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THESPROTIA EXPEDITION II
ENVIRONMENT AND SETTLEMENT PATTERNS

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Cover: Megalo Karvounari seen from the northeast. Courtesy of the 32nd Ephorate for Prehistoric and Classical Antiquities

Layout: Esko Tikkala

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Preface

The Thesprotia Expedition was scheduled originally in 2003 to last for five years. With additional funding from the Academy of Finland, field work was continued for another two years, thus covering a total of seven years. The last field season and archive study season was conducted in 2010 and the focus of the project is now directed towards studying the remaining categories of finds and publishing the results of the project. The final publication of the project will appear in three volumes, of which the first was published in 2009. This volume is the second in the final publication series.

The Thesprotia Expedition took place with permission of the Greek Archaeological Service and the Institute for Geological and Mineral Research (IGME). The archaeological field work was conducted under the auspices of the Finnish Institute at Athens, and under the supervision of the 32nd Ephorate for Prehistoric and Classical Antiquities in Igoumenitsa and the 8th Ephorate for Byzantine Antiquities in Ioannina. I wish to express my thanks to these organizations for their constant support and cooperation, and especially to Georgios Riginos, Garyfallia Metallinou, Aikaterini Kanta-Kitsou, Ourania Palli and Kassiani Lazari at the 32nd Ephorate for Prehistoric and Classical Antiquities, to Franziska Kephallonitou and Barbara Papadopoulou at the 8th Ephorate for Byzantine Antiquities, and to Martti Leiwo, Vesa Vahtikari, Maria Martzoukou, Maria Gourdouba and Manna Satama at the Finnish Institute.

The archaeological field work of the Thesprotia Expedition would not have been possible were it not for the expertise of Jeannette Forsén, who apart from functioning as assistant director singlehandedly sorted out all the collected finds. I also want to express my sincere thanks to Evangelia Balta, Nena Galanidou and Henk Kars who all agreed to join the project bringing with them much needed expertise and knowledge on Ottoman sources, chipped stone finds and geo-archaeology. I am also very grateful for the support received from Leena Pietilä-Castrén in the initial stage when the project was launched, and the enthusiastic encouragement and help from Jon van Leuven and Esko Tikkala throughout the project.

Finally I want to thank the anonymous readers who commented on the different chapters in the book, as well as the following colleagues for their continuous support and interest shown for our work: Anna Lucia d'Agata, William Bowden, Jack Davis, Angeliki Douzougli, Gunnel Ekroth, Arja Karivieri, Lars Karlsson, Henk Kars, Sarah Lima, Catherine Morgan, Markku Niskanen, Anna Philippa-Touchais, Paul Reynolds, Georgios Riginos, Curtis Runnels, Giovanni Salmeri, Christine Shriner, Thomas Tartaron, Gilles Touchais, Karen Vitelli, Ken Wardle, Geert Jan van Wijngaarden, James Wiseman and Konstantinos Zachos.

Between 2004 and 2010 the following colleagues and students took part in the project in one way or another: Sanna Aho (2007), Evangelia Balta (2005-2010), Stavros Banakos (2008), Yannis Bassiakos (2004), Mark Bauer (2007), Vivi Deckwirth (2009-2010), Euthymios Dokos (2004), Konstantinos Dokos (2006-2008), Sophia Doylke (2010), Vasiliki Eleutheriou (2005), Melanie Everett (2008), Björn Forsén (2004-2010), Jeannette Forsén (2004-2010), Richard Forsén (2009-2010), Agneta Freccero (2010), Nena Galanidou (2008-2010), Tryggve Gestrin (2008), Maria Gourdouba (2004), Myrsini Gkouma (2007), Jan Graven (2007-2008), Barbara Greiner (2006), Leena Haikonen (2007-2008), Mika Hakkarainen (2004-2010), Hilkka Heikkilä (2007-2009), Nina

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Since its launching in 2004, the Thesprotia Expedition has been supported financially by the following foundations: Academy of Finland (2007-2010), Finnish Cultural Foundation (2004), Finnish Institute at Athens (2004-2010), Institute for Aegean Prehistory (2005-2010), Kone Foundation (2004-2006), Niilo Helander Foundation (2005), Oscar Öflund Foundation (2006), Oulu University Scholarship Foundation (2006), SanomaWSOY (2006), Schrader Endowment Fund (2007-2008), University of Helsinki (2005). I gratefully acknowledge this support, without which it would not have been possible to bring the project to a fruitful end nor to produce this volume.

A project like the Thesprotia Expedition cannot be undertaken without local support and I owe many thanks to the help, advice and support we have received from our colleagues working in Elea and the Kokytos valley, especially to Georgios Riginos, Ourania Palli and Kassiani Lazari, but also to Asterios Aidonis, Stavros Banakos, Glykeria Kontou, Eleni Nikolaou and Petros Petsios, who all have contributed to our work in one way or another. Special mention also goes to Kostas and Eleni Lolos with siblings, children and grandchildren as well as to Vasilis, Katerina, Chrysoula and Maria Bika, who made the village of Chrysaugi into a second home away from home for my sons.

According to the Bible, Jacob had to work seven years for Laban in order to get Rachel as his wife. Due to his love for Rachel the seven years seemed to Jacob as but a few days. However, when seven years had passed Laban deceived Jacob and forced him to work another seven years for Rachel.

Seven years we also toiled in Thesprotia in the quest for the princess of Thesprotia – seven years that felt as but a few days. But as with Jacob, the seven years proved too short a time for us and we only managed to catch glimpses of the princess. In the redbeds of Karvounari she stumbled over a bush and fell, just in order to transform into an Aurignacian blade. In Mavromandilia she was lost among the clover of which we only

could afford to buy a sliver. On Agios Donatos she tried in vain to light a candle in honour to the holy man, whereas in the archives at an early stage she was buried below a heap of dusty *busta*s and *defter*s. Finally, at the foot of the Liminari hill, in the central cist grave of the tumulus, we all saw her for an instant after turning over the heavy cover stone of the cist. But then the fresh air blew into the cist and she vanished before our eyes, leaving only her bones and a handful of carbonized seeds.

