clearly defined outlines of another, separate building complex (D in Fig. 33). This is situated just above a marshy area over-

grown with reeds, with a spring at its centre, feeding a small stream that prior to the mid-20th century ran into the vast fenlands of Dermpinia to the north of the location (now completely drained). The structure has at least three rooms or compartments and is built on an east–west alignment. Possible further rooms can be discerned to the north and south, but not in sufficient detail to be added to a drawing.

Further to the north-west, and next to the ruined sheep pen, is a concentration of at least 40 small heaps of stone and soil (E in Fig. 33). Whether these represent modern or ancient features cannot be said at present.

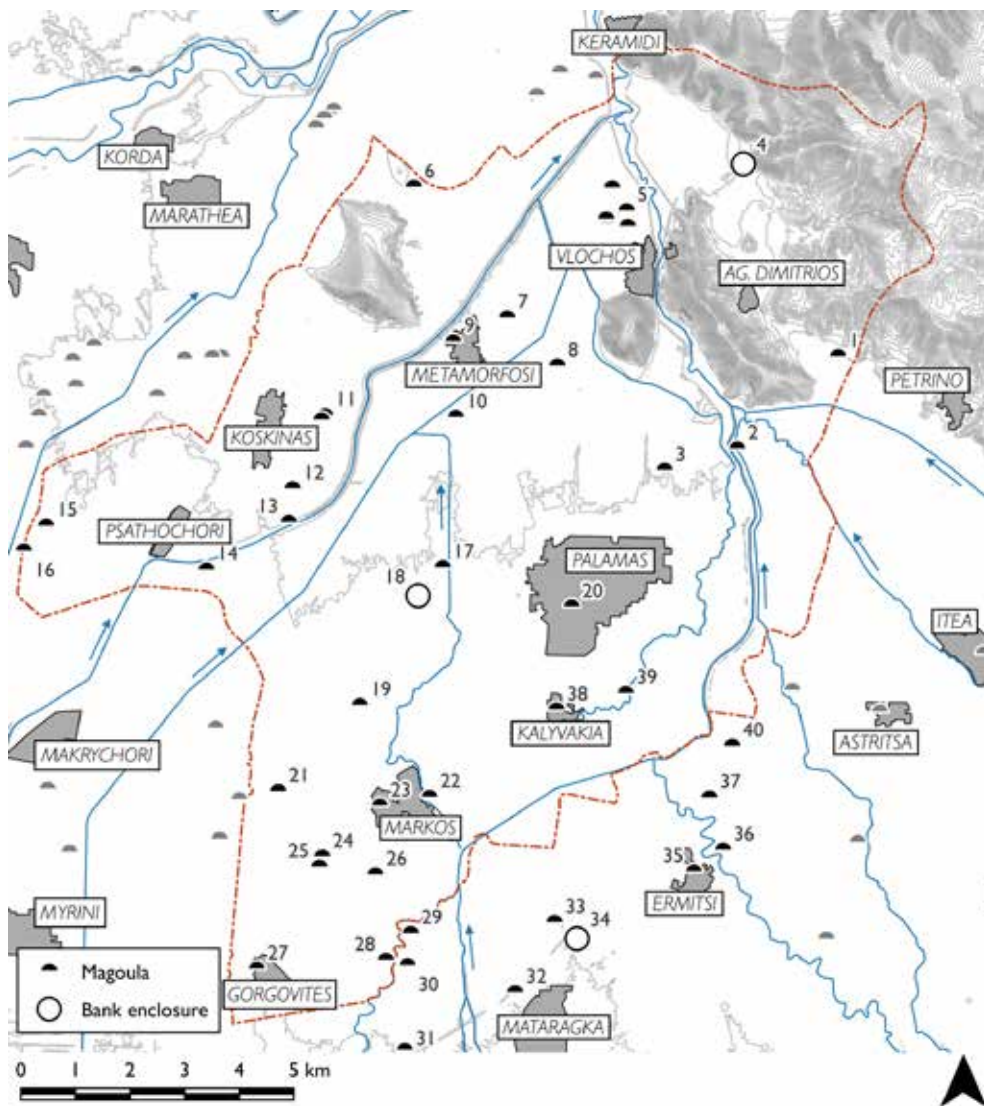


Fig. 35. Area of Palamas with mound sites (magoules) and earthworks numbered as in Table 5. The dashed red line marks the extent of the Municipal Unit of Palamas. Map by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

Table 5. Tells (magoules) and earthwork sites within the study area, numbered as in Fig. 35.

