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The Palamas Archaeological Project 2023

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

Abstract

The 2023 fieldwork in the area of Palamas, Thessaly, was severely hampered by catastrophic weather events affecting the area. In spite of this, the project managed to conduct excavations, surface and architectural surveys, as well as geophysical prospection at a number of sites in the region. The work continues to highlight the chronological breadth of archaeological remains in the area, as well as further details regarding little-known periods of Thessalian history.*

Keywords: earth resistance, excavation, fieldwalk, fortifications, geophysical survey, magnetometry, Thessaly

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Introduction

The *Palamas Archaeological Project* (PAP) is an ongoing (2020–) collaboration between the Ephorate of Antiquities of Karditsa and the Swedish Institute at Athens aiming at documenting the archaeology of the municipal unit of Palamas in the region of Karditsa, Thessaly.[1] Building on the work of a previous collaboration—the *Vlochos Archaeological Project*, 2016–2018[2]—the project employs a wide array of archaeological field methods at several sites in the area, but mainly at the large settlement sites at Vlochos and Metamorfosi. Similarly to previous years,[3] this report presents the preliminary results of the 2023 fieldwork. It is our aim to publish the complete and final results as an edited volume after the completion of the project.

The 2023 fieldwork was to a very large extent affected by the ongoing climate change in the Mediterranean. Both field seasons, the first in May and the second in August–September, could not be executed as planned due to extreme weather phenomena. The geophysical prospection in the spring was hampered by daily torrential rains that continuously saturated the ground to the degree that the instruments failed to register

* 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 2023 season of archaeological fieldwork in Palamas. The Swedish Institute at Athens with its director Dr Jenny Wallensten and the staff Mrs Eleni Androvic and Mrs Katerina Gabierakis for their never-ending support. Messrs Aggelos and Petros Davatzikos of Markos and their families for—literally—saving the project and opening their homes for cold and wet team members. The inhabitants of Metamorfosi and especially Mrs Evangeli Rita-Kogia for their friendship, inspiring strength and incredible stamina. Schoolteachers Mr Georgios and Mrs Eleni Sakellariou of Palamas, for saving team members and equipment from rising flood-waters. Finally, the project would like to thank the financial backers Gösta och Susi Enboms donationsfond, Herbert och Karin Jacobssons stiftelse, Helge Ax:son Johnsons stiftelse and Magnus Bergvalls stiftelse.

[1] PAP is directed by Maria Vaïopoulou (Ephorate of Antiquities of Karditsa) and Robin Rönnlund (Swedish Institute at Athens). The excavations at the archaeological site of Vlochos were directed by Johan Klange and Fotini Tsiouka with participating archaeologists and students (in alphabetical order) Tiger Huffinley, Stelios Ieremias, Danai Kalogerini-Samouri, Anna Plexida, Robin Rönnlund, Elisabet Schager, George Seager and Hilde van der Heul. The survey on Kourtikiano Vouno was directed by Ian Randall with participating archaeologists and students Maria Averkiou, Tiger Huffinley, Filip Johnston, Johan Klange, George Seager, Ellen Siljedahl, and Lewis Webb. The survey of the site at Agios Dimitrios was conducted by Johan Klange assisted by Ellen Siljedahl. The geophysical and topographical prospection at Chomatokastro site at Mataragka was directed by Derek Pitman and Rich Potter with participating archaeologists and students Sarah Elliott, Danai Kalogerini-Samouri, Johan Klange, Harry Manley, Robin Rönnlund, Ellen Siljedahl and Fotini Tsiouka.

[2] Vaïopoulou *et al*. 2020.

[3] Vaïopoulou *et al*. 2021; 2022; 2023.

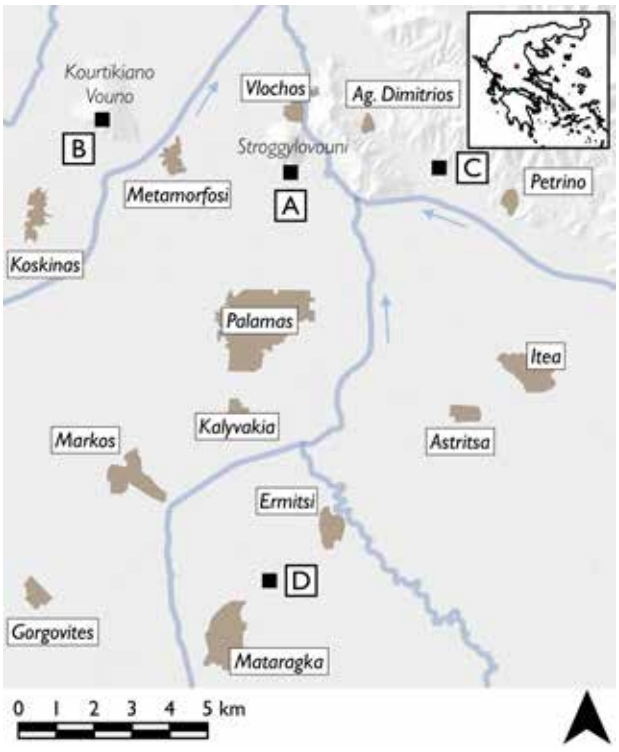

Fig. 1. The area of Palamas with surrounding villages and the sites excavated or surveyed. A: The Patoma area at Stroggylovouni, Vlochos. B: The summit of the Kourtikiano Vouno at Metamorfosi. C: The site at Agios Dimitrios. D: The Chomatokastro at Mataragka. Map by Robin Rönnlund.

clear results. At the same time, the many weeks of rain had made the vegetation lush and strong, making it unusually hard for the parallel architectural survey to discern remains in the ground surface.

However, the difficulties in the spring were negligible compared to what was to happen in the late summer. The smoke from the enormous wildfires in Thrace in late August turned the sun red and put a dark blanket over the skies of Thessaly. The gloomy, almost overcast weather acted as a prelude to Storm Daniel which drew in over the Balkans on 5 September, drenching Western Thessaly in several hundred millimetres of rain overnight. As the rivers Italikos, Enipeas and Sofaditis burst their embankments, the villages of Vlochos and Metamorfosi and a large part of the town of Palamas were flooded under several metres of water, causing massive destruction and at least 15 deaths. Several members of the team were housed in Metamorfosi and had to be evacuated at the last minute on tractors to nearby Markos, while others staying in Palamas had to flee to the second floor of neighbouring houses to escape the flood. The archaeological site of Vlochos came partially under water, the trenches filling with mud and debris. The Ephorate storerooms were located in the old school of Metamorfosi, which was under five metres of water for several days. All the excavation and survey finds of the project were stored in the building, and the flood caused extensive damage to both finds and their storage.

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

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

The hardships of the team were relatively small compared to the subsequent plight of the inhabitants of the municipality of Palamas. Just a couple of weeks after the first storm, a second, Storm Elias, struck Thessaly, putting both Vlochos and Metamofosi under water for a second time. Apart from the tragic deaths, there was also the loss of homes, vehicles and property, the drowning of hundreds of thousands of sheep and pigs, poisoning of the groundwater, and a ruined harvest. The catastrophe naturally went beyond Palamas. Both the western and eastern plains of Thessaly were drowned by the floods, the city of Volos came under water, and several villages of the Pilio peninsula nearly washed away. The events in Greece were little reported outside the country. The continued route of the Storm Daniel southwards also caused extreme damage and thousands of deaths in Libya.

Due to these circumstances, this report will not be as extensive as originally planned. In particular the excavation section lacks closer stratigraphic and ceramic details as the finds are currently unavailable. The recorded material, however, still provides important evidence, and we hope to be able to give a more detailed presentation of the results in the final publication of the work of PAP.

Excavations at Vlochos

As part of the 2023 campaign, targeted excavations were conducted at two locations within the Patoma area at Stroggylovouni, Vlochos (*Figs 1:A*, *2*).[4] The first was the continuation and completion of the excavation of Trench 1 that was started

[4] The excavations were conducted using an adapted single-context methodology. Archaeological strata were divided into contexts representing the physical remains of single events, such as the construction 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 stratigraphic relationships. Groups of contexts were further created 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.

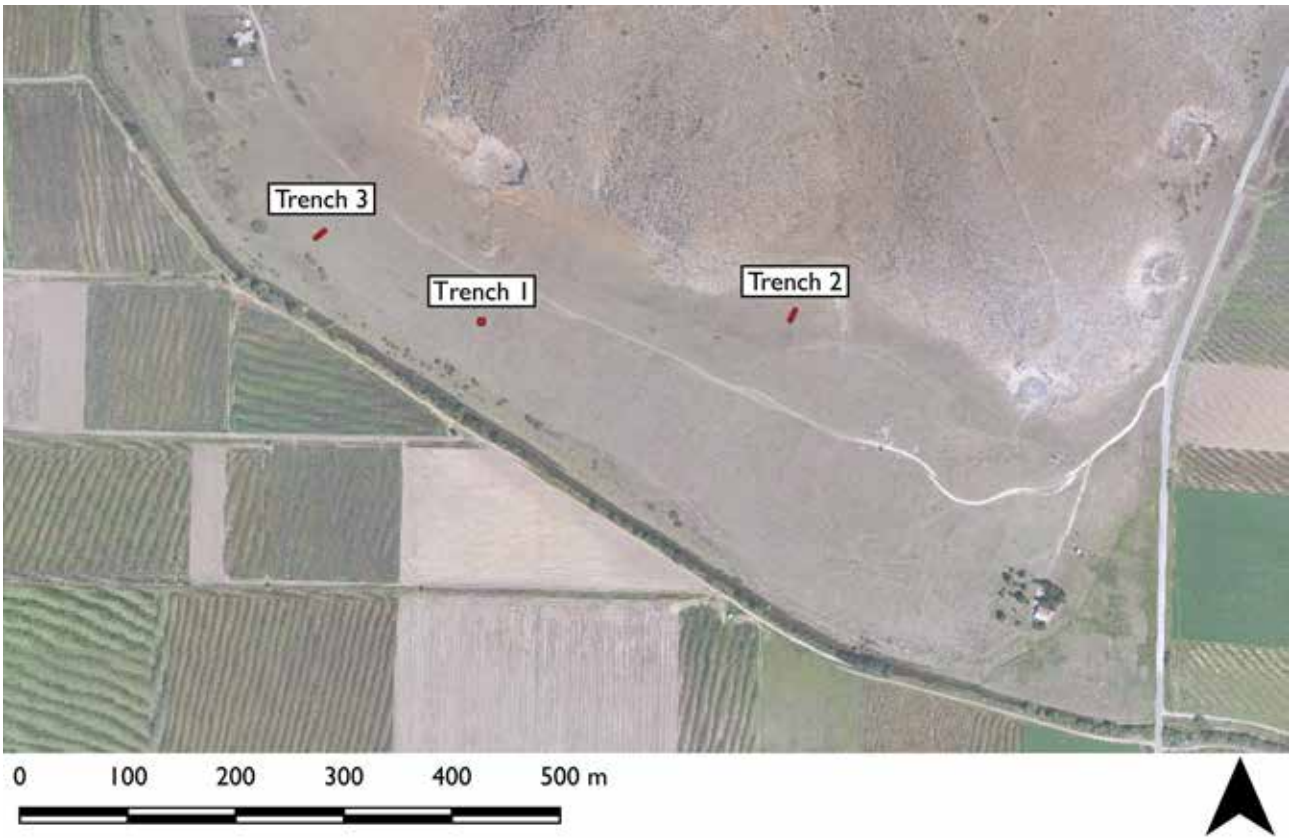

Fig. 2. Locations of the trenches excavated in 2021–2023 in the Patoma area, Vlochos. Map and aerial photomosaic by Robin Rönnlund and Derek Pitman.

during the 2021 campaign.[5] The excavation aimed to finish investigations of the last use of **Building 2** during the Hellenistic period as well as to clarify the stratigraphic sequence of the original construction of **Building 1** at the end of the Late Roman period.[6]

The second location to be targeted was situated in the south-western part of the Patoma area, where a 12.5 × 2 m trench (Trench 3) was positioned to run across a stoa-like structure that had been indicated in the geophysical, aerial, as well as the architectural surveys of the site.[7] Due to the extreme weather event that occurred during the third week of the campaign, and the subsequent evacuation of the team, only the goal for Trench 1 was reached. The excavation in Trench 3 only reached the very top of archaeological deposits below the topsoil and will thus not be discussed further in the present article. The excavation in Trench 3 did however uncover the top of the architectural remains of the stoa-like feature, showing that the topsoil contained finds dating to Phases 2–5 of the main chronological scheme (*Table 1*), as well as single pieces of Medieval pottery.[8]

TRENCH 1

The 2023 excavations of Trench 1 were conducted within the Eastern Room of **Building 1** and in the area outside of the same building where the excavations had reached stratigraphically lower destruction deposits belonging to **Building 2**.[9]

Excavations of previous years had shown **Building 1** to be a small rectangular structure with two rooms, referred to as the Western Room and the Eastern Room, with the latter constituting the original 6th-century AD construction of the building, whilst the former constituted an 8th-century extension.[10] The excavations in 2022 provided further evidence for **Building 2**, consisting of a part of a floor surface on top of which a collapsed roof covered a destruction deposit, representing the final use of this building in the 2nd century BC.