As Konstantinos Kavafis so beautifully puts it in his famous poem, the road to Ithaca, full of adventures and knowledge, is in fact more important than the goal itself. During the years in Thesprotia I have several times pondered whether Odysseus himself felt this way while visiting the Nekyomanteion at Acheron. Was this perhaps the reason why he later, according to the *Telegoneia (Thesprotis)*, after having killed Penelope's suitors, decided to return to Thesprotia, marrying the Thesprotian queen Kallidike? A need to leave the dullness of Ithaca and take to the road again, full of adventures and new knowledge?

Although now taking to the road again we have at the same time, like Jacob, to continue striving some years for Thesprotia. Thus we will hopefully not altogether lose contact with her during the coming years. Further comfort is given by the memories of the exciting time we spent together in Thesprotia as well as in the archives of Venice and Istanbul, toiling along in order to elucidate the fascinating past of this exceptionally beautiful region of Greece. Those experiences have made an everlasting imprint on all of us and will remain in our hearts and minds for years to come.

This book is dedicated to the princess of Thesprotia, if there ever was one.

Björn Forsén
Helsinki, 15 May 2011

The Emerging Settlement Patterns of the Kokytos Valley

Björn Forsén

The Kokytos valley, which is located at the very heart of Thesprotia, is one of the most fertile parts of the region.[1] The valley, whose width varies between about two and five km, follows the course of the Kokytos river which originates somewhat to the north of the modern town of Paramythia and the Roman *colonia* Photike, thereafter flowing southwards for some 20 km until it reaches the Acheron river. The dramatic Paramythia mountain range, rising to a height well over 1000 masl, demarcates the Kokytos valley in the east from the Souli valley, whereas a series of lower hills separates it in the west from the valley of Margariti and Parga. In the north the Kokytos valley is connected via Neochori to the Kalamas river, Thesprotia's second largest river after the Acheron.

The aim of the Thesprotia Expedition is to write the history of the central part of the Kokytos valley from prehistoric to modern times on the basis of new data provided by archaeology, history and geology. Even though the focus of the project is on the central Kokytos valley, we have also included studies putting our study area into the larger context of Thesprotia or studies concerning Thesprotia in its entirety, when this helps in understanding the trajectories of the Kokytos valley. Therefore this volume, in the same way as the first volume of the final publication series of the Thesprotia Expedition, contains apart from specific results of our own research also chapters by colleagues working in the region.

The northern limit of the study area is drawn at a line between the modern villages of Chrysaugi and Pankratai, whereas the southern limit roughly corresponds to a line between the villages of Agora and Skandalo (Fig. 1). Between the villages of Sevasto and Xirolophos the study area protrudes like an appendix towards the west. The redbeds of Karvounari were surveyed separately in collaboration with the 32nd Ephorate for Prehistoric and Classical Antiquities. The size of the study area is in total ca. seven km in north to south direction and four km in west to east direction, in addition to which should be added the ca. 2x3 km large appendix protruding towards the west between Sevasto and Xirolophos.

The research aims of the Thesprotia Expedition were presented already in the previous volume[2] and will therefore not be reiterated in their entirety here. The project has encompassed, apart from an intensive archaeological and geological survey, also trial excavations in a number of locations of special interest, as well as palynological work in the Chotkova, Prontani and Morphi lakes to the north and west of the study area. Efforts have also been put into re-studying inscriptions from Photike and collecting archival sources concerning Thesprotia in Istanbul and Venice.

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[1] I am grateful to Evangelia Balta, William Bowden, Jack Davis, Vivi Deckwirth, Jeannette Forsén, Nena Galanidou, Mika Hakkarainen, Curtis Runnels and Esko Tikkala for helping and/or commenting on different drafts of this chapter. All figures have been made by Esko Tikkala.

[2] Forsén 2009, 1-5. In general on the project see also http://www.thesprotiaexpedition.com.

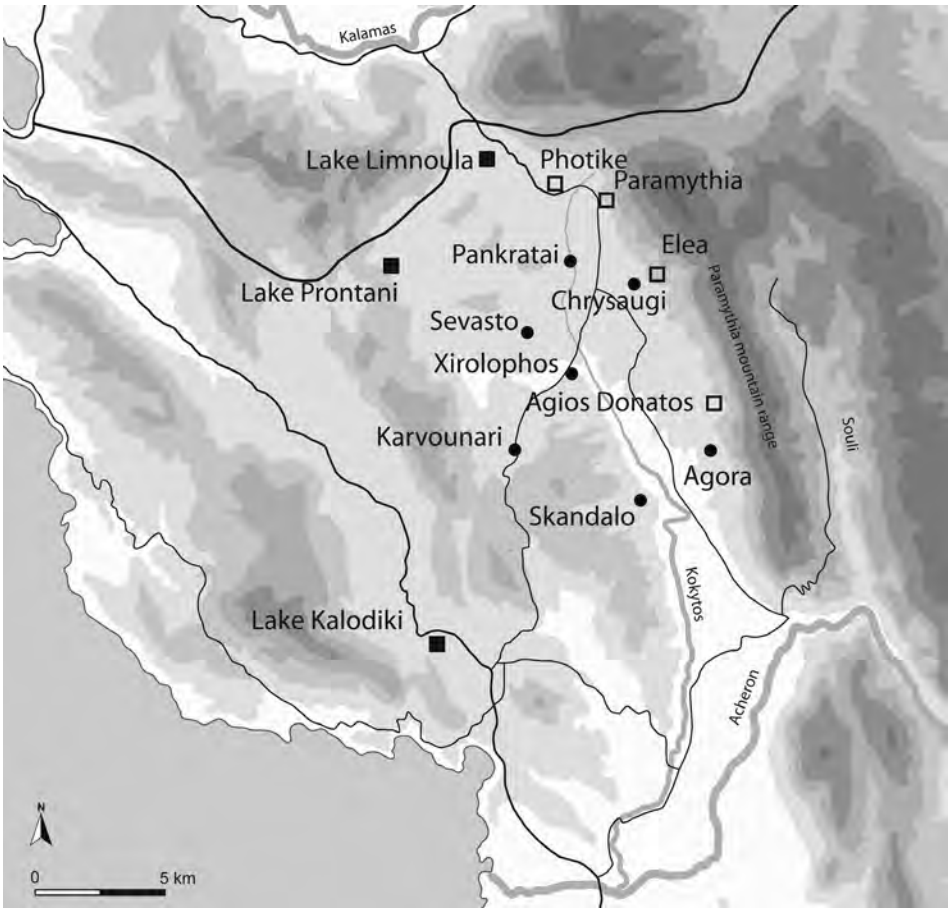

Fig. 1. General map of the Kokytos valley, including some of the main sites and the modern villages that demarcate the study area.