No. in Fig. 35	Toponym	Co-ordinates (GGRS87)	Chronology and notes
1	Paparma Vrysi	339311/4374307	Early Neolithic; Middle Neolithic; Late Neolithic; Early to Middle Bronze Age? Partially geophysically surveyed (see below). ^I
2	Sofaditis potamos	337460/4372616	Neolithic; Early Bronze Age; Middle Bronze Age (see below).
3	Diavatia	336129/4372224	Late Neolithic; Final Neolithic; Early Bronze Age; Middle Bronze Age?; Byzantine–Ottoman? (see below).
4	Lykorema	337574/4377845	Middle Neolithic?; Late Neolithic; Final Neolithic?; Early Bronze Age; Middle Bronze Age (see below).
5	Magoula Keramaria 1–4	335064/4376810, 335450/4376978, 335455/4376692	Early Bronze Age; Middle Bronze Age; Late Bronze Age; ^{II} Byzantine (see below).
6	Petromagoula	331540/4377422	Early Neolithic; Middle Neolithic; Late Neolithic; Roman. ^{III} Partially geophysically surveyed. ^{IV}
7	Magoula Rousioti	333204/4375016	Middle Bronze Age; Late Bronze Age; Byzantine (see below).

Table 5 continued.

No. in Fig. 35	Toponym	Co-ordinates (GGRS87)	Chronology and notes
8	Kalamakia	334134/4374154	
9	Magoula Metamorfosis	332267/4374583	In the western parts of the modern village of Metamorfosi.
10	Magoula Kourtikiou	332310/4373187	Early Neolithic; Middle Neolithic; Late Neolithic. ^v Partially levelled.
11	Koskinas 1 & 2	329915/4373240, 329915/4373240	Bronze Age. Double <i>magoula</i> east of village, partially excavated in 1997. ^{vi}
12	Koskinas 3	329321/4371883	
13	Magoula Misiaka	329252/4371271	Cut through by the artificial canal of the Kalentzis river.
14	Psathochori	327746/4370400	
15	Gyftissa Magoula	324807/4371207	
16	Chavouza	324398/4370746	
17	Magoula Karatziki	332071/4370440	Late Neolithic. ^{vii}
18	Patouni	331620/4369933	Circular cropmark partially cut by palaeochannel, visible in aerial photographs since the 1940s.
19	Paliochoriou	330553/4367917	Early Neolithic; Middle Neolithic; Late Neolithic. ^{viii}
20	Papoutsí/Chantakli	334433/4369724	Middle Neolithic; Late Neolithic; Late Bronze Age (LH IIB; LH IIIA). ^{ix} Large <i>magoula</i> within modern town.
21	Magoula Ntampasi/Ntafetsiou	329062/4366339	Classical–Hellenistic (see below).
22	Markos 1	331826/4366233	Early Neolithic; Middle Neolithic; Late Neolithic; Bronze Age. ^x Partially geo-physically surveyed. ^{xi}
23	Markos 2	330916/4366074	Large <i>magoula</i> within modern village.
24	Markos 3	329868/4365140	Middle Neolithic; Late Neolithic. ^{xii} <i>Magoula</i> north-west of Markos–Gorgovites road, 150 m north of Markos 4.
25	Markos 4	329815/4364956	<i>Magoula</i> 150 m south of Markos 3.
26	Markos 5	330837/4364810	
27	Gorgovites	328662/4363084	<i>Magoula</i> at site of village church.
28	Vardares	331035/4363250	(see below)
29	Magoula Daskalopoulou 1	331483/4363741	(see below)
30	Magoula Daskalopoulou 2	331429/4363147	(see below)
31	Livadia	331377/4361603	Neolithic. ^{xiii}
32	Magoula Mataragka 1	333398/4362656	Early Neolithic; Middle Neolithic. ^{xiv}
33	Paliourites	334120/4363940	<i>Magoula</i> cut through by irrigation canal. ^{xv}
34	Chomatokastro	334525/4363656	Earthwork enclosure. Partially geophysically surveyed. ^{xvi}
35	Ermitsi 1	336670/4364862	Site of ancient city of Peirasia. Archaic; Classical; Hellenistic. ^{xvii}
36	Ermitsi 2	337208/4365269	Small <i>magoula</i> on right bank of river Farsalitis. ^{xviii}
37	Gianiki	336959/4366224	Neolithic?; Ottoman. Location of village until early 20th century. Partially geo-physically surveyed. ^{xix}
38	Kalyvakia	334151/4367831	<i>Magoula</i> within modern village.
39	Potamaki	335416/4368128	Middle Bronze Age (see below).
40	Valtakia	337359/4367190	Small <i>magoula</i> visible as soil mark in satellite photographs.