[5] Vaïopoulou *et al*. 2022, 78–84.
[6] Vaïopoulou *et al*. 2023, 68–73.
[7] Vaïopoulou *et al*. 2023, 64–65.
[8] Vaïopoulou *et al*. 2023, 62.
[9] Vaïopoulou *et al*. 2023, 70–73.
[10] Vaïopoulou *et al*. 2022, 80–83.

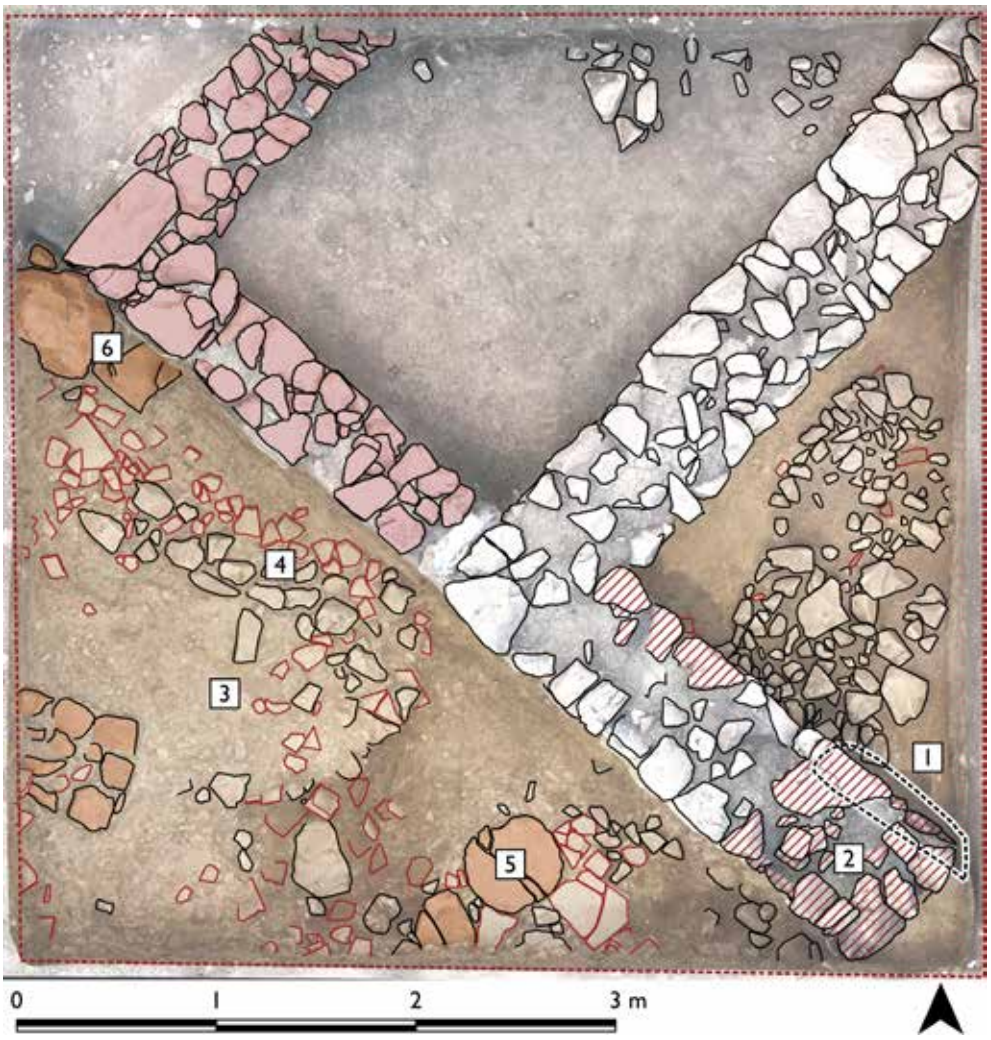

Fig. 3. Composite aerial photogram (generated from SFM) of Trench 1 in 2023 with superimposed digital drawing. Orange: Structural stones belonging to ***Building 2****. Red stripes: Repairs and reconfigurations of Eastern Room of* ***Building 1****. Pink: Extension of* ***Building 1****. Black outlines represent stone and red represent tile. 1:* ***Grave 4****. 2: Extension/repair of wall in* ***Building 1****. 3: Probable courtyard surface of* ***Building 2****. 4: Foundation deposit of probable courtyard surface of* ***Building 2****. 5: Possible base of wooden column of* ***Building 2****. 6: Remains of wall of* ***Building 2****. Photogram by Rich Potter and Robin Rönnlund. Drawing by Robin Rönnlund.*

The excavations also revealed a linear deposit of stones inside the Eastern Room of **Building 1**. The deposit was interpreted as a possible robbed-out wall belonging to **Building 2** that had been removed either in the Late Roman or Early Byzantine period.[11]

The resumed excavation of Trench 1 in 2023 (*Fig. 3*) concluded the investigation of the last use of **Building 2**. The excavations further provided a stratigraphic lock for the start of the reuse of **Building 1** in the 7th century AD. The lock consisted of a grave (**Grave 4**) that had been dug into the Eastern Room after its abandonment but before the reuse of the structure as a building with the construction of the Western Room (*Fig. 3:1*). The excavations further showed that the reuse of the building also included repairs and reconfigurations of the southern wall of the Eastern Room that had not been previously recorded. A stratigraphic lock could however not be reached for the construction of **Building 1** (*Table 2*).

Beginning with the youngest archaeological strata excavated in 2023, the removal of the linear stone deposit in the Eastern Room showed that it consisted of two separate levels of stones. The lower of these constitutes a backfill of stones that continues under the southern wall of the Eastern Room and likely represents a robbed-out wall. However, the excavation showed that the upper level of stones was of a younger date and that these were connected to a reconfiguration of **Building 1**, that constituted a repair and extension of the southern wall of the Eastern Room to create a new doorway (Group 6, *Table 2* and *Fig. 3:2*). The reconfiguration was likely done at the same time as the Western Room was added to **Building 1**, but it is possible that the reconfiguration of the Eastern Room happened some time before the extension of the building with the Western Room. The upper deposit of stones was stacked up against the southern wall and likely formed a hardened

[11] Vaïopoulou *et al*. 2023, 72.

Table 2. Stratigraphic sequence of Trench 1, Patoma, Vlochos.

Group no.	Description of group	Vlochos phase	Contexts (no.) associated with group	Chronological span of finds from contexts in group
1	Topsoil affected by modern activities.	Modern land use.	1001.	Classical/Hellenistic, Late Roman, Modern.
2	Topsoil reflecting Medieval and Early Modern land use.	Post-Antique land use.	1002.	Classical/Hellenistic, Late Roman, Late Byzantine, Early Modern.
3	Disuse and backfill of **Building 1**.	Phase 5.	1003–1006, 1009–1010, 1014.	Classical/Hellenistic, Late Roman, Early Byzantine.
4	Last use of **Building 1**.	Phase 5.	1007, 1016.	Classical/Hellenistic, Early Byzantine.
5	Construction of the Western Room of **Building 1** including floor levels and hardened outside surfaces.	Phase 5.	1008, 1011–1013, 1017–1020, 1030.	Classical/Hellenistic, Roman, Late Roman.
6	Repair of the southern wall of the Eastern Room in **Building 1** and the extension of said wall to create a new doorway.	Phase 5.	1022, 1026, 1047, 1059–1060.	–
7	**Grave 4**.	Phase 5.	1048–1049, 1053.	Early Byzantine.
8	Ground level or levelling deposit on top of which the Western Room in **Building 1** was constructed.	Phase 4.	1015, 1021.	Classical/Hellenistic, Roman, Late Roman, Early Byzantine.
9	Destruction level connected to the Eastern Room of **Building 1**.	Phase 4.	1025, 1028, 1050–1051.	Classical/Hellenistic, Roman, Late Roman (first half of 6th century AD).
10	Use of structures connected to the Eastern Room of **Building 1**.	Phase 4.	1027, 1032.	[Finds to be analysed].
11	Construction of the Eastern Room of **Building 1** including postholes on the outside of the building.	Phase 4.	1023–1024, 1031, 1033.	–
12	Backfill (?) of stones from robbed-out wall.	Phase 3 or Phase 4 (?).	1054.	[Finds to be analysed].
13	Destruction of **Building 2**.	Phase 2.	1034–1036, 1038, 1040.	Geometric, Classical/Hellenistic.
14	Last use of **Building 2**.	Phase 2.	1037, 1044–1046, 1052.	Classical/Hellenistic (2nd century BC).
15	Construction of **Building 2**.	Phase 2.	1029, 1039, 1041–1042, 1055–1058.	–

surface along the southern wall at the level of the floor surface of the Eastern Room, which possibly could have been used to support a structural element such as a wooden beam (*Fig. 4*). The masonry connected to the repair and the extension of the southern wall of the Eastern Room was done in a similar style to that of the original construction of **Building 1**, but it can be distinguished better in comparison with the inside faces of the walls in the Eastern Room (*Fig. 5*). Whereas the bottom course of the repaired or extended walls on the southern side of the room are slanted inwards (indicating that these have been placed against the side of a foundation trench with slightly inwards-slanting sides), the bottom course of the original wall is straight *Fig. 5:A*). This is also the case on the western side of the same room, where there are no visible repairs (*Fig. 5:B*).