One of the aims of the Thesprotia Expedition was to throw light on periods previously considered 'Dark Ages' in the region. Already in the first volume we took several steps in this direction, introducing the first settlements dating to the Mesolithic period, the Early Iron Age and the Archaic period.[3] This volume contributes in a different way to fulfilling the aims of the project; here we publish a catalogue of sites in the central Kokytos valley, consisting of a total of 72 sites, 45 of which have been studied by us, the rest by the Greek Archaeological Service. On the basis of this catalogue in conjunction with the other chapters focusing on specific sites, find categories or archival sources, the diachronic settlement patterns of the central Kokytos valley are slowly beginning to emerge in front of us.

Further detailed studies of single sites, find categories and sampling methodology in the final third volume, as well as new finds continually being made, will in the future fine-tune the broad outlines of settlement patterns put together in this chapter. Thanks to the new knowledge concerning the change of environment and vegetation throughout

[3] Tourloukis and Palli 2009; Tzortzatou and Fatsiou 2009; J. Forsén 2009.

history that the Dutch team collaborating with the Thesprotia Expedition has brought forward, the main results of which are published in this volume, we can now also make a first attempt to corroborate the picture of the ever-changing diachronic settlement patterns with some of the major changes in environment. This is however an aspect that only can be further elucidated by more research in the future.

An overview of previous research and publications of importance for the Thesprotia Expedition was already given in the first volume.[4] Since then two important new publications have appeared. The first one is the *Historical and Geographical Atlas of the Greek-Albanian Border*,[5] which is of great help in putting the central part of the Kokytos valley into a larger perspective. The second one is the impressive catalogue of the new Archaeological Museum of Igoumenitsa,[6] which gives a general overview of the most important archaeological finds from the region stretching diachronically in time from the Middle Palaeolithic period until the Byzantine period.

From hunting-gathering groups to agricultural societies

When planning the Thesprotia Expedition back in 2003 the region was well known for the rich Middle to Upper Palaeolithic finds collected in its characteristic *terra rossa* areas.[7] This wealth was in a strange way juxtaposed with the total lack of Mesolithic finds and the surprisingly poor evidence for occupation during the Neolithic period and the Bronze Age, thus raising the question whether the shift from hunting/gathering groups to agricultural societies followed a different path here than in the rest of Greece, where there generally are few Palaeolithic finds but rich Neolithic and Bronze Age remains. Our work has thrown new light not only on the Middle and Upper Palaeolithic periods *per se*, but also on the very shift from hunting/gathering groups to agricultural societies.[8]

Two of the large Palaeolithic *terra rossa* sites detected by Higgs in the 1960s are located just to the west of the study area of the Thesprotia Expedition. In 2005 it was decided to conduct the first intensive survey ever of these two sites in collaboration with the 32nd Ephorate for Prehistoric and Classical Antiquities. One of the reasons for surveying these sites, Megalo Karvounari (PS 22) and Mikro Karvounari (PS 23), was the threat that the planned new main garbage dump of Thesprotia might destroy them.[9]

Megalo Karvounari was divided into 34 different units, out of which the assemblage from the largest and find-richest Unit 24 (producing more than half of all the collected finds) was studied in detail, revealing apart from a very rich Middle Palaeolithic

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[4] Forsén 2009, 3-4.

[5] *HGAtlas* 2008. It can in a way be considered as an updated version of the classic Dakaris 1972, although encompassing a larger area in geographical terms.

[6] Kanta-Kitsou *et al.* 2008.

[7] Higgs recorded mainly Middle Palaeolithic finds from the terra rossa areas (Dakaris *et al.* 1964; Higgs and Vita-Finzi 1966; Higgs *et al.* 1967), but later studies had also revealed Upper Palaeolithic finds in some of these sites (Bailey *et al.* 1997).

[8] However, it should be emphasised that the dates of our sites are based on morphotechnological attributes that await further chronological refinement by means of absolute dating of finds deriving from closed archaeological contexts.

[9] The garbage dump was finally located at a distance from these remarkable sites, thus preserving them for future generations.

component an equally rich Aurignacian component and some probably Gravettian/ Epigravettian tools. A similar pattern can be observed in some other *terra rossa* sites to the north of the Kokytos valley. This proves that these open-air sites were in use not only by the *Homo neanderthalensis* (Middle Palaeolithic period), but also by *Homo sapiens* (Upper Palaeolithic period). It also throws light on the hitherto poorly recorded early phase of the Upper Palaeolithic period not only in Thesprotia but in Greece in general.[10]

In Mikro Karvounari no Aurignacian artefacts were recorded. Here the majority of the finds belongs to the Middle Palaeolithic period, although there is a smaller post-Mousterian assemblage, probably late Upper Palaeolithic or Mesolithic in date. The exceptionally large number of Levallois points, most of which were collected in Unit 1 (the narrow entrance to the *terra rossa* area), implies hunting activities, although other tools indicate tool manufacturing, hide processing, food preparation and consumption as well. Points were also common finds in the neighbouring sites Megalo Karvounari and Morphi.[11]

Christina Papoulia suggests that the sites of Megalo Karvounari and Morphi were chosen because of their location next to the route connecting the Kokytos valley with Lake Kalodiki, thereby offering excellent hunting stands for the early hominids preying on animals moving in order to reach the best water resources. Mikro Karvounari likewise had to be passed by animals moving from the Kokytos valley to the polje of Saita, today a small seasonal lake.[12] Palynological work conducted in Lake Kalodiki shows that the environment in the Middle Palaeolithic period was very different from today, the landscape being covered by a *Quercus*-dominated dense forest,[13] which together with the rich water resources of the region must have offered excellent living conditions for the game.