ⁱ Vaïopoulou *et al.* 2023, 80.ⁱⁱ Gallis 1976, 176.ⁱⁱⁱ Nikolaou & Firfiris 1999, 63.^{iv} Vaïopoulou *et al.* 2023, 80–82.^v Krahtopoulou 2015, 745 no. 1.^{vi} Nikolaou 1997, 482–483.^{vii} Nikolaou & Firfiris 1999, 63.^{viii} Nikolaou & Firfiris 1999, 86; Krahtopoulou 2015, 745 no. 2.^{ix} Wace & Thompson 1912, 11; Hope Simpson 1965, 161–162; Halstead 1984, 235; Hatziangelakis 2001–2004, 574–575; 2007, 35–36; 2012, 163; Vaïopoulou 2020, 165.^x Tsountas 1908, 10 no. 51; Wace & Thompson 1912, 9; Halstead 1984, 233; Krahtopoulou 2015, 745 no. 3.^{xi} Vaïopoulou *et al.* 2023, 82.^{xii} Krahtopoulou 2015, 745 no. 4.^{xiii} Krahtopoulou 2015, 745 no. 5.^{xiv} Tsountas 1908, 10; Wace & Thompson 1912, 9; Sofianou 2015, 740.^{xv} Vaïopoulou *et al.* 2024, 37–38.^{xvi} Decourt 1986, 149, n. 5, figs 31–32; Rönnlund 2023, 83; Vaïopoulou *et al.* 2024, 36–42.^{xvii} Rönnlund 2023, 82–83.^{xviii} Wace 1909–1911, 55.^{xix} Vaïopoulou *et al.* 2023, 80.



Fig. 36. The Lykorema site (lower centre), Vlochos, looking north, with the former settlement of Lykorema and the Dov-routzi hills in the background. Photograph by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

The considerable vegetation growth, amplified by the lack of grazing animals following the 2023 floods, makes all of the above-mentioned features completely invisible at ground level. Due to a request by the owner of the ridge for a permit to construct a solar park at the site, the Ephorate conducted limited test trenches in the area of the larger structure in 2023. The trenches produced green-glazed pottery of the 15th century AD (Fig. 34), providing a possible date of use for the complex of buildings on the ridge. Even if the shape and size of the pi-shaped structure is suggestive of a possible caravan-serai (Ottoman Turkish *han*) or a large stable, it is at present impossible to state with any certainty what the function of the complex was.

Tells (*magoules*) and earthwork sites in the area of Palamas

Similarly to most of the western Thessalian plain, the number of known prehistoric tells or *magoules* in the area has been much lower compared to the extreme wealth of such sites on the eastern plain. That this situation has only been caused by the lack of similar systematic studies as has been conducted in the east, however, is proven by the large number of new *magoules* discovered by the team over the course of the *Palamas Archaeological Project*. By studying aerial and satellite photographs of the area, crop- and soilmarks indicative of tells can often be clearly distinguished, even at sites which show scant topographical indications of mound features. Confirmation of actual archaeological material at each site can naturally only be determined through autopsy (so-called “ground

truthing”), which is an ongoing endeavour by the project. This work has been quite rewarding, leading to the discovery of 19 previously unknown *magoules*. Adding to this number are two circular earthworks of unknown nature, also found through remote sensing. The total number of sites within the study area is at present 36 (Fig. 35), indicating a densely populated landscape in prehistory.³⁷

As many of the sites have never or only superficially been published, the project aims to conduct limited fieldwork at their locations to acquire chronological evidence for their habitation. In 2024, nine sites were visited, with samples of surface pottery collected.³⁸ The chronology of five previously unknown sites were established, namely the earthwork at Lykorema, the *magoules* at the Sofaditis river, at the Diavatia and Potamakia locations, and in the Daskalopoulos field.

LYKOREMA, VLOCHOS

This site (which to the authors’ knowledge is previously unnoticed) was discovered from satellite photographs, and consists

³⁷ This has previously been noted by Donati (2022, 736 fig. 9), who by studying RAF aerial photographs taken during World War II identified 13 possible *magoules* in the area of Markos. Of these, however, only one proved to be an actual mounded feature; the rest most probably being clay-pits or ponds appearing as darker patches in the aerial photographs.

³⁸ As the fields where the sites are located are currently cultivated, no systematic survey was conducted. A number of diagnostic sherds and fragments were collected (roughly corresponding to a bagful) by three fieldwalkers traversing the sites, and were washed and analysed in the Archaeological Museum of Karditsa.



Fig. 37. Pottery from the Lykorema site, Vlochos. Photograph by the Archaeological Museum of Karditsa. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

of a near-circular earthwork enclosure, approximately 75 m in diameter, *c.* 500 m south-west of the former pastoralist settlement of Lykorema (5 in Fig. 1, 4 in Fig. 35 and Table 5, Fig. 36). The enclosure is of varying height, as agricultural practices have levelled its north-eastern edge somewhat to allow for access to its interior. Both the interior and the surrounding ground are used for the cultivation of cereals. The more well-preserved parts of the earthwork are overgrown with shrubs but appear to be at least 1.0–1.5 m in height.

The enclosure is located on a low spur extending from the Dovroutzi hills north-east of it and is thus on a slightly higher elevation than the flat fields surrounding it. It holds a good view of the whole valley of Agios Dimitrios to the south and the confluence of the Enipeas and Rogozinos rivers to the west. North of the site, at the former settlement of Lykorema, is a pass leading to the valley of the Pineios at Agios Taxiarchis Zarkou and to the highland plateau of Mesorrachi (formerly Ntouvlatan).