A burial (**Grave 4**) was discovered stratigraphically below the extension of the southern wall of the Eastern Room (Group 7 in *Table 2*, *Figs 3:1*, *5:1*, *6*). The grave was cut into the lower and older level of the linear stone deposit and was covered by a levelling deposit connected to the extension of the southern wall of the Eastern Room. This shows that **Grave 4** was dug into **Building 1** before its reconfiguration, and that the extension of the doorway thus came to cover the grave at a later point. **Grave 4** consisted of an inhumation burial in a roughly oval pit. The preserved skeleton was approximately 0.72 m tall, thus likely that of an infant. The body was positioned in an extended supine position with the head to the north-west and feet to the south-east following the general orientation of **Building 1**. The skeletal remains were closely arranged with the left arm positioned on top of the pelvis area and the right arm positioned over the chest. Grave goods were present in the grave and consisted of two simple looped bronze earrings, one found on either side of the skull. Over the chest area a scatter of small beads was discovered. These were made of what appeared to be glass, but in addition to these, perforated shells of small land-snails were also found at the

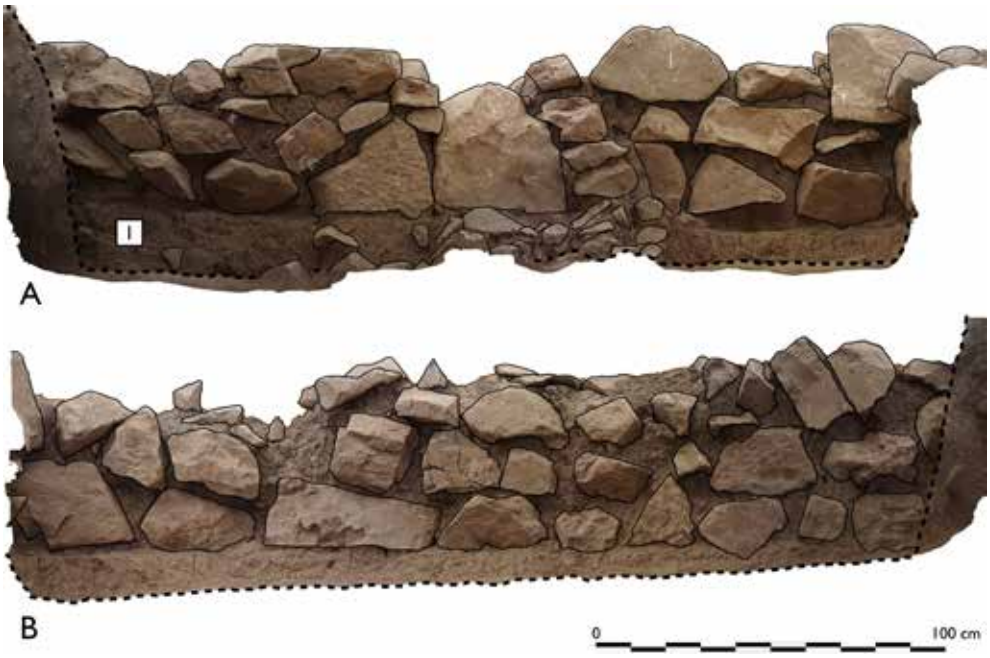

*Fig. 5. Orthographic photograms (SFM) of wall sections in Trench 1 with superimposed digital drawing. A: Inner southern wall of Eastern Room in **Building 1**. B: Inner western wall of Eastern Room in **Building 1**. 1: Location of skeleton burial (**Grave 4**). Black dashed line represents maximum excavated level. Photogram and drawing by Rich Potter and Robin Rönnlund.*

*Fig. 4. Eastern Room of **Building 1** looking towards south. **Grave 4** at top left corner of image, near the wall. Photograph by Robin Rönnlund.*

*Fig. 6. Skeleton of infant in **Grave 4** during excavation. Toward south. Photograph by Robin Rönnlund.*

same location, possibly also functioning as beads in a necklace across the chest. Finally, a complete urn was found positioned on the right side of the feet of the buried individual (*Fig. 7*). The skeletal remains will undergo osteological analysis (to be presented in a later publication). Due to the stratigraphic evidence, as well as the grave goods in **Grave 4**, it is likely that the grave should be dated to the Early Byzantine period (after the last use of the original Eastern Room in the 6th century AD and before the last use of **Building 1** in the 8th century AD).

Outside **Building 1**, excavation of destruction deposits connected to the last use of **Building 2** (Group 14 in *Table 2*) was also resumed. The deposits were closed contexts as they

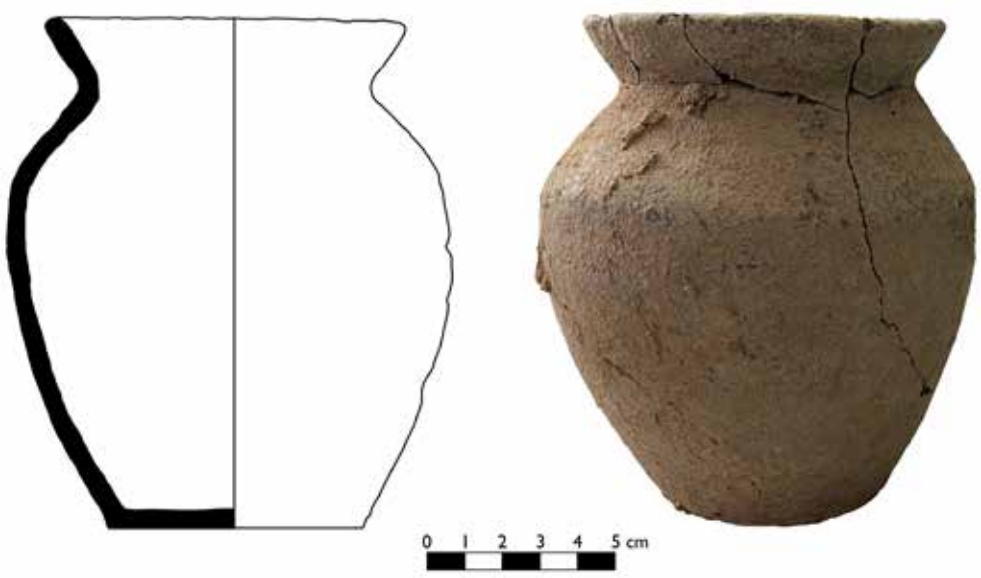

Fig. 7. Hand-made vessel found in in ***Grave 4****, Eastern Room,* ***Building 1****. Left: Profile drawing (inside below neck conjectural). Right: Photograph of vessel in state as found. Drawing and photograph by Robin Rönnlund.*

were covered by a collapsed roof.[12] The pottery found in the deposits is consequently representative for the types of vessels used in the excavated area of **Building 2**, as well as for the ceramic assemblage connected to said building in general. Below the destruction deposits, the excavation further uncovered the structural remains of **Building 2** during its final phase of construction (Group 15 in *Table 2*). The floor surface with a slightly elevated rectangular foundation that was uncovered in 2022 (*Fig. 3:3*),[13] was after further investigation interpreted as a part of a courtyard. The excavation showed that the courtyard surface had been constructed by first placing a frame of reused roof tiles on top of which a surface was created using rammed earth with small stones, pottery sherds and broken roof tiles (*Fig. 3:4*). A possible base for a wooden column was found in the eastern side of the courtyard (*Fig. 3:5*). This was connected to a line of stones to its south that could have served as an opening into a room to the east of the courtyard. Finally, the excavation revealed fragmentary remains of an internal wall of **Building 2** which ran along the northern side of the courtyard (*Fig. 3:6*).

Magnetometry and earth resistance survey of the Patoma area, Vlochos

Based on the success of the 2022 earth resistance survey,[14] an additional survey season was planned for May 2023, aiming for the extension of the 2022 survey area in the Patoma area as well as to include features that were planned for excavation later in the year (*Fig. 8*). The instruments used were the same as in the previous season; a Geoscan RM85, using a three-probe set-up, capturing two parallel transects with a resolution of 50 cm. Additionally, some of the features outside the initial survey area (including that of the previous magnetometry survey[15]) which were discovered by aerial survey were also to be included.[16]

The ground in the area, however, was extremely saturated with water from unusually high levels of precipitation in the weeks prior to the survey, which led to the results being substandard and not comparable to those which were achieved in 2022, when the soil was just on the threshold of being too dry for resistance survey, but quite similar to those of 2021, when we experienced similar weather conditions as in 2023.[17] To add to the issues, the two-week season suffered from daily rainstorms, often occurring in the late afternoon. This meant that the soil never dried to the level that allowed the resistivity

[12] Vaïopoulou *et al*. 2023, 72.
[13] Vaïopoulou *et al*. 2023, 73.
[14] Vaïopoulou *et al*. 2022, 84–86.
[15] Vaïopoulou *et al*. 2020, 16–18.
[16] Potter *et al*. 2023, 8.
[17] Vaïopoulou *et al*. 2022, 84–86.

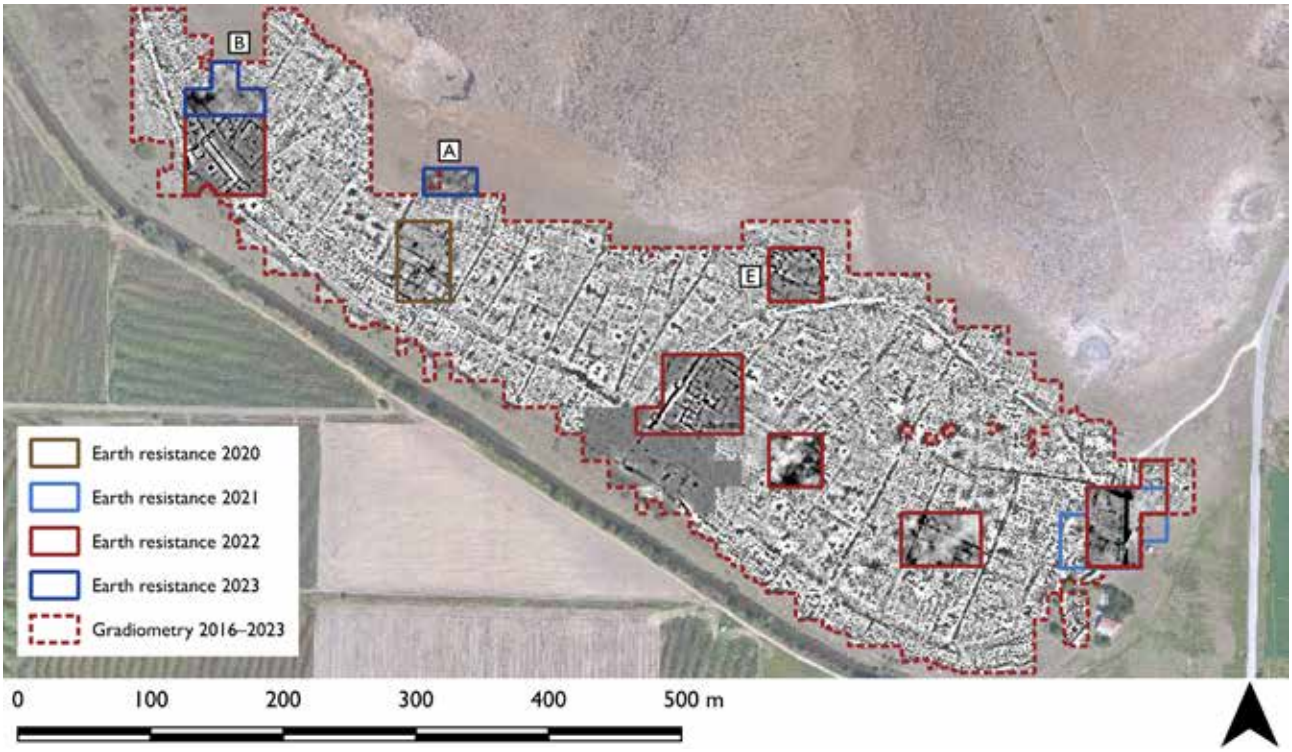

Fig. 8. The 2016–2023 geophysics results in the area of Patoma, Vlochos. Plot by Derek Pitman and Robin Rönnlund.