Another factor making Thesprotia attractive for the early hominids were rich local flint resources. In the intensive field survey we detected a multifunctional site including a flint "quarry", PS 4, which mainly dates to the Middle and Upper Palaeolithic periods, although also producing some finds that may be Mesolithic, Neolithic or Bronze Age in date. This site, which is located on the lower slopes of a hill facing the very Kokytos valley, is covered by a thick carpet of flint nodules, naturally broken flint nodules, but also artefacts from early and later stages of reduction sequences (cores, debitage and tools).[14]

PS 4 differs from Megalo Karvounari and Mikro Karvounari in not being a *terra rossa* site, but rather located close to the very bottom of the Kokytos valley in the alluvial fan on the foot of a small hill. The Kokytos valley was already by the expedition of Higgs in the mid-1960s considered to be very rich in prehistoric sites with flint tools.[15] Dakaris describes the valley from Neochori in the north until Skandalo and Gardiki in the south as one of the richest areas in stone tools in all of Greece and marks the area on his site distribution maps as a ca. 17-18x4-5 km continuous carpet of dispersed finds.[16] The sites

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[10] Ligkovanlis, this volume.
[11] Papoulia, this volume.
[12] Papoulia, this volume.
[13] Kluiving *et al.*, this volume.
[14] Forsén *et al.*, this volume, site PS 4. The assemblage from the site will be published in more detail by Stefanos Ligkovanlis in Thesprotia Expedition III.
[15] Dakaris *et al.* 1964; Higgs and Vita-Finzi 1966.
[16] Dakaris 1972, 44-70, figs. 12-20.

identified by Higgs in this area and later referred to by Dakaris (including a total of 10 flint "quarries") cannot, unfortunately, be located any longer.

Although most of the fields surveyed by us in the Kokytos valley produced lithics, we still managed on the basis of e.g. find density to localize some clear concentrations that have been interpreted as sites.[17] They are all located on alluvium, at least some way away from the surrounding hills. Among them there are one probably Upper Palaeolithic site (PS 45) and three sites possibly dating to the Mesolithic period (PS 1, PS 3, PS 43). Two of the three later sites also included a smaller Palaeolithic component (PS 3, PS 43). The main lithic assemblage of PS 3 was studied by Tourloukis and Palli and considered Mesolithic in date,[18] whereas a similar assemblage, according to Nena Galanidou who is preparing PS 43 for publication, "could have been manufactured and used either by Mesolithic hunter-gatherers or Early Neolithic agriculturalists with no pottery".[19]

A tentative pattern can be seen already on the basis of the seven sites discussed so far. Palaeolithic sites often include smaller Mesolithic/Early Holocene components (Mikro Karvounari and PS 4) and Mesolithic/Early Holocene sites in their turn smaller Palaeolithic components (PS 3 and PS 43) – or to put it another way; Palaeolithic and Mesolithic/Early Holocene activities seem to take place in roughly similar settings in the landscape (Fig. 2). Notable is also the fact that only one of these seven sites produced some Neolithic and Bronze Age finds, and that was PS 4 which has the special character of a "quarry" site.

Six sites datable to the Neolithic and/or Bronze Age were detected by us in the Kokytos valley (PS 12, PS 17, PS 18, PS 20, PS 21 and PS 28). Due to problems with dating of the lithics and the very abraded pottery, the finds can only occasionally be assigned more detailed dates. So far there are no clear finds datable to the Early Neolithic period, whereas small quantities of possibly Middle, Late and Final Neolithic finds have been recorded at three of the sites (PS 12, PS 20 and PS 28).[20] All these three sites also have Bronze Age components, in the case of PS 12, where several trial trenches were excavated, a rather rich one spanning the Early, Middle and Late Bronze Age.[21] Another site that produced finds from all subphases of the Bronze Age was PS 17,[22] whereas in PS 18 and PS 20 we recorded finds at least from the Early and Middle Bronze Age.[23]

None of the Neolithic and Bronze Age sites produced more than small amounts of Palaeolithic flakes. Much more conspicuous is the fact that four of the six sites also produced Early Iron Age pottery (PS 12, PS 17, PS 18 and PS 20), and three of them

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[17] While defining sites we have in the main followed the criteria set up by the Keos survey (Cherry *et al.* 1991, 28), i.e., *find density*, which at a site should be anomalously high in relation to the background find levels; *discreteness*, which means that a site has edges where the density falls off markedly; and *continuity*, meaning that a site consists of a contiguous are with higher density. A full description of sampling methodology and find densities will be published in Thesprotia Expedition III. The more general spread of lithics in the valley may be due to post-depositional processes.

[18] Tourloukis and Palli 2009.

[19] Forsén *et al.*, this volume, site PS 43. We hope to resolve the question of dating by taking optically stimulated luminescence samples from the site in 2011.

[20] Forsén *et al.*, this volume, sites PS 12, PS 20 and PS 28.

[21] Forsén *et al.*, this volume, site PS 12. For some of the Early Bronze Age pottery, see also J. Forsén forthcoming.

[22] Forsén *et al.*, this volume, site PS 17. Some of the pottery from this site was published already by J. Forsén 2009.

[23] Forsén *et al.*, this volume, sites PS 18 and PS 20.