The surface pottery collected in the field immediately to the north and east of the earthwork is mainly Late Neolithic to Middle Bronze Age in date (Fig. 37). The Middle Neolithic is possibly represented by a sherd with scraped ware decoration, while the Late Neolithic by sherds belonging to the Larisa and Arapi types. Final Neolithic pottery of the Rachmani phase is also represented, but fragments of Early Bronze Age vessels dominate the collected sample. Some sherds of the early Middle Bronze Age were also found, as well as fragments of wheel-made storage vessels, possibly of the historical periods. The ceramic material suggests a long period of habitation at the site, but provides little information concerning to the function of the earthwork. Further study is needed to determine this, and the team plans to return to the site to conduct a topographi-

cal survey and geophysical prospection. Trial trenches were excavated by the Ephorate in the adjacent field north-west of the feature in the autumn of 2024 due to the construction of an agricultural installation, but these produced little or no archaeological material. This possibly indicates that human activity was limited to the area of the low spur where the feature is located.

MAGOULA KERAMARIA, VLOCHOS

The Magoula Keramaria (6 in Fig. 1, 5 in Fig. 35 and Table 5, Fig. 38) arguably constitutes the largest prehistoric site in the general area of Palamas. Aerial and satellite photography has revealed that the site is larger than previously thought, seemingly consisting of three mounded areas (Fig. 39). It is possible that these were joined in prehistory, and that the current situation has been caused by alluvial processes. At the north-east corner of the site is the moderately-sized *magoula* (*c.* 12,000 m²) which was excavated by the then Ephorate of Classical Antiquities of Larisa, and partially removed in 1976 (A in Fig. 39), yielding a Late Bronze Age settlement.³⁹ The largest *magoula* (*c.* 72,000 m²) is to the west of this. It is currently crescent-shaped, but prior to land reclamation works in the mid-20th century, it had a more irregular shape. Pottery collected in the cultivated parts of the *magoula* belong chronologically mainly to the Middle and Late Bronze Age, apart from a sherd that might date to the Early Bronze Age. Some ceramic material of the Byzantine period was also noted. A trench of unknown nature in the northern parts of the *magoula* (B in Fig. 39) contained fragments of black glaze

³⁹ Gallis 1976, 176.



Fig. 38 (above). Aerial photograph of Magoula Keramaria, Vlochos, looking south. In the background is the hill of Stroggylouvouni at Vlochos. Photograph by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.



Fig. 39 (left). Magoula Keramaria, Vlochos. Aerial photograph of 2023 (Google Earth). White dashed line indicates extent of mounded areas in the 1940s. Blue line indicates palaeochannels. A. Red stripes: area excavated in 1976. B. Red dashed line: non-archaeological excavation. C. Location of spring. D. Magoula discernible as soilmark. Plan by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

pottery, indicating Classical–Hellenistic activity at the site. A small spring is located immediately to the north of the *magoula* (C in Fig. 39), formerly feeding a stream that followed the general outline of the mounded area towards the west. In a field some 150 m south-east of the large *magoula* was until the 1950s a small *magoula* (c. 6,000 m², D in Fig. 38), which is now only visible as a soilmark. 500 m north of the three is yet a fourth *magoula* of small size (c. 300 m²); this has also been levelled and is now only visible in satellite photographs as a soilmark.

MAGOULA NEAR PAPARMA VRYSI, AGIOS DIMITRIOS

The low *magoula* (7 in Fig. 1, 1 in Fig. 35 and Table 5, Fig. 40) between the villages of Agios Dimitrios and Petrino, discovered and previously geophysically surveyed by the project,⁴⁰ was revisited in 2024. Much pottery litters the ploughed fields covering and surrounding the site, indicating a substantial settlement. A fragment of a psi-figurine had been noted at the

⁴⁰ Vaïopoulou 2022, 80.



Fig. 40 (above). The magoula at Paparma Vrysi, Agios Dimitrios, looking south-west. Photograph by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.



Fig. 41 (right). The magoula at the Sofaditis river, looking south. River embankment to the right. Photograph by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

site during the previous geophysical prospection, but most of the surface pottery collected in 2024 is distinctly of the Early, Middle and Late Neolithic periods. A few samples might possibly be of the Early–Middle Bronze Age. Pottery of the Early and Middle Bronze Age was also noted, again indicating a site with a very long history of habitation.