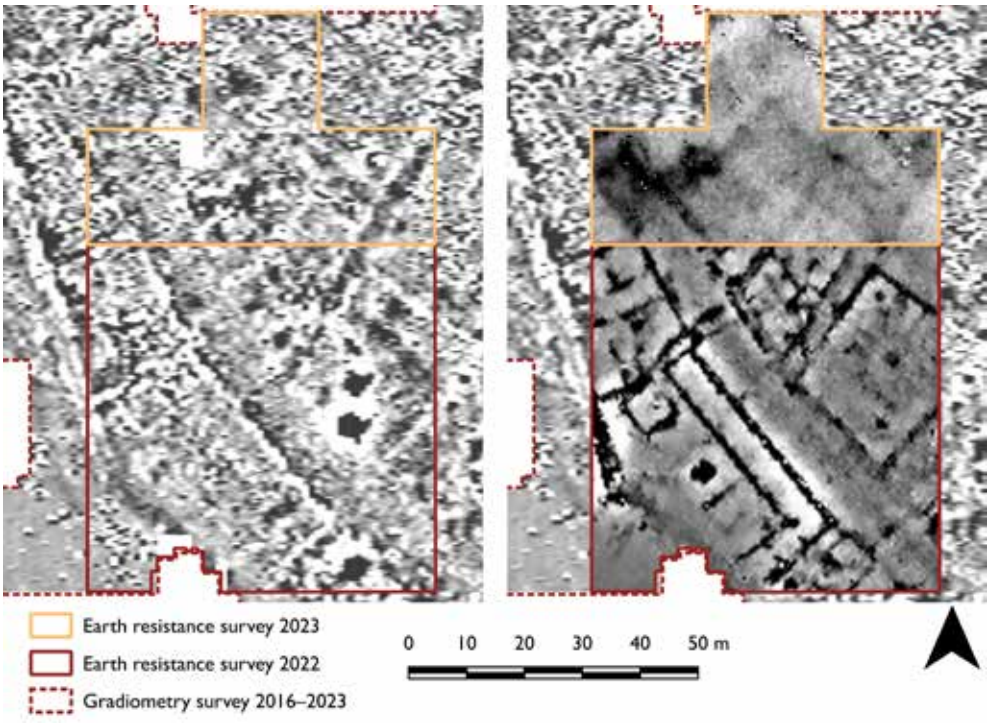

Fig. 9. Gradiometry survey (left, high magnetism = black, low magnetism = white) and earth resistance survey superimposed on gradiometry survey results (right). Area corresponding to B in Fig. 8. *Plot by Derek Pitman.*

Fig. 10. Aerial view of the Kourtikiano Vouno, seen from the south-east. Photograph by Robin Rönnlund.

survey to be effective, and eventually led to much flooding of fields in the vicinity of Vlochos. Throughout the multiple seasons on this site, it has become apparent that the earth resistivity survey has a narrow "moisture window" to work within. It is clear that the method essentially only produces good results in the period immediately before the soil dries up completely in the early summer, but after the wet winter season. The poor results of the 2023 work suggests that the clay soils in the Patoma area hold water well, leading to resistance variability only occurring in the final weeks of soil drying.

The low soil resistance variability was especially apparent in the smaller area surveyed (*Fig. 8:A*), where no details of possible buried architecture could be noted. Limited magnetometry survey (gradiometry) was conducted in the same area to establish that the results were not caused by the lack of buried architecture. The magnetometry, however, yielded similar readings as elsewhere on the site, indicating that the poor results of the earth resistance survey were indeed caused by high levels of moisture in the ground. In an area further to the west (*Fig. 8:B*), the earth resistance survey functioned slightly better, and the outline of structures can just about be discerned, but as can be seen in *Fig. 9*, the results are hardly comparable with those of the previous year.

Surface survey at Metamorfosi

In 2023, the fieldwalking survey of ceramic surface material atop Kourtikiano Vouno (*Figs 1:B*, *10*) was resumed from the previous year.[18] As can be seen in *Fig. 11*, only a small portion of the intramural area (in the east) was left unfinished at the arrival of Storm Daniel and the subsequent termination of the season. The fieldwalking survey begun in 2022 encompassed the fortified area of the hilltop, bounded on the gradual slope to the north and east by the Archaic–Classical walls, and to the south and west by steep, largely impassable terrain. This area was laid out, as in the previous year, in a grid of 10 × 10 m squares using a GNSS-NRTK unit, encompassing some 2.82 hectares. A single team of three fieldwalkers, spaced 2.5 m apart, moved across each grid unit from west to east, collecting all sherds and tile fragments observed, as well as any other extraneous archaeological surface finds.[19] With collection taking place within a 5-m-wide transect for each walker, total coverage was achieved with overlapping observations. This methodology mirrored that of the previous year.

[18] Vaïopoulou *et al*. 2023, 78–79.

[19] Fossey 1986, 43–63; Gregory & Kardulas 1990, 470–472; Fachard *et al.* 2020, 482–489.

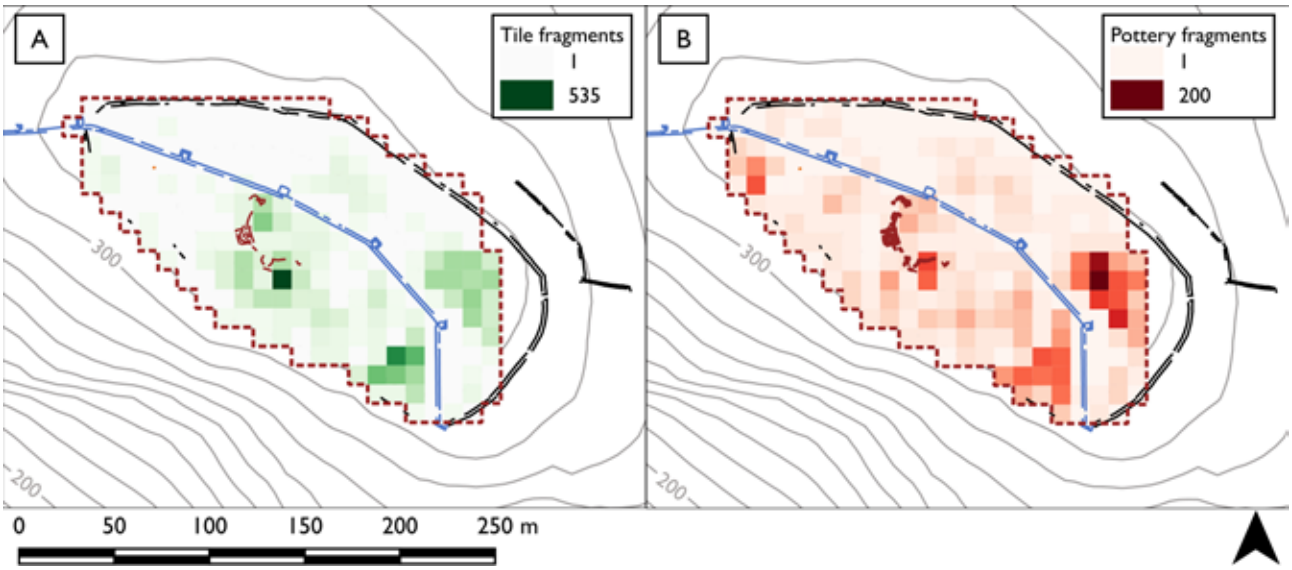

Fig. 11. The surface material survey results of the 2022–2023 seasons on Kourtikiano Vouno with maximum-minumum find density keys per 10 × 10 m grid. Black: Late Archaic–early Classical fortifications. Red: Hellenistic fortifications. Blue: Early Byzantine fortifications. Dashed red line indicates present extent of surveyed area. Plans by Robin Rönnlund.

Diagnostic ceramic material was kept and brought to the Ephorate storeroom for further analysis, while non-diagnostic ceramic finds were recorded and left in their grid square.

The terrain of the hilltop is characterized by bare bedrock, moderate to large boulders interspersed with grass, large bushes and the occasional olive and Christ's-thorn trees (*Paliurus spina-christi)*. Unlike in the previous year, when grass was kept under control by frequent caprid grazing, this year the animals in question were noted only once, and the grass was often extremely dense, in some cases up to a metre in height. The reason for the change in shepherding practices at the site was not immediately apparent. The 2023 surface survey began roughly halfway across the intramural area and extended in an easterly direction. While surface visibility in the south-eastern quadrant of the intramural area was occasionally quite good, with bare soil visible between boulders and bedrock, the north-eastern quadrant was heavily overgrown, with surface visibility in many squares reduced to zero. An exception to this pattern was afforded by occasional instances of bioturbation; all conditions of surface visibility were, as in the previous year, noted in the survey unit forms and associated GIS metadata.

Unfortunately, due to the arrival of Storm Daniel and the inundation of the Ephorate storeroom, the surface survey was unable to be completed and the diagnostic material from this season was left largely unexamined at the time of the team's evacuation. It is unclear if or when these ceramics will be available for analysis in the future. However, general patterns were apparent in the collected material and in the overall pattern of distribution (*Fig. 11*). The crest of the hill roughly follows that of the Early Byzantine fortifications, marked in blue. The large concentration inside this fortification, to the south and just inside the turn of the fortification in that direction, represents the catchment of a large, steep defile. The extremely heavy concentration outside the Early Byzantine fortification, however, to the north and east, is located on gradually sloping ground and was apparent even through heavy vegetation. Moreover, while ceramic material could be roughly dated form the Archaic through to Late Roman periods, the vast majority were Hellenistic in date, including a relatively large amount of black-glaze pottery. This area then would appear to be the possible nucleus of settlement on the hilltop during this period. In addition to large quantities of tile, amphorae and black-glaze fine ware, a ceramic bobbin, slag and part of a figurine speak to household production, industrial activity and possible traces of the religious life of the settlement. With luck, some of the diagnostic material will have survived in the flooded storeroom, and in future the PAP team will be able to return and complete the analysis of this material and the few remaining square units of the surface survey.

Architectural survey at Agios Dimitrios

Parallel to the geophysical survey of May 2023, an architectural survey was conducted at a small hill (*Fig. 1:C*) between the villages of Agios Dimitrios and Petrino, some 1.5 km south-east of the former village. Architectural remains had first been noticed here during an initial assessment of a *magoula* site be-