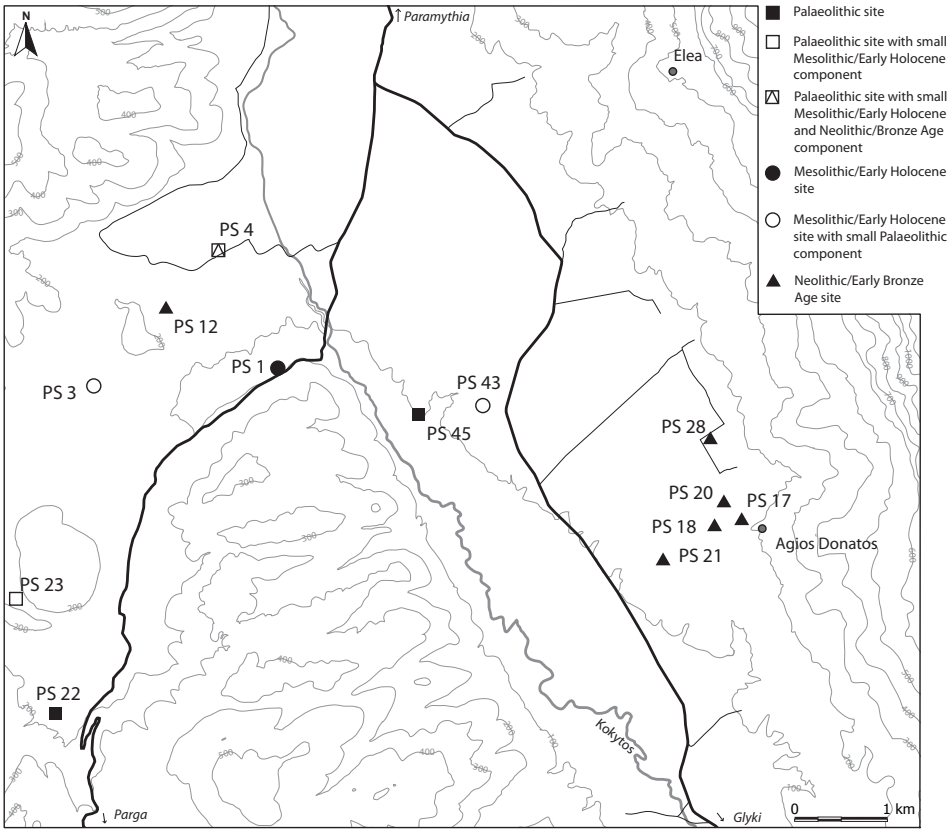

Fig. 2. Location of Palaeolithic and Mesolithic/Early Holocene sites.

single Archaic to Classical (PS 12) or Late Classical to Early Hellenistic sherds (PS 18 and PS 20).[24] Moreover, all the sites are located close to either the Early Hellenistic fortress Agios Donatos of Zervochori or to what later developed into two of the large clusters of Early Iron Age/Archaic to Hellenistic sites (at Kyra Panagia and Agora).[25] Finally it should be stressed that single Neolithic/Bronze Age finds also were found next to the cluster of Early Iron Age to Early Roman sites at Mavromandilia (a polished celt and some sherds from PS 36 and PS 46)[26] and on the acropolis of Elea (an arrowhead)[27], indicating the possibility that these locations also may conceal settlements of the Neolithic period or the Bronze Age (Fig. 3).

The fact that the location of the Neolithic and Bronze Age sites differs from that of the Palaeolithic and Mesolithic sites, at the same time as it shows great similarity with the Early Iron Age/Archaic to Hellenistic sites, is hardly surprising as agriculture rather than hunting/gathering was the main way of living already during the Neolithic period

[24] Forsén *et al.*, this volume, sites PS 12, PS 17, PS 18 and PS 20.
[25] Further on Agios Donatos and these clusters of sites, see below.
[26] The celt was found out of context in the Later Roman site PS 32. See Forsén *et al.*, this volume.
[27] Riginos and Lazari 2007, 83 with photograph. I owe thanks to Curtis Runnels for suggesting that the arrowhead might be Late Neolithic in date.

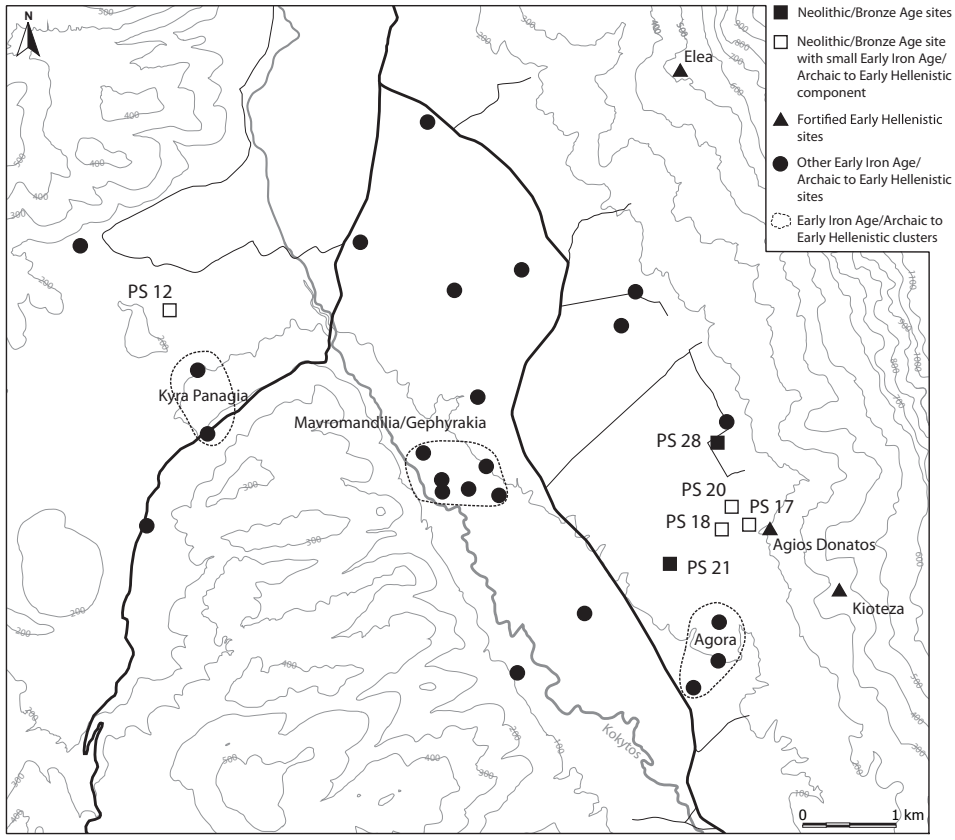

Fig. 3. Location of Neolithic/Bronze Age sites as compared to Early Iron Age/Archaic to Early Hellenistic sites.