MAGOULA AT THE SOFADITIS RIVER, PALAMAS

Satellite photographs of 2015–2016 indicated a vague crop-mark at a location 2 km north of Palamas and 750 m south of the quarries of the Makryvouni ridge (8 in *Fig. 1*, 2 in *Fig. 35* and *Table 5*). A circular feature (*c.* 7,000 m², 95 m in diameter) can also be seen in aerial photographs of the 1940s, which prompted a visit to the site. Until the first half

of the 20th century the area lay between the Farsalitis and Sofaditis rivers, which had their confluence just north of the area. Land reclamation works prior to 1960, however, dramatically transformed the landscape with the construction of an artificial course for the Sofaditis, demarcated by two high embankments surrounded by two smaller irrigation canals. This complex of ditches and banks has cut right through the original *magoula*, leaving only parts of its eastern half intact. Prior to our visit, the *magoula* was not known to scholarship, as it is not visible at ground level (*Fig. 41*). The deep cut made for the irrigation canal, however, presents an abundance of pottery of the Middle Neolithic, and the Early to Middle Bronze Age. Until the 1960s the site was located on a narrow strip of land between the Sofaditis and Farsalitis rivers, close to their confluence in the north with

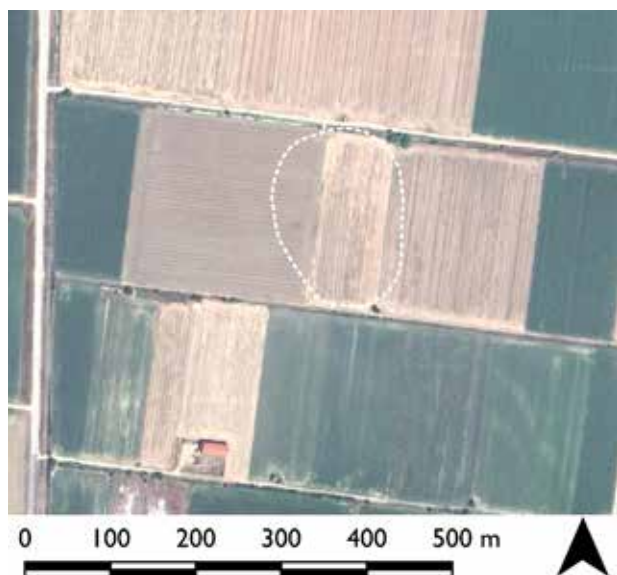


Fig. 42. Magoula at the Diavatia location (dashed white line marks extent of soilmark). Google Earth 2023. Plan by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

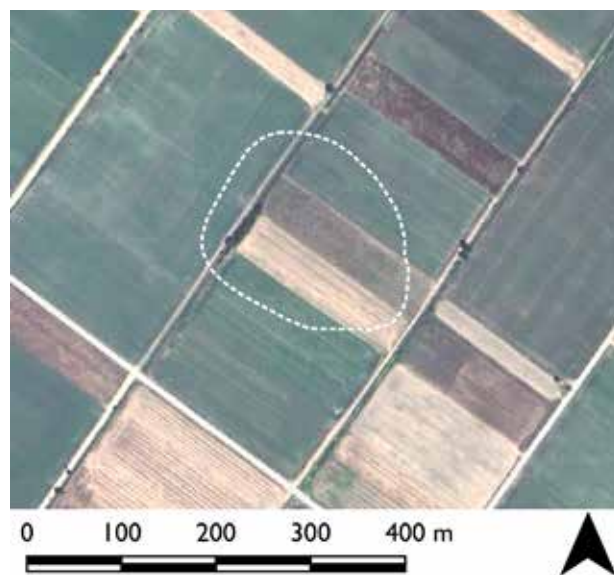


Fig. 43. Rousioti Magoula, Metamorfofi. Dashed white line marks extent of soilmark. Google Earth 2023. Plan by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.



Fig. 44. Pottery from Rousioti Magoula. Photograph by the Archaeological Museum of Karditsa. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

the Enipeas, and consequently at an important hydrological node in Western Thessaly.

MAGOULA AT THE DIAVATIA LOCATION, PALAMAS

Aerial photographs of the 1940s and a soilmark in present-day satellite imagery (Fig. 42) suggested a possible *magoula* at the site (c. 25,000 m²), which proved to be the case after the location was visited in 2024 (9 in Fig. 1, 3 in Fig. 35 and Table 5). The pottery on the surface suggests a broad chrono-

logical span at the site, with sherds of the Late Neolithic, Final Neolithic (?), Early Bronze Age and possibly Middle Bronze Age. Fragments of vessels of the historical periods were also identified. A piece of a figurine—possibly that of a Neolithic house model—and several flint fragments were also collected.

Prior to the mid-20th century land reclamation the site lay at the southern edge of a marshy area that covered much of the present-day fields between Palamas and Vlochos. Cropmarks show that the *magoula* was located at the left bank of an old