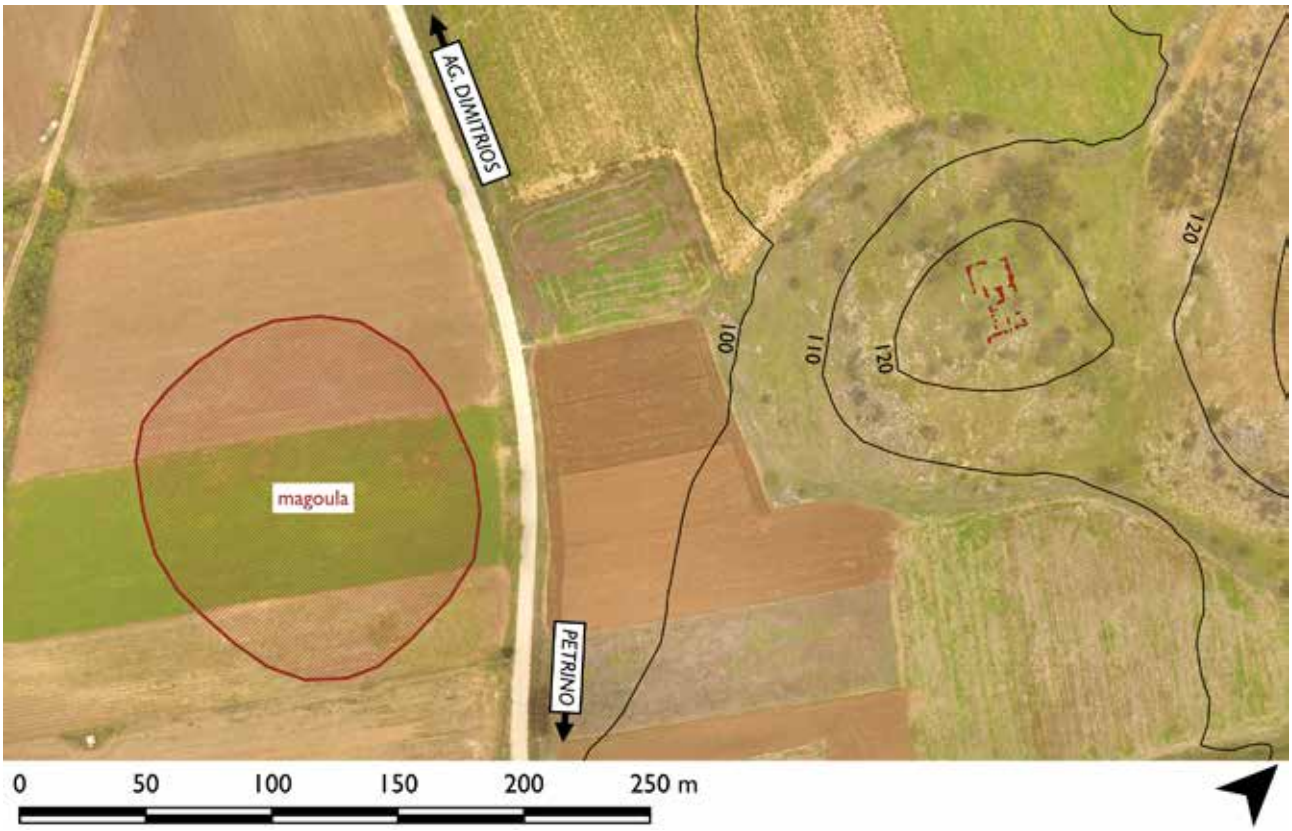

Fig. 12. Area map of the Agios Dimitrios site. The possible agricultural complex is marked in red on the hilltop to the right. Aerial photograph by Derek Pitman. Map by Johan Klange and Robin Rönnlund.

low the hill in 2021, and during the following year the two sites were visited again by the aerial survey team (*Fig. 12*).[20] To our knowledge, there are no previous published references to the site, although Jean-Claude Decourt noted a tower-like structure of considerable size south-east of the spring of Paparmas, 1 km to the west of the hill.[21]

The aim of the survey was to map and draw structures on and around the small hill in order to assess the extent and date of the architectural remains. Structures were recorded digitally with a GNSS-NRTK unit, with descriptions and photographs collected in parallel. The resulting plan (*Fig. 13*) shows that the site likely constitutes the remains of an ancient farmstead located on the flat summit of the hill.

The surveyed hill is situated on the lower part of the south-western slope of the Mavrokotrona ridge, which extends in an east–west direction from the hills north of Petrino up to the village of Agios Dimitrios. The top of the hill is relatively flat and sits 20 m above the plain, with a good view of the Western Thessalian plain to the south-west. The site is located by an Early Modern route connecting the area of Farsala with that of Trikala,[22] still in use in the form of the asphalt Petrino–Agios Dimitrios road. Today, the area below the hill mainly consists of cultivated land, with cotton grown in the lower fields and wheat in the upper. Prior to the mid-20th century, however, the site and the area towards Agios Dimitrios constituted a small pocket of cultivated land on the edge of what was a large marsh (*valtos*) stretching south across the (now drained) Ofios river and the village of Ilias. The position of the site in the landscape, with access to both arable land and marshland pastures suggests that it was a suitable location for farming and animal husbandry, which is further supported by the presence of a prehistoric *magoula* at the site.[23]

[20] Vaïopoulou *et al.* 2023, 80.

[21] Decourt 1990, 101. As noted in a previous report, the team has failed to find any ancient remains at the Paparmas spring, see Vaïopoulou *et al.* 2023, 80 n. 49.

[22] W. Martin Leake used this route going from Vlochos to Petrino in 1803, see Martin Leake 1835, 319; Vaïopoulou *et al.* 2020, 12.

[23] Vaïopoulou *et al.* 2023, 80.

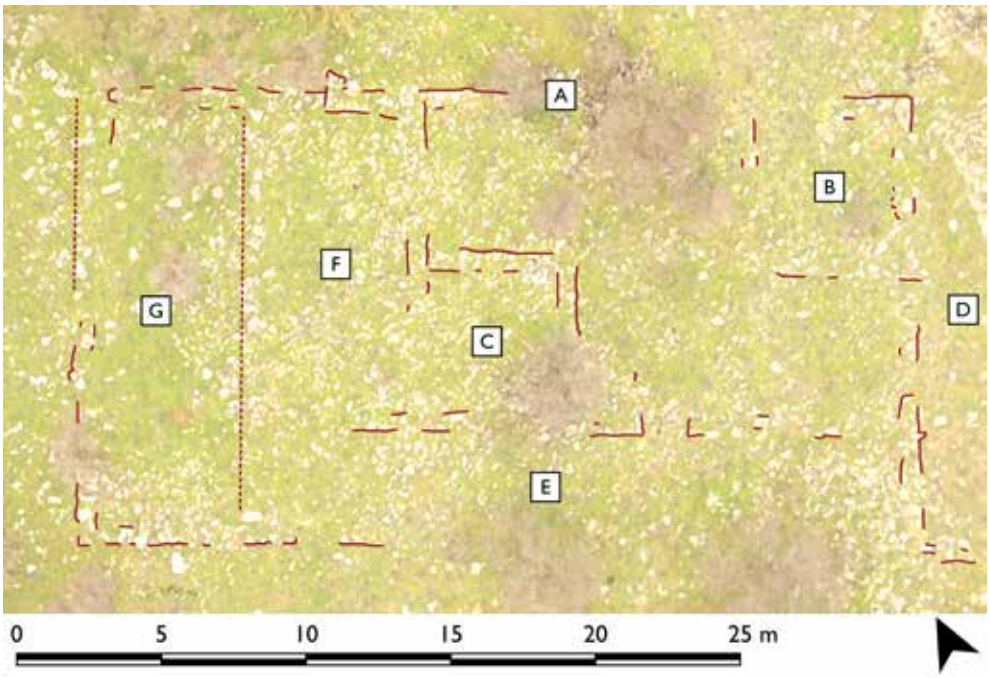

Fig. 13. Plan of the remains on the hill at Agios Dimitrios superimposed on rectified aerial photograph. A: Destroyed section of foundation wall. B–C: Rooms. D–E: Possible porches. F–G: Terraced areas. Plan by Johan Klange and aerial photograph by Derek Pitman.

The architectural remains on the summit of the hill consists of foundation walls for both buildings and terraces. These are arranged in a 30 × 15 m rectangle, orientated east-north-east–west-south-west (*Fig. 13*). A 7.5-m-long stretch of the northern side of the remains has relatively recently suffered damage (*Fig. 13:A*), but apart from this, the structures are seemingly intact. In the north-eastern part, what was interpreted as domestic structures cover a 17.5 × 11.5 m area, likely forming part of a building with an enclosed courtyard. The foundations of the building are likely Classical–Hellenistic, consisting of a single or a double row of tightly set stones with wall widths of 0.4–0.6 m. The foundations are set without bonding material and no rubble was found on their tops.[24] Two rooms could be discerned, the first of which is 6.4 × 6.1 m in size (*Fig. 13:B*). This is located in the north-east corner of the building with a possible doorway leading south into the identified courtyard area. The second room is on the opposite south-western corner of the building (*Fig. 13:C*), and measures 6.2 × 6.2 m. To the east and south of the building, additional foundations indicate possible porch structures (*Fig. 13:D* and *E*), while a two-stepped terrace is located to the west of the building (*Fig. 13:F* and *G*).

During the architectural survey, no pottery and only a few pieces of tile were observed. This can in part be explained by the poor visibility at the time, but as no surface pottery was observed in previous seasons, it is likely that very few finds are to be found in and around the structures. Based on the preserved architecture and the topographical location of the surveyed structure, we interpret the structure as a probable Classical–Hellenistic larger farmstead.[25] Further investigations are needed to prove this conclusively.

Geophysical and topographic survey of the Chomatokastro, Mataragka

Some 750 m north of the village of Mataragka and 2 km south-west of the village of Ermitsi are the remains of a bank enclosure, known locally as the Chomatokastro ("soil castle", *Figs 1:D*, *14*). The enclosure has been much damaged by river erosion and 20th-century agricultural practices, but aerial photographs of the 1940s (*Fig. 15*) indicate that it was originally *c*. 860 m in circumference, enclosing *c*. 3.2 hectares of ground.

The surrounding landscape went through considerable reconfiguring in the second half of the 20th century. Prior to industrial agriculture, however, the area consisted of farmland with two smaller rivers flowing in a general south to north di-

[24] Haagsma 2003, 39–41; Vaïopoulou *et al*. 2020, 54–56.

[25] There is a lack of similar examples with published plans from Thessaly, but the dimensions and layout of the building at Agios Dimitrios are similar to the Classical–Hellenistic Vari and Dema farmsteads in Attica, see Jones *et al*. 1962, 76; 1973, 362.

Fig. 14. Aerial view of the Chomatokastro site, looking towards the south. At the horizon is the acropolis of ancient Kierion. Photograph by Derek Pitman.

rection. Both rivers have now been filled in, but were, prior to Early Modern engineering, the original courses of the river Sofaditis and a nameless tributary to the Farsalitis. As can be seen in *Fig. 15*, the Sofaditis had through its meandering process caused damage to the bank of the enclosure, causing a large break in the south side. Both historical and present-day aerial photographs of the area show a possible *magoula* on the left bank of the Sofaditis (*Fig. 16*), some 150 m north-west of the Chomatokastro. This is now traversed by a modern irrigation canal.

The site of Chomatokastro has not received much scholarly attention. The first published mention of the site is in Léon Heuzey and Honoré Daumet's *Mission archéologique de Macédoine* (1876). Heuzey and Daumet describe it very summarily as a rectangle 180 × 230 m in size, with banks of 4 m in height and with four gates,[26] and puts it at its correct position in their map of the area (*Fig. 17*). Heuzey later interpreted it as the *castellum* of Julius Caesar, used for his protection as he camped near the city of Kierion in 48 BC.[27] On 22 July 1909 Alan J.B. Wace visited the site, which he refers to as "Ambelia N[orth] of Mataranga", and made a rough sketch of the bank enclosure in his notebook (*Fig. 18*).[28] He briefly describes the site as "A Chomatokastro proper—not like Almadar at all", comparing the remains with the large *magoula* at Almantari (present-day Ampelonas, some 9 km east of Mataragka), also known as the Chomatokastro, but in research literature more well-known as the Paliambela site.[29] Just as Heuzey and Daumet, Wace interpreted the layout of the embankments at the site as forming a rectangular space, but he only observed one gate, in the east. Some 70 years later, Decourt visited the site and mentioned it briefly in a footnote in his monograph on the Valley of Enipeus. More importantly, Decourt's monograph contains the first published photographs of the remains.[30]

During the construction in the early 2000s of the new National Highway 58, connecting Karditsa with Larisa, a small proto-Geometric tholos tomb was excavated somewhere close to the Chomatokastro.[31] This was moved in its entirety to a location just south of the highway underneath a protective roof with a designated parking area for visitors.[32] In 2016–2017, preparatory work for the construction of a water pipeline prompted the excavation of a possible tumulus 150 m north–north-east of the Chomatokastro (*Figs 15–16*), which yielded a rich material of the Late Geometric and Archaic periods.[33] The

[26] Heuzey & Daumet 1876, 412.