and Bronze Age. The find of sickle elements on blades with silica gloss in two of the Neolithic to Bronze Age sites (PS 12 and PS 18, in PS 12 in the Early Bronze Age levels) and further possible sickle elements in two additional sites (PS 18 and PS 20) bear witness to the advent of agriculture. However, hunting seems to have continued to hold a certain importance, as arrowheads were found at a total of five of the six Neolithic to Bronze Age sites (PS 17, PS 18, PS 20, PS 21 and PS 28).[28]

The rich Early Bronze Age cultural layer of PS 12 with remains of wattle and daub, sickle elements with silica gloss, and large amounts of animal bones, several spindle whorls as well as some bobbins and bone needles will when studied more in detail give us a better picture of the agricultural life at that time. The few preserved carbonized seeds found in the excavations indicate cultivation of *Lathyrus sativus*/grass pea (in the Early Bronze Age layer) and emmer wheat (in a Late Bronze Age context).[29]

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[28] For the occurrence of sickle elements and arrow heads at these sites, see Forsén *et al.*, this volume.

[29] See T. Tenhunen, *Macrofossile analysis results* 2007, unpublished report (*Lathyrus sativus* seeds found in A1; Loc. 2, P. 1), and M. Lempiäinen, *Thesprotia Expedition 2009-2010. Macrofossile analysis report*, unpublished report (*Triticum dicoccum* (emmer wheat) seeds found in Late Bronze Age layers of PS 12, Area 3).

On the basis of our scant archaeological data, agriculture was without doubt practised on a larger scale at least beginning in the Early Bronze Age, a period when the number of sites and finds clearly grows in number. According to the palynological studies conducted in Lake Kalodiki, a degradation of the natural vegetation combined with a probable increase of open ground vegetation and cultivated plants is visible beginning at ca. 3250 cal. BC, i.e. during the early phases of the Early Bronze Age. In a similar study made in Lake Ioannina, the forest vegetation decreased between ca. 4500 and 2400 cal. BC.[30] These changes most likely are due to human impact on the environment and indicate increased human presence and agricultural practices, thus seemingly correlating with our archaeological data.

Too far-reaching conclusions regarding the arrival of agriculture in Thesprotia should not, however, be drawn on the basis of the palynological work conducted in Lake Kalodiki and Lake Ioannina. Both lakes are located at some distance (some 15 and 40 km respectively) from the fertile Kokytos valley, Lake Ioannina at a much higher altitude (470 masl) and Lake Kalodiki in a part of Thesprotia that could be described as rather marginal when compared to the fertile Kokytos valley. Our knowledge of the arrival and beginnings of agriculture in the Kokytos valley during the Neolithic period has thus to be based on further archaeological work in the valley itself.

From villages to fortified urban settlements

Next to the Palaeolithic *terra rossa* open air sites, the fortified acropoleis – some of them with the size of urban centres (such as Elea, Gitana, Phanote (Doliani), Elina (Dimokastro) and Mastilitsa) – have since the days of Hammond and Dakaris belonged to the most well-known archaeological remains of Thesprotia. These sites, which seemed to have been fortified in the second half of the fourth or the first half of the third century BC, continued to flourish until the destruction caused by Aemilius Paullus's troops in 167 BC. However, until some ten years ago we had almost no knowledge of what preceded these fortified sites and whether there existed smaller unfortified sites such as villages and isolated farmsteads parallel to them in the landscape. On the basis of new results reached by the Greek Archaeological Service and the Thesprotia Expedition, the outlines of the urbanization process begin to unravel.

Although no clear earlier settlement levels have been found in any of the large fortified urban centres, recent excavations in several of them have revealed indications of earlier activities. Most remarkable in this sense are the recent finds from Phanote (a Late Geometric cup from the cemetery, an Early Archaic kantharos and Late Archaic pottery sherds from the settlement)[31] and Mastilitsa (a Late Archaic building and a rich Late Archaic cemetery), which may have been a Corinthian or Elean colonial settlement.[32] The smaller fortress Pyrgos Ragiou follows the same pattern as the one of Phanote and Mastilitsa, producing nine figurines dating between the late sixth and mid-fifth century BC.[33]

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[30] Lelivelt, this volume, with further references.
[31] See e.g. *HGAtlas* 2008, 55, figs. 68-70 or Kanta-Kitsou *et al.* 2008, 35-37.
[32] For Mastilitsa see Tzortzatou and Fatsiou 2009, 46-50 with further references.
[33] Tzortzatou and Fatsiou 2009, 45-46 with further references.

The pattern emerging from the recent excavations at Phanote, Mastilitsa and Pyrgos Ragiou can now also be observed in the two main fortified sites of the central Kokytos valley. Thus, the excavations on the acropolis of Elea have yielded two silver pins of Archaic date, and the fortress of Agios Donatos a male, probably Early Iron Age, figurine.[34] Even though the early finds so far are rather few, they still indicate that Elea and Agios Donatos may very well have been settled before they were fortified in the mid-fourth and early third century respectively.[35] Further work at these sites (especially in the form of deep trenches) will hopefully reveal more of their earlier settlement phases.

Finds predating the urbanization in Thesprotia, i.e. finds from the Early Iron Age as well as the Archaic and Classical periods, have also recently begun to turn up outside the fortified sites, not only inside our study area, but also elsewhere in the region. Before going into details about our study area I want to emphasize the site excavated by the Greek Archaeological Service in connection with the construction of the Egnatia highway at Neochori, some seven km to the north of our study area. This site produced a small assemblage of Corinthian vases and a female figurine, all dating to the sixth century BC. Some of the vases were found in a grave, but it remains unclear whether the grave was connected with an isolated farmstead or a small village.[36]