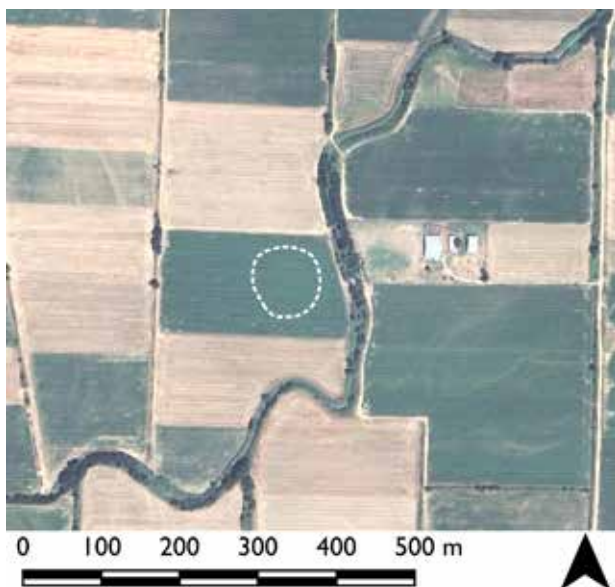


Fig. 45. Magoula at the Potamaki location (approximate extent marked with white dashed line), Palamas. Plan by R. Rönmlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

course of the Sofaditis river, which currently empties into the Enipeas some 1.5 km north-east of the site. When this was the case can at present not be ascertained, but judging from 19th-century maps, this situation must have predated the Modern period.

ROUSIOTI MAGOULA, METAMORFOSI

The *magoula* was unknown until the commencement of the project, when it was discovered as a soilmark in present-day satellite photographs, as well as a possible mound in aerial photographs of the 1940s. The Greek General Staff's map of 1909 shows the location to have been elevated above the surrounding marshy ground, but the site is at present completely levelled and situated in the cultivated fields between the villages of Metamorfosi and Vlochos (10 in Fig. 1, 7 in Fig. 35 and Table 5). The soilmark suggests a substantial size of the *magoula*, covering more than 30,000 m² (Fig. 43).

The pottery collected at the site (Fig. 44) is mainly of the Middle and Late Bronze Age, the former including vessels of Minyan ware. Late Helladic III ceramics (including a fragment of an animal figurine) are abundant. Limited historical-period pottery was also noted, and local informants have informed the team that bronze artefacts have been found here in the past.

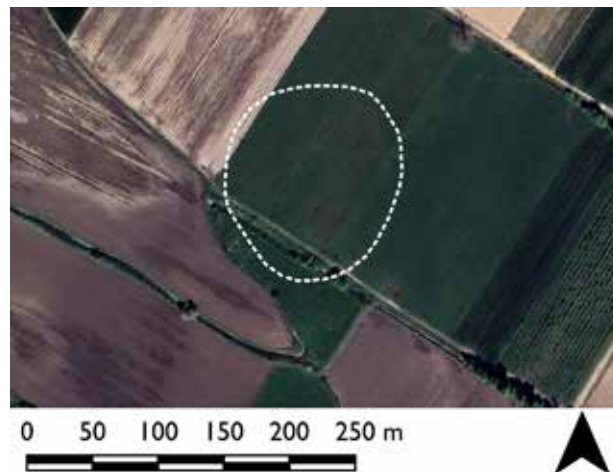


Fig. 46. Approximate original extent (dashed white line) of the Magoula Ntampasi/Ntafetsiou, Markos. Google Earth 2023. Plan by R. Rönmlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

MAGOULA AT THE POTAMAKI LOCATION, PALAMAS

Some 1.2 km south of Palamas and 1 km east of the village of Kalyvakia is the Potamaki location on the left bank of a small river which was previously a tributary of the Farsalitis, which it joins 2 km downstream. Satellite photographs show a distinct cropmark at the location (11 in Fig. 1, 39 in Fig. 35 and Table 5, Fig. 45), indicating a *magoula*. This is not visible at ground level, indicating that it has either been buried or levelled. Some limited surface pottery of the Middle Bronze age supports prehistoric habitation at the site, which was not known prior to the start of the *Palamas Archaeological Project*.

MAGOULA NTAMPASI/NTAFETSIU, MARKOS

Near the location marked Livadia ("the pastures") in the 1908 maps of the area, 1.6 km west of the village of Markos, is this low *magoula* (12 in Fig. 1, 21 in Fig. 35 and Table 5), partially truncated by a dirt track (Fig. 46). Prior to the mid-20th century land reclamations, and as can be seen in 1940s aerial photographs, the mounded area was bordered to the south and west by a small stream originating in the springs north of the village of nearby Gorgovites, and to the north-east and east by two small ponds. Further to the west was the large wetland of Makrychoriou, with several small lakes, now completely drained. The size of the *magoula* at this point was c. 1.5 hectare. The area is very rich in similar sites, with several *magoules* found within 2–3 km. The surface pottery is



Fig. 47. Northernmost magoula at the Daskalopoulos fields, Gorgovites and Mataragka, looking east. Photograph by F. Tsiouka. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

overwhelmingly Classical–Hellenistic in date, with much fine ware, but Neolithic sherds are also present.