[27] Heuzey 1886, 113. There is very little which would substantiate this identification.

[28] Wace 1909–1911, 55.

[29] Decourt 1986, 359–366; Rönnlund 2023, 94. The traditional identification of this site with the toponym Phyllos, as known from Strabo (9.435) and a fragment of Rhianos (fr. 41), cannot be substantiated.

[30] Decourt 1990, 149, n. 5, figs 31–32.

[31] The exact position is unknown.

[32] Hatziangelakis 2001–2004, 577–578; 2007, 51.

[33] Tsiouka & Kokonaki 2017.

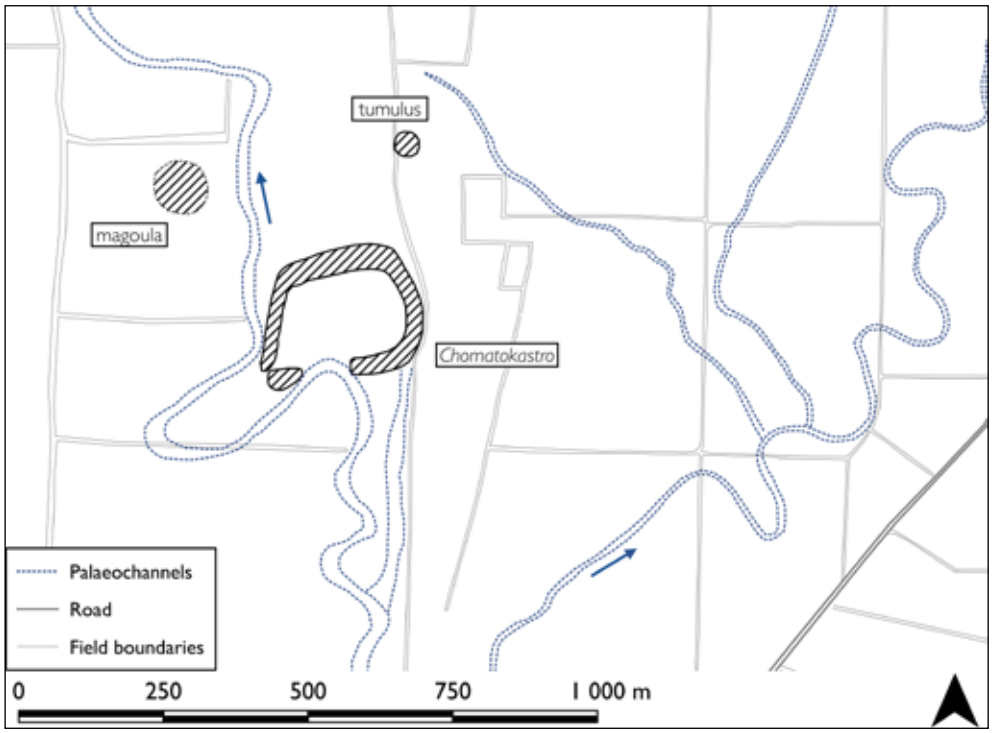

Fig. 15. Line drawing based on a 1940's aerial photograph of the area surrounding the Chomatokastro site. Map by Robin Rönnlund.

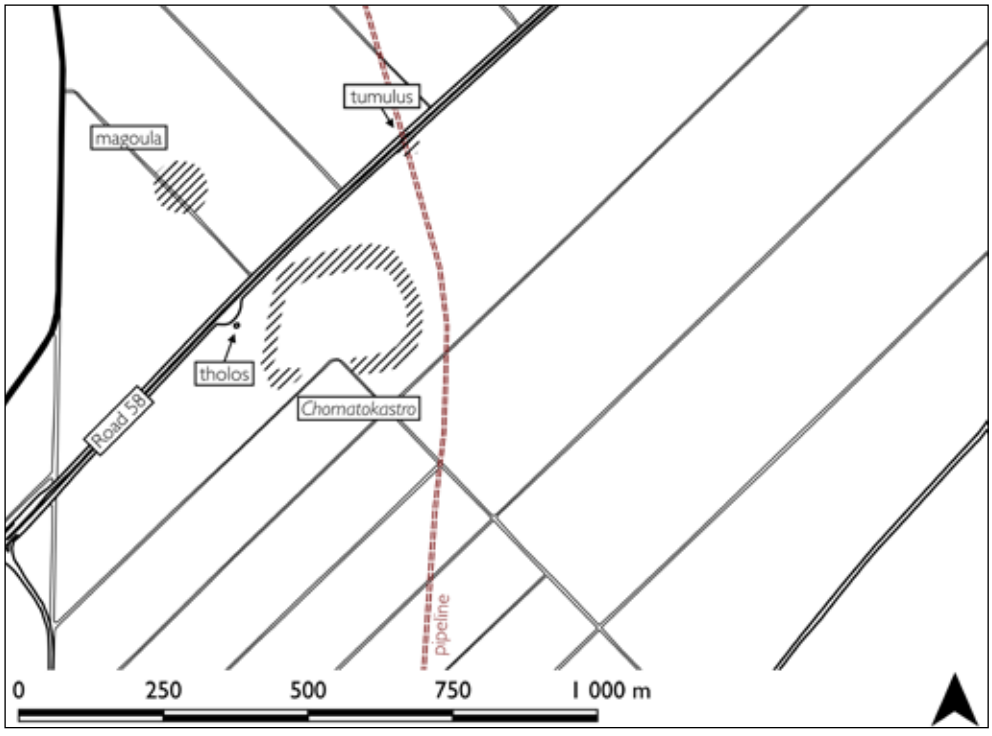

Fig. 16. Plan of the area surrounding the Chomatokastro site, present day. Same view as Fig. 15. *Map by Robin Rönnlund.*

tumulus is visible in the 1940's aerial photographs, and appears to have been rather substantial with a diameter of *c.* 35 m.

In the present day, the site is partially cultivated, with the northern and western banks of the enclosure being municipal land covered in weeds, shrubs and trees. The northern bank is used for beekeeping, with several rows of hives placed on the inner southern slopes of the northernmost bank. A red relief visualization of the topography of the site (*Fig. 19*) shows that

Fig. 17. Detail from map published by Léon Heuzey and Honoré Daumet in 1876. The Chomatokastro (as Khômatocastro) at lower right next to the Büyük Çınarlı (as Buiuk-Tchanarli, present-day Sofaditis) river.

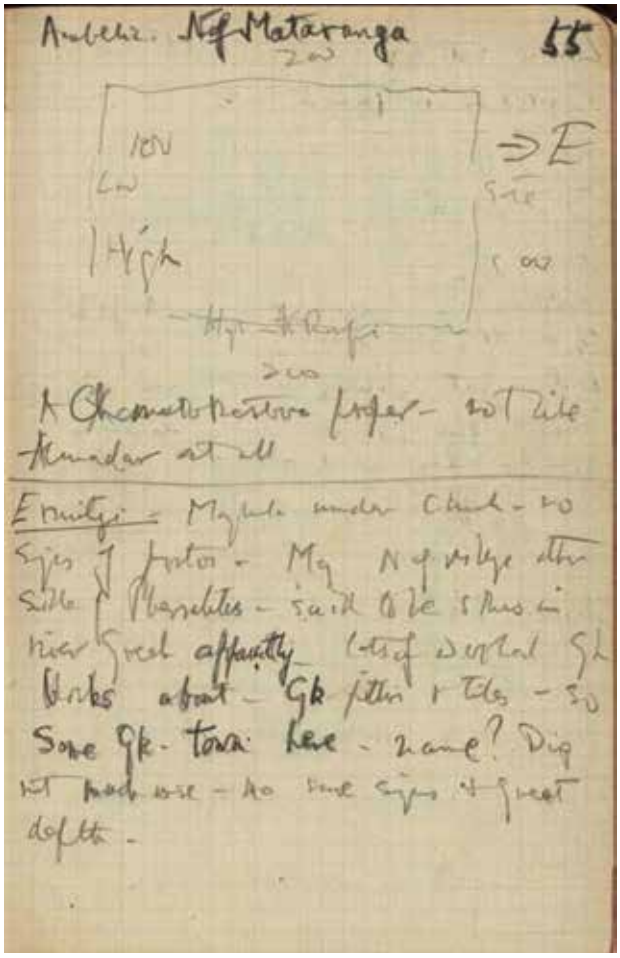

Fig. 18. Page from Alan J.B. Wace's notebook (Wace 1909–1911, 55) containing a sketch plan of the Chomatokastro site at Mataragka (upmost). Kept in the archives of Pembroke College, Cambridge. Published with permission.

the agricultural practices of the last 80 years have obliterated much of the east and south-east part of the site, which can only be discerned as a slight rise in the fields (*Fig. 19:A*). Further damage can also be discerned in the south-west corner (*Fig. 19:B*), where soils have apparently been excavated from the bank immediately north of the apparent gate of the enclosure (*Fig. 19:C*). The western bank (*Fig. 19:D*) is the most well-preserved and is at present only covered in grass and weeds. The northern bank (*Fig. 19:E*) is also well-preserved but is partially covered in dense shrubs and low trees. The lines visible in the inner slopes of the bank (just left of E in *Fig. 19*) are the aforementioned beehives. The area within the enclosure (*Fig. 19:F*) is currently cultivated with cotton and wheat.

To assess the extent of the damage, and to determine if any evidence of their construction history remained, a topographic survey was carried out across sections of the remaining banks. Using an NRTK-GNSS unit with a 3D accuracy of +/– 5 cm, four linear profiles with a point spacing of 0.75 m were recorded (*Figs 19:1–4, 20*). Profiles 1, 2 and 3 were measured across the degraded bank on the southern and eastern sides. These profiles are largely uniform and roughly symmetrical, although the internal face of the bank is slightly steeper than the external face (*Table 3*). The apparent uniformity in the shape of the bank is probably a result of ploughing and cultivation, with the earth gradually being spread evenly outside and inside the enclosure. The remaining bank on the eastern and southern side is now only approximately 2–3 m high, less than half the height of the western bank and at risk of further destruction due to ongoing agricultural activity. However, this lowering of the bank does present an opportunity for some low-impact investigation through coring and auguring to ascertain the construction history of the bank and identify the old ground surface below the