Inside our study area in the Kokytos valley, recent archaeological work has revealed at least three clusters of Late Classical to Early Hellenistic sites which originate before the urbanisation phase (Fig. 4). The first one is located in Kyra Panagia at the foot of the Liminari hill. At this site the Greek Archaeological Service has excavated a small rural sanctuary and next to it four houses (I-IV) on the lowermost south slope of the hill to the west of the sanctuary, the westernmost house located at a distance of 600 m from the sanctuary. Graves were also reported in between houses III and IV. In our intensive surface survey we managed to localize another two possible houses of Classical to Hellenistic date (PS 5, square 7; PS 6).[37] Finally, some 500 m to the south of the small sanctuary, at the northern slopes of the hills next to Kyra Panagia, another three buildings of Late Classical and Early Hellenistic date, one of monumental size, were recently found.[38]

The small sanctuary and houses I-II and IV, as well as the probable buildings in PS 5, square 7 and PS 6, together clearly seem to form a village with two houses adjacent to each other, whereas the distance between the other buildings is ca. 100 m. The total area covered by this village would be approximately 6 ha. Due to thick vegetation the surroundings of the small rural sanctuary could not be surveyed intensively, and there probably existed further houses that we therefore could not localize. House III, which

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[34] For the silver pins from Elea see e.g. Riginos and Lazari 2007, 73 or Kanta-Kitsou *et al.* 2008, 108, nos. 3-4 (in both cases regarded as Hellenistic); for the date of the silver pins, see Forsén 2009, 12, esp. n. 34. For the male figurine from Agios Donatos, see Forsén *et al.*, this volume, site PS 25. Several coins dating to the sixth and fifth centuries BC were recorded by Hammond (1967, 717, 719, 721) in Paramythia, possibly originating from the castle of Paramythia, which in that case also would go back to at least the Late Archaic period (cf. also Dakaris 1972, 80, 99 and 123; Tzortzatou and Fatsiou 2009, 44).

[35] For the fortification walls of Elea, see e.g. Hammond 1967, 71-72 (dating them to between 230 and 167 BC); Dakaris 1972, 97-99 and 123 (preferring the mid-fourth century BC); for the walls of Agios Donatos, see Suha 2009 and Suha, this volume.

[36] For the site see Tzortzatou and Fatsiou 2009, 43-44 with further references.

[37] Forsén *et al.*, this volume, site PS 5-6.

[38] Forsén *et al.*, this volume, site E 15. For the location of the sites, see also Fig. 8 in Forsén *et al.*, this volume.

is located at a distance of ca. 300 m to the west from house IV, may not belong to the village proper, but is rather to be interpreted as a single farmstead located in the close neighbourhood of the village.

How to interpret E 15 is more problematic. The monumental building, taken together with the fact that at least remains of two further buildings were found, shows that we are not dealing with an isolated farmstead. This is rather to be interpreted as a separate small village, although the distance to the village/small sanctuary on the south slope of the Liminari hill is only some 500 m. It seems unlikely that there existed very many buildings in between these two villages, as the fields here are low-lying and prone to collect water in the winter. But as the distance between E 15 and the small rural sanctuary is only 500 m, one would still assume that there existed some connection between the two sites.

It is difficult to date the floruit of the villages at Kyra Panagia, although on the basis of the pottery found it seems clear that the peak of population occurred in the Late Classical and Early Hellenistic period. The small rural sanctuary, to which all these buildings in some way must have been connected, had cult activity which according to Irini Svana extended from the early fifth century BC to the first century AD.[39] I would argue that this most likely also indicates continuity of settlement in the village adjacent to the rural sanctuary, although it cannot be proven before the pottery from the excavations is studied in more detail.

But let us proceed to the second cluster of sites, which is located at Gephyrakia and Mavromandilia (Fig. 4). Here in the survey we indentified a total of six sites with black glazed pottery of the Classical through Early Hellenistic period (PS 31, PS 35, PS 36, PS 37, PS 44 and PS 46). At Gephyrakia (PS 35) the Greek Archaeological Service had excavated two houses of Late Classical through Early Hellenistic date, between which we found four other concentrations of tiles, iron slag, cooking pots, lekanai, black glazed pottery and one piece of a basalt grinding stone, most likely representing the location of further houses, at a distance of ca. 30 m from each other. The total size of the site is ca. 200x150 m and thus covers 2.5-3 ha.[40]

Some 200 m to the southeast of Gephyrakia follows the site PS 36 at Mavromandilia, including finds stretching back as far as the Late Helladic period or Early Iron Age and continuing to the Hellenistic period. The main phase of occupation at PS 36 is the Early Iron Age and more specifically the eighth century BC. Trial trenches have been opened in the site by both the Greek Archaeological Service and the Thesprotia Expedition, revealing remains of a settlement located on both sides of a small stream and covering an area of at least 100x60 m. A large spot of dark soil filled with animal bones and pottery as well as some smaller pits filled with similar material were excavated. The large spot may constitute the remains of a temporary wattle and daub shelter, although no clear postholes were found. Corinthian cover tiles indicate the existence of a better-built house somewhere in the neighbourhood at a later stage, perhaps in the Archaic or Classical period. The site could be described as a small village or hamlet.[41]

Moving some 150 m to the southeast from PS 36 follows another site, PS 46, which is rather similar to PS 35. PS 46 covers a total area of ca. 140x150 m, i.e., some 2 ha, inside of which there are four clear concentrations of Late Classical through

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[39] Svana 2009 with further references. For finds from the sanctuary see now also Kanta-Kitsou *et al.* 2008, 67-69.
[40] Forsén *et al.*, this volume, site PS 35.
[41] Forsén *et al.*, this volume, site PS 36. See also J. Forsén 2009 and Tzortzatou and Fatsiou 2009.