THE DASKALOPOULOS FIELDS, GORGOVITES AND MATARAGKA

A complex series of cropmarks were noted in satellite photographs at a plateau-like area created by a bend in the small Rogozinos river (13 in *Fig. 1*). These included the distinct outlines of a *magoula* (29 in *Fig. 35* and *Table 5*) with several concentric ditches discernible to its north. The site of the *magoula* was visited in 2024 (*Fig. 47*), and an abundance of surface pottery was noted. Most of these were from undecorated vessels of the Classical–Hellenistic period, but a handful were of the Archaic and prehistoric periods. Some 600 m to its south (30 in *Fig. 35* and *Table 5*), in another field, is another low *magoula*. The field contains remarkable concentrations of tiles, indicating a substantial settlement. Among the surface finds were a fragment of an Archaic-period Corinthian-type roof tile, an abundance of Classical–Hellenistic to Early Roman tile fragments, and undecorated sherds of the Classical–Hellenistic period. Another *magoula* on the other bank of the river can also be discerned in the same satellite imagery (28 in *Fig. 35* and *Table 5*), indicating a possible larger complex of sites. To our knowledge, none of these sites were previously known in scholarship, and we aim to revisit them in the future to document them more closely.

GEOPHYSICAL PROSPECTION AT MAKRYA MAGOULA, PYRGOS KIERIOU

To acquire a set of comparanda for the geophysical results from the urban settlement at Stroggylovouni at Vlochos, the project planned to conduct a magnetometry survey at the ancient city of Kierion, at modern Pyrgos Kieriou.⁴¹ Due to most of the cultivated fields being inaccessible at the time of fieldwork, this could not be undertaken as planned, and a smaller survey of the adjacent hillock of Makrya Magoula (14 in *Fig. 1*) was conducted instead. Makrya Magoula is a small, ridge-like feature,⁴² situated 750 m west of the site of ancient Kierion, situated on the right (east) bank of river Rogozinos (*Fig. 48*).⁴³ It has since Christos Tsountas's time been identified with the site of Arna (Ionic Arne), the supposed home of the Boeotians prior to their mythical expulsion to Boeotia by the invading Thessalians. Even if the ancient Kierieans did claim a connection with Arna on their coinage, the identification with the site of Makrya Magoula remains to be verified.

The hillock is of a *trapeza* type (flat-topped), with its western summit artificially levelled into a 0.75-hectare plateau, some 150 m long and 60 m wide. Similar features are almost unknown in Western Thessaly; the *trapezes* at Chaïdemeni, Ekkara, Neo Monastiri and Chrysavgi are the only real exceptions. Richard Hope Simpson found Middle Helladic grey

⁴¹ For a summary of the many rescue excavations at the site, see Rönnlund 2023, 135–138.

⁴² 332354/4358416 (GGRS87).

⁴³ The site was first noted by Tsountas, who thought it to be of Bronze Age date based on its relation to the (historical period) acropolis of Kierion. However, this was soon disputed by Wace, who found tile and pottery of the historical periods on and below the hill. Tsountas 1908, 16–17; Wace 1909–1911, 34; Wace & Thompson 1912, 11.



Fig. 48. Aerial photograph of Makrya Magoula, looking north-east. Photograph by R. Rönnlund. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

Minyan ware and Late Helladic IIIB sherds on the hill, as well as 5th-century BC sherds.⁴⁴ Limited excavations were conducted in the southern parts of the hilltop by the Ephorate in 2013, revealing a section of a monumental wall surrounding the perimeter of the hillock, Late Helladic II pottery, as well as building remains.⁴⁵ One of the main power lines of the region crosses the site, with a large metal pylon placed on the northern slope of the hillock (as can be seen in Fig. 48). This created some issues both for the excavation and for the geophysical prospection.

Magnetometry was carried out on the hilltop using a Bartington 601-2 unit at a resolution of 1×0.25 m. Data were processed in TerraSurveyor using a de-stripe, interpolate and clipped to $5/-5$ nT. The results (Fig. 49) show a rectangular arrangement of anomalies around the outer perimeter of the survey area and a large, high-contrast rectangular structure in the centre. While the linear features correlate well with the resistivity (see below), the high-contrast structure seems to be slightly misaligned and perhaps represents a different phase of site use.

The earth resistance survey was conducted using two instruments, a Geoscan RM15 and an RM85, along the same grid system as the magnetometry at a resolution of 50×50 cm. The differences between the quality of the instruments

are visible in the data (Fig. 50), with the higher precision data of the RM85 in the west of the survey area with the lower quality data of the RM15 in the east. While this presents a slightly mismatched image, it is possible to see a continuation of features in both datasets.

There is a clear rectangular structure within the area of the survey that correlates with the features in the magnetometry. It appears that there are two large courtyard buildings represented in the data with an additional structure in the more central north-east area. The latter structure is considerably more visible in the magnetometry than in the resistance imagery, and perhaps it represents a later structure that does not have the same depth of foundations as the larger, courtyard building.