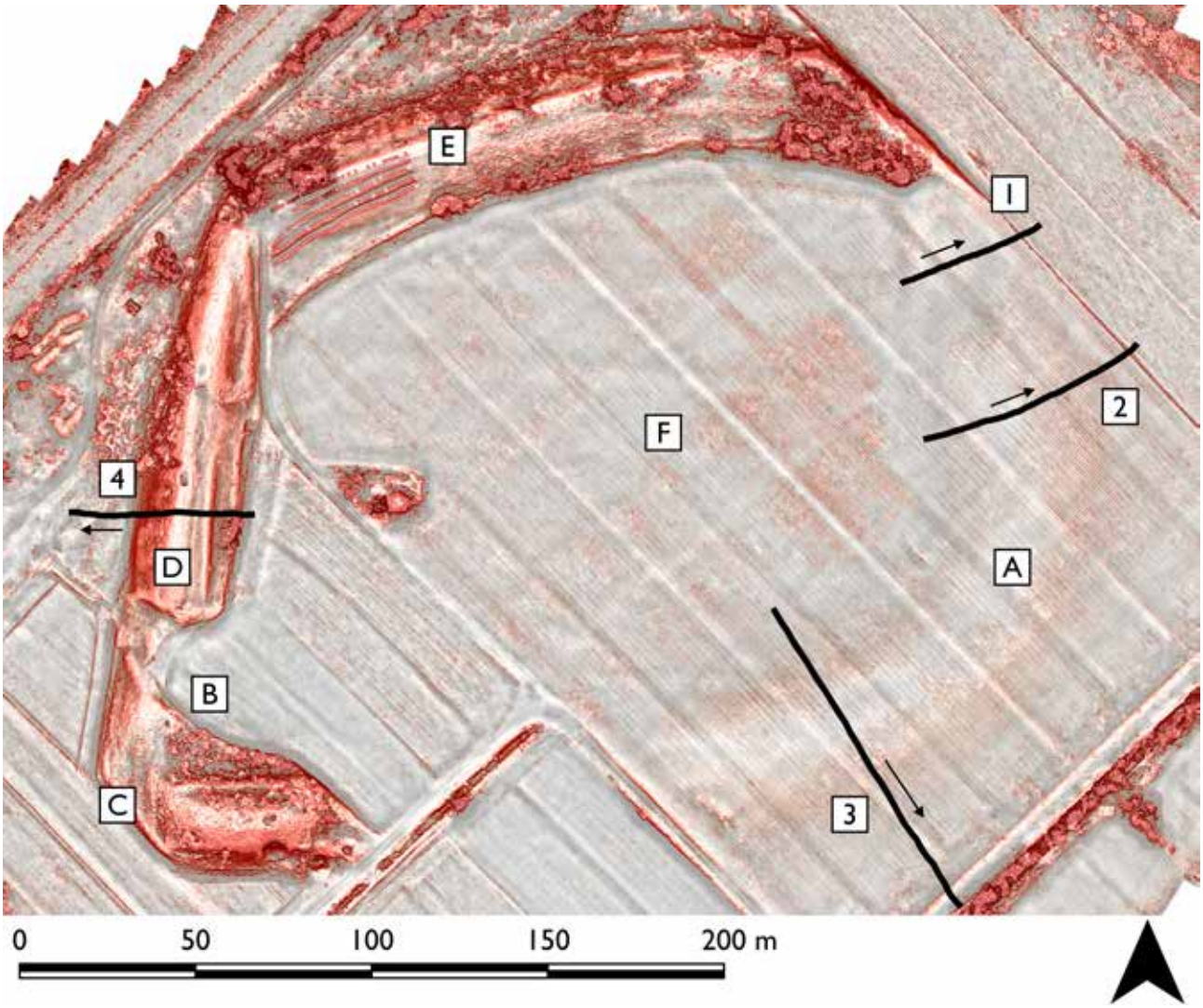

Fig. 19. Red relief visualization of the Chomatokastro site, as generated from a photogrammetric digital model (SFM). Numbered black lines represent topographic profile transects (as shown in Fig. 20*). Photogram by Rich Potter from aerial photographs by Lawrence Shaw.*

bank. This layer could be sampled to recover dating evidence of when the bank was constructed.

Profile 4, located across the well-preserved section of embankment on the west side of the enclosure, presents a very different profile to those of Profiles 1–3. Here, the external face of the bank is steeper than the internal face, presenting an asymmetrical shape. The western bank is the least damaged and therefore provides the best representation of how the enclosure bank may have been constructed. The different surface slope angles are probably not the result of erosion but may have been the product of a deliberate construction method. The steepness of the banks implies some form of internal built-up structure that would have acted as revetment to keep the bank in place, as suggested below.

Analysis of a Digital Surface Model (DSM), derived from drone imagery, rectified with NRTK-GNSS fixpoints, collected as part of the 2023 fieldwork (*Fig. 21*), indicates that the site is located on a slightly raised spur, with the land elevation inside the enclosure being approximately 1–2 m higher than that outside it. Moving from north-east to south-west, the ground surface outside the enclosure rises gently upwards towards the now-degraded bank and continues to rise gently across the interior of the enclosure towards the steep, well-preserved bank on the western side. Outside this bank, the ground surface gently falls away to an elevation below that of the interior. A slight depression (*Fig. 21:A*), approximately 10 m wide, hints at the location of the palaeochannel (now infilled) of the Sofaditis river (as visible in *Fig. 15*). The spa-

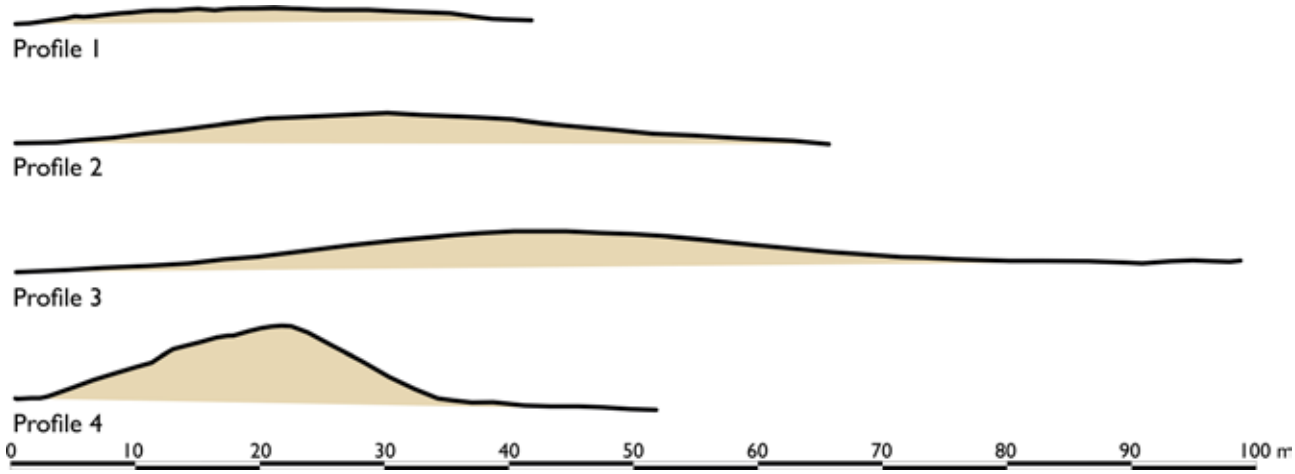

Fig. 20. Profile drawings of the Chomatokastro site. Height and distance scales are identical. Left represents the inside of the enclosure, and right the outside. Drawing by Robin Rönnlund from measurements by Harry Manley.

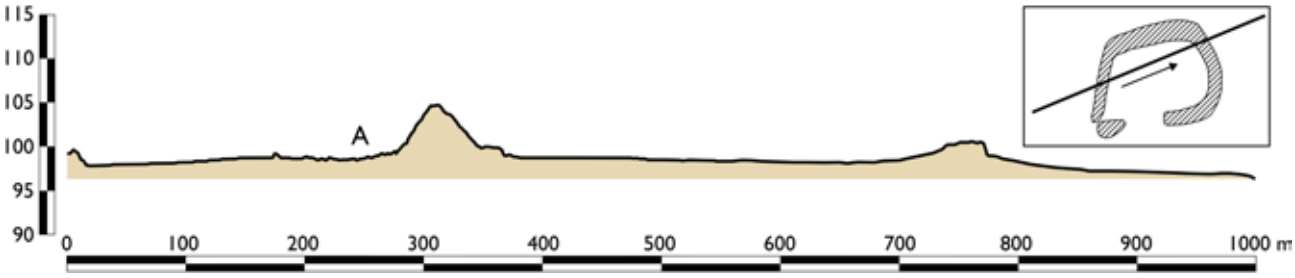

Fig. 21. Profile of DSM of the Chomatokastro site. Height (scale in metres above sea level) is exaggerated c. *7 times compared with length. A: Possible location of palaeochannel. Inset map shows extent of profile. Drawing by Robin Rönnlund after modelling and measurements by Rich Potter and Harry Manley.*

tial positioning of the Chomatokastro, immediately adjacent to a bend in the river and on sightly raised spur compared to the surrounding landscape, strongly supports the interpretation that the enclosure was deliberately located for defensive purposes.

Despite a close inspection of the ploughed ground during the geophysical fieldwork, only a handful of sherds were noted, most of which too small or eroded to allow for any dating. One brown-glaze sherd of apparent Ottoman date was found, as well as a possible Neolithic sherd. Similarly, very few tile fragments were noted. As the beekeepers have brought in substantial amounts of (modern) tile to act as foundations for their hives, it is impossible to say whether the tile fragments found in the fields originate from the ancient use of the site or not.

The geophysical work was conducted in a field in the eastern half of the inside of the enclosure where recently sown cotton allowed for clear ground. Employing the same methodology as in previous years,[34] an 80 × 100 m area corresponding to 0.8 hectares was surveyed with a Bartington 601-2 vertical magnetics gradiometer unit. As can be seen in the results (*Fig. 22*), the field contained very few distinct magnetic anomalies. The long stripes running in a general east–west direction are plough-marks from the present-day fields, as are the fainter lines running diagonally across the plot on a north-west–south-east alignment. The only clear anomalies are the two magnetic spikes in the west and north-east, the former being a piece of iron. The latter (*Fig. 22:A*), however, appears from the very strong magnetic readings to be a large lime-kiln, an interpretation which is supported by fragments of burned lime found on the ground surface at the location. The great

Table 3. Profiles measured at the Chomatokastro site at Mataragka.

Profile	Height	Internal face	External face
1	2.3 m	13°	8°
2	3.25 m	6°	4.5°
3	3.1 m	7°	5°
4	6.1 m	19°	28°

[34] Vaïopoulou *et al.* 2023, 79–80.

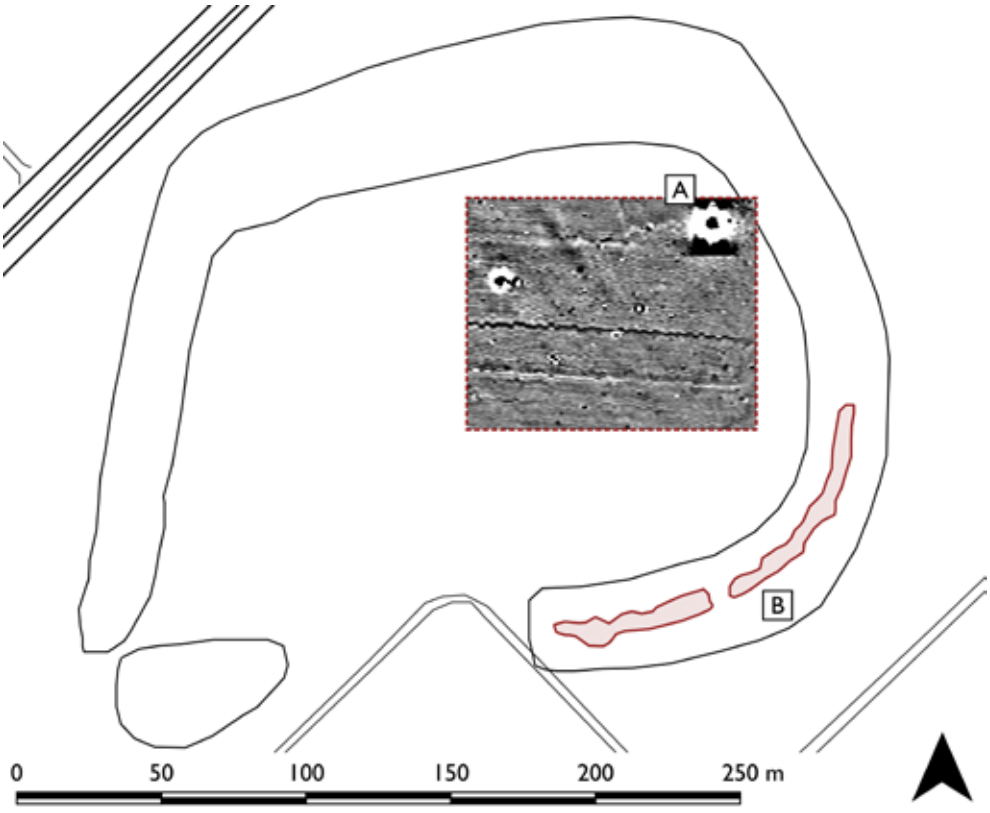

Fig. 22. The 2023 magnetometry survey of the Chomatokastro site. The 1940's extent of the banks marked with black lines. A: The probable lime-kiln. B: The cropmarks visible on 29 August 2020. Google Earth imagery. Plan and plot by Derek Pitman and Robin Rönnlund.

distance at the location to any natural source of limestone suggests that the kiln was constructed in order to make use of stones extracted from the adjacent embankment. Faint indications of an excavation in the bank are visible in the relief model (*Fig. 19*), and recent Google Earth satellite imagery shows a clear cropmark running within the south-eastern bank, which could represent a stone core (*Fig. 22:B*). An internal structural support for the banks was probably necessary to keep the soils stable, and further geophysical prospection is planned at the site to further investigate this possibility.