The existence of two large courtyard buildings at the site is significant in the light of previous discoveries at the hill. Vladimir Milojević, visiting the site in 1959, reported remains of an Ionic stoa and traces of a mosaic at the location.⁴⁶ An inscribed stone was found during Milojević's visit, which was published by Bruno Helly a few years later.⁴⁷ This contained two inscriptions of the 2nd and 1st centuries BC, reporting the repairs of a *bouleion*, to be set up in the sanctuary of Heracles.⁴⁸ What prompted Milojević's identification of an Ionic stoa, and the exact find-spot of the inscribed stone, remain un-

⁴⁴ Hope Simpson 1965, 161.

⁴⁵ Vaïopoulou 2013, 504; 2020, 166.

⁴⁶ Milojević 1960, 168.

⁴⁷ Helly 1971.

⁴⁸ *I.Thess* I 17A and 17B.



Fig. 49. Magnetometry plot at Makrya Magoula, superimposed on satellite photograph (Google Earth 2023). Plot by D. Pitman. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

known. At our visit to the hilltop, there were no visible traces of architecture telling of any monumental buildings or their architectural style. During the geophysical survey, however, we noted three regular-looking trenches on the hilltop which clearly had nothing to do with the Ephorate excavations. These trenches are visible in the 1960 NATO aerial photograph of the site (Fig. 51), and one of them appears from the colour of its surrounding spoil-heaps to have been fresh at the time. The latter trench creates a distinct anomaly in both the magnetometry and earth resistance plots (Figs 49, 50). There are no indications of visible surface architecture in the photograph. It is consequently possible that Milojević conducted some limited excavation at the site, discovering the aforementioned remains of monumental architecture.

It is at present impossible to arrive at any exact dates for the buildings discerned in the geophysical prospection, and the Late Bronze Age pottery found during the Ephorate excavations indicates that the site had been the focus of human activities long before the late Hellenistic period. The centrality of the location in the surrounding landscape must have made it an important spot in Western Thessaly throughout the ages, and further study is likely to reveal broad and changing use over a long time period.

Concluding remarks

The 2024 fieldwork again demonstrated the great archaeological wealth of the region of Palamas, with evidence for habita-

tion from all periods of history from the Neolithic onwards. The excavations at Stroggylovouni and Aspropetra produced stratified evidence that allowed the team to further improve the precision of the chronological schemes of the sites, and—even if limited in scope—the survey of the many *magoules* in the vicinity of Palamas opened up a new horizon for the understanding of the long-term habitation of the area.

The final year of the present permit (2025) will comprise more limited fieldwork, with most focus on completing the work at Stroggylovouni. The loss of context information for the finds of the 2023 season (caused by the flooding of the storeroom) will be mitigated by limited extensions of Trench 1 and 3 to acquire stratified material. The geophysical survey at Pyrgos Kieriou will, hopefully, be expanded to the area of the ancient city, providing important comparanda for the urban grid at Stroggylovouni. Apart from this, most work will be done in the storerooms with the finds retrieved since 2020, aiming at completing the recording work for the planned edited volume which will be the final publication of the *Palamas Archaeological Project*.

Beyond the archaeological scope, life in the area of Palamas continues despite the horrific difficulties facing the local population after the 2023 storms. The village of Metamorfosi, where the team worked, lived, and stored their finds, will be completely relocated to an area just south of the town of Palamas, ending habitation at a location settled since the Middle Ages. The fate of the village of Vlochos is at present still in the balance, as the inhabitants have yet to reach an agreement about what to do with their settlement. Both villages are ghost settlements at present, with only a few people living in the



Fig. 50. Earth resistance plot at Makrya Magoula, superimposed on satellite photograph (Google Earth 2023). Plot by D. Pitman. Courtesy of the Hellenic Ministry of Culture and the Ephorate of Antiquities of Karditsa.

water-damaged buildings. Ambitious flood-prevention measures are underway, but many embankments were found still in great disrepair during the 2025 fieldwork, highlighting the many challenges for the continuation of safe life in the area in this time of rapid climatic change.

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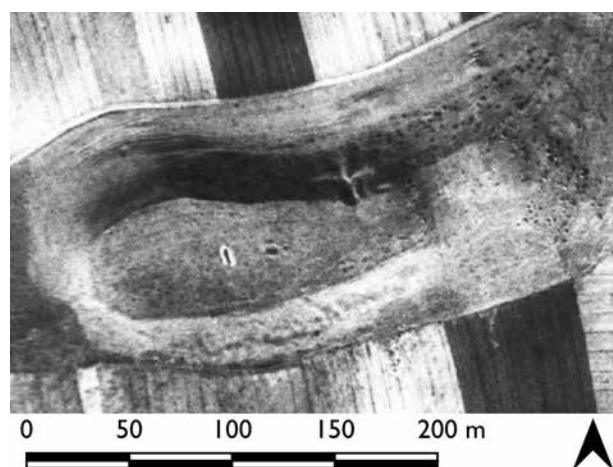


Fig. 51. Detail of 1960 NATO aerial photograph of Makrya Magoula. Courtesy of the Hellenic Military Geographical Service.

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