The apparent lack of habitation within the banks (as indicated by the lack of pottery and the results of the geophysical prospection) indicates that it was not the location of a settlement, but probably a refuge site for the local population. The area surrounding the site is far away from any of the natural hills (such as at Pyrgos Kieriou or Vlochos), and any fortification would consequently have to be constructed on flat land. The site is near-unique in its layout to Western Thessaly, with the only real parallel being the site at Proastio (formerly Paraprastaina), 16 km north-west of Mataragka. This embankment—which is also known as the Chomatokastro—does not completely enclose a space, but prevents access to an area within a river bend.[35] Both sites are difficult to date due to the absence of surface pottery, but within a wider Western Thessalian context, it is possible that they belong to the same system of hillforts that were built in the region probably in the Late Archaic period.[36] A Geometric–Archaic settlement has been excavated 2 km north-east of the Chomatokastro site at Mataragka,[37] *c.* 600 m north-east of the Classical-Hellenistic city of Peirasia at modern Ermitsi, where limited Early Iron Age material has also been found.[38] Whether that site in any way relates to the Chomatokastro site at Mataragka can at present not be established.

[35] Heuzey 1886, 113; Rönnlund 2023, 132–133.
[36] For more on this topic, see Rönnlund 2024.
[37] Hatziangelakis 2007, 41–42; 2008, 319; 2001–2004, 569–572; Karagiannopoulos 2017–2018, 128.
[38] Rönnlund 2023, 81–83.

Fig. 23. The flooded village of Metamorfosi, 7 September 2023. The elongated roof at the centre belongs to the Ephorate storerooms housed in a former school, used for finds storage by the project. Aerial photograph by Konstantinos Tsakalidis/SOOC. Published with permission.

A postscript

At the time of writing this report (November 2023), the prospects for the villages of Metamorfosi and Vlochos are gloomy. Following their complete inundation in early September (*Fig. 23*), they are both abandoned as settlements, with only empty houses and streets greeting the visitor. Rotting carcasses of drowned animals can still be found on the roofs of some buildings, and the spread of infectious diseases are causing much worry to the authorities. As has been reported in local media, there is a wish among the inhabitants to simply relocate the whole communities to an area of higher ground south of the town of Palamas.[39] Whether these plans will be put into effect remains to be seen. Metamorfosi and Vlochos have a continuous history spanning from at least the 15th century, and it is harrowing to think that the team might have shared the very final days of habitation of these villages together with their inhabitants.

The broken river embankments are currently under intense repair work to protect the area from further damage during the rainy winter season, but a recent assessment by a Dutch team of specialists (as requested by the Greek government) has suggested that more radical changes to the landscape are needed to prevent future disasters.[40] It is both remarkable and terrifying to experience such enormous developments in the lived landscape of Western Thessaly as they occur. The team grieves with the inhabitants of the villages where they have been treated so welcomingly over the years, and we hope, whatever path of recovery the locals chose, that they may continue to inhabit the area of Palamas. The team aims to continue its work in the region, and inspired by the resilience of the Palamiotes, Kourtikianoi and Vlochianoi, we hope to overcome all future challenges to excavation and survey.

[39] Anonymous 2023a; 2023b.

[40] HVA International 2023.

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Bibliography

Anonymous 2023a. 'Μεταμόρφωση: Δημοψήφισμα για την μετεγκατάσταση της κοινότητας', *Neos Agon*, 6 November. https://neosagon.gr/metamorfosi-dimopsifisma-gia-tin-metegkatastasi-tis-koinotitas/

Anonymous 2023b. 'Εκτάσεις για την ανέγερση νέων σπιτιών ζητούν κάτοικοι του Βλοχού', *Neos Agon* 12 November. https://neosagon.gr/ektaseis-gia-tin-anegersi-neon-spition-zitoun-katoikoi-tou-vlochou-3/

Decourt, J.-C. 1986. 'Une « nouvelle » cité dans la vallée de l'Énipeus : Paliambéla-Phyllos', *BCH* 110:1, 357–391. https://doi.org/10.3406/bch.1986.1804

Decourt, J.-C. 1990. *La vallée de l'Énipeus en Thessalie. Études de topographie et de géographie antique* (BCH Suppl. 21), Paris.

Fachard, S., S. Murray, A. Knodell & K. Papangeli 2020. 'The fortress of Eleutherai. New insights from survey, architecture, and epigraphy', *Hesperia* 89, 475–549. https://doi.org/10.2972/hesperia.89.3.0475

Fossey, J. 1986. 'Répartition de la céramique en surface du site', in *Khóstia 1983. Rapport préliminaire sur la seconde campagne de fouilles canadiennes à Khóstia en Béotie, Gréce centrale*, eds J. Fossey & J. Morin, Amsterdam, 43–63.

Gregory, T. & P. Kardulas 1990. 'Geophysical and surface surveys in the Byzantine fortress at Isthmia 1985–1986', *Hesperia* 59, 467–511. https://doi.org/10.2307/148299

Haagsma, M. 2003. 'The houses of New Halos', in *Housing in New Halos. A Hellenistic town in Thessaly, Greece*, eds H.R. Reinders & W. Prummel, Lisse, 37–79.

Hatziangelakis, L.P. 2001–2004 (pr. 2011). 'Ανασκαφικές εργασίες. Νομός Καρδίτσας', *ADelt* 56–59 *Chron*. B'2, 566–582.

Hatziangelakis, L.P. 2007. 'Προϊστορικοί και ιστορικοί χρόνοι', in *Οδοιπορικό στα μνημεία του νομού Καρδίτσας: Αρχαιότητες—Ναοί—Νεότερα μνημεία*, ed. E. Tsagaraki, Karditsa, 13–82.

Hatziangelakis, L.P. 2008. 'Αρχαίες πόλεις της δυτικής Θεσσαλίας. Δίκτυο επικοινωνίας και ανάδειξης', in *Πρώτο διεθνές συνέδριο ιστορίας και πολιτισμού της Θεσσαλίας. Πρακτικά συνεδρίου. 9–11 Νοεμβρίου 2006*, ed. L.P. Glegle, Thessaloniki, 302–327.

Heuzey, L.A. 1886. *Les opérations militaires de Jules César. Étudiées sur le terrain par la mission de Macédoine*, Paris.

Heuzey, L.A. & H. Daumet 1876. *Mission archéologique de Macédoine*, Paris.

HVA International 2023. 'First report regarding post-disaster remediation of 2023 Thessaly flooding', 16 November, on the official webpage of the Greek government. https://www.government.gov.gr/proti-anafora-apo-tin-apostoli-pragmatognomosinis-tis-hva-international-sti-thessalia/

Jones, J.E., A.J. Graham & M.I. Geroulanos 1962. 'The Dema House in Attica', *BSA* 57, 75–114. https://doi.org/10.1017/S0068245400013654

Jones, J.E., A.J. Graham & M.I. Geroulanos 1973. 'An Attic country house below the Cave of Pan at Vari', *BSA* 68, 355–452. https://doi.org/10.1017/S0068245400004524

Karagiannopoulos, C. 2017–2018. 'Revealing Geometric to Classical Thessaliotis', *AR* 64, 113–131. https://doi.org/10.1017/S0570608418000236

Martin Leake, W. 1835. *Travels in Northern Greece* vol. 4, London.

Potter, R., D. Pitman, H. Manley & R. Rönnlund 2023. 'Cost-effective, rapid decorrelation stretching and responsive UAS mapping as a method of detecting archaeological sites and features', *Heritage Science* 11, article 89. https://doi.org/10.1186/s40494-023-00931-6

Rönnlund, R. 2023. *The cities of the plain. Urbanism in ancient Western Thessaly*, Oxford & Philadelphia. https://doi.org/10.2307/jj.6338470

Rönnlund, R. 2024. "Princely seats' and Thessalian hillforts: Pre-urban Greece and the diffusion of urbanism in Early Iron Age Europe', *Antiquity* 98:399, 743–757. https://doi.org/10.15184/aqy.2024.65

Tsiouka, F. & A. Kokonaki 2017 (pr. 2023). "Έργο: «Ύδρευση ανατολικής πλευράς Νομού Καρδίτσας από Λίμνη Σμοκόβου—Β' φάση (ολοκλήρωση)». Ματαράγκα', *ADelt* 72 *Chron* Β'1, 454–455.

Vaïopoulou, M., H. Whittaker, R. Rönnlund, F. Tsiouka, J. Klange, D. Pitman, R. Potter, L. Shaw, J. Hagan, E. Siljedahl, M. Forssén, S. Chandrasekaran, S. Dandou, V. Forsblom Ljungdahl, A. Pavilionytė, H. Scott-Pratt, E. Schager & H. Manley 2020. 'The 2016–2018 Greek–Swedish archaeological project at Thessalian Vlochos, Greece', *OpAthRom* 13, 7–72. https://doi.org/10.30549/opathrom-13-02

Vaïopoulou, M., R. Rönnlund, F. Tsiouka, D. Pitman, R. Potter, S. Dandou & J. Klange 2021. 'Some preliminary notes on the limited 2020 campaign of the Palamas Archaeological Project (PAP)', *OpAthRom* 14, 55–63. https://doi.org/10.30549/opathrom-14-04

Vaïopoulou, M., R. Rönnlund, F. Tsiouka, J. Klange, D. Pitman, S. Dandou, R. Potter, L. Shaw, L. Webb, S. Ieremias, I. Randall & H. Manley 2022. 'Roman and Early Byzantine evidence from the area of Palamas. A preliminary report of the ongoing Greek–Swedish archaeological work in the region of Karditsa, Thessaly', *OpAthRom* 15, 77–103. https://doi.org/10.30549/opathrom-15-02

Vaïopoulou, M., R. Rönnlund, F. Tsiouka, J. Klange, D. Pitman, R. Potter, I. Randall, H. Manley, E. Schager, S. Dandou & L. Webb 2023. 'The Palamas Archaeological Project. A preliminary report of the 2022 fieldwork conducted by the ongoing Greek–Swedish archaeological field programme in Palamas, region of Karditsa, Thessaly', *OpAthRom* 16, 61–85. https://doi.org/10.30549/opathrom-16-03

Wace, A.J.B. 1909–1911. *North Greece: The romance of excavation* part 2. The Papers of Alan J.B. Wace, GBR/1058/WAC. Pembroke College Library, Cambridge. https://digital.bsa.ac.uk/results.php?collection=A.J.B.+Wace+Papers%3A+Pembroke+College+Cambridge&irn=182816