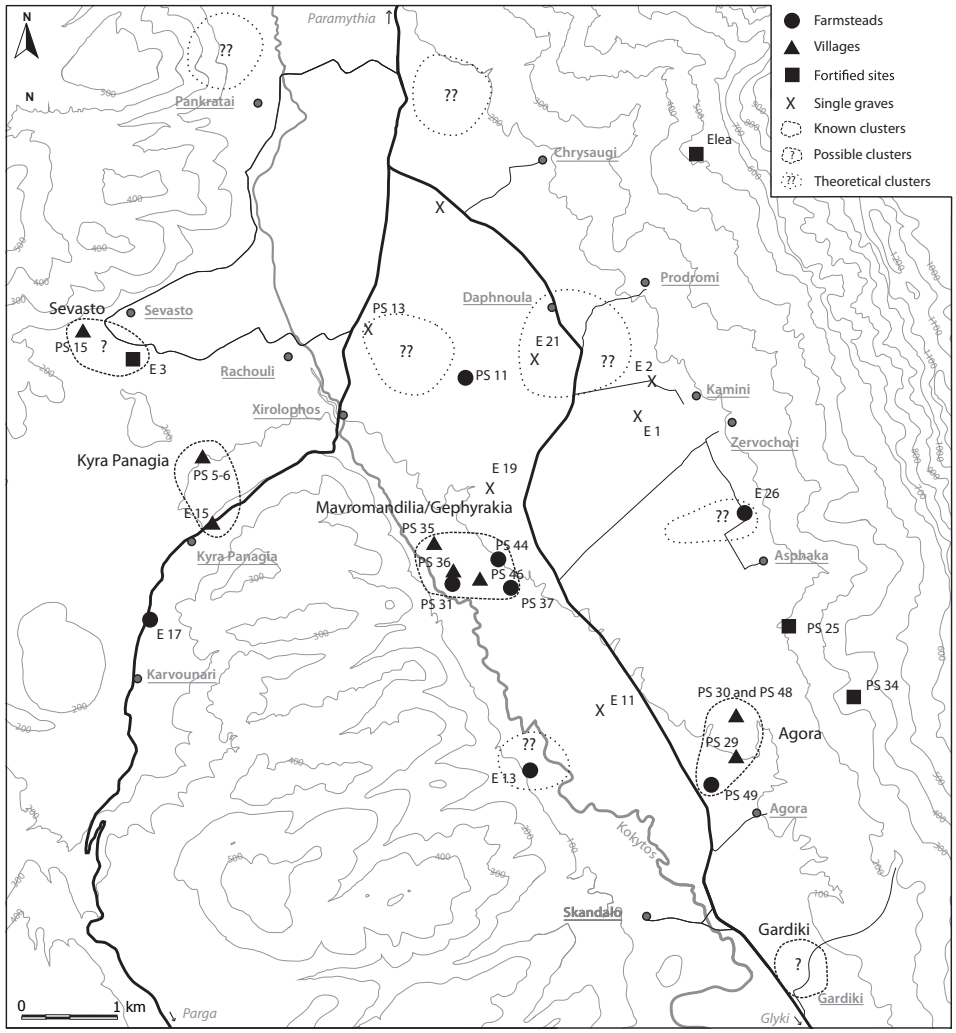

Fig. 4. Location of Late Classical to Early Hellenistic sites and site clusters. Sites with only smaller components of Late Classical to Early Hellenistic finds are not included.

Hellenistic pottery (black glazed fine ware as well as semi-coarse and coarse ware), roof tiles, iron slag, a loom-weight and part of a basalt grinding stone. The distance between these obvious houses is ca. 30-40 m. A handful of Late Bronze Age or Early Iron Age sherds were also collected at the site, which during the Late Classical to Early Hellenistic period could be described as a village.[42]

Ca. 150-200 m to the west, northeast and east from PS 46 there are three further sites dating to the Classical and/or Early Hellenistic period which apparently represent single farmsteads. At one of them (PS 37) we localized, with the help of a magnetometer prospection, a pottery kiln. Pottery wastes and slag collected at PS 31 may indicate that there existed another pottery kiln there. Finally, PS 44 produced a rich variety of pottery,

[42] Forsén *et al.*, this volume, site PS 46.

including parts of a skyphos, a small bowl, a lamp, a small flask, a mortar, a possible hydria and a conical loom-weight. Possible graves have also been recorded close to PS 44.[43]

How should the cluster of sites at Gephyrakia and Mavromandilia be interpreted? PS 35 and PS 46, and possibly also PS 36, must have been small villages of their own, close to which some separate farmsteads (PS 31, PS 37 and PS 44) were located. However, one should emphasise that even though the field surveying conditions in the neighbourhood of Gephyrakia and Mavromandilia were excellent, several fields were still overgrown and could not be surveyed. There may thus have existed further separate farmsteads between the sites detected. Anyway, the cluster is in many ways very similar to that of Kyra Panagia, and one is tempted to assume that some kind of connection existed between the sites belonging to it.

The peak of population in the cluster of sites at Gephyrakia and Mavromandilia clearly occurred in the Late Classical and Early Hellenistic period. The finds from PS 36 and PS 31 (and partly also PS 46) on the other hand indicate that the settlement originated much earlier, at least in the eighth century BC, but possibly even during the end of the Late Bronze Age. The available finds suggest that the settlement was initially small and did not expand until during the Late Classical and/or Early Hellenistic period.

The third cluster of Late Classical to Early Hellenistic sites is to be found just to the north of the modern village Agora (Fig. 4). Most information is available about PS 29, where excavations have been conducted by the Thesprotia Expedition concurrently with the Greek Archaeological Service. At least three and possibly even more buildings exist at this site, whose total size is 120x80 m.[44] Two of the buildings were exactly located during the intensive field survey and a magnetometer prospection, the distance between them being ca. 40 m. Both houses were later excavated. The first one (ca. 20x12 m large), located in a ploughed field, was badly preserved. The second house (18x14 m large) was better preserved with the stone wall foundations partly remaining. This house had been built on top of a rather well preserved pottery kiln. Some 50-60 m to the south from these two houses, a spread of roof tiles in another field indicates the probable location of a third building.

The two excavated houses date to the Late Classical through Early Hellenistic period. The find assemblages are typical for farmsteads of this date, including lots of storage jars such as pithoi, jugs and amphorae, but also cooking pots, loom-weights and black glazed fine ware (lamps, skyphoi, kantharoi and small bowls). A coin cut by the Molossoi and dating to between 360 and 330/325 BC belongs to the earliest finds of the main horizon of activity at the site. Unfortunately we have no date for the pottery kiln below the second house, but the chance find of a Laconian pithos rim dating to between 550 and 525 BC indicates that the site may have been settled already as early as during the Late Archaic period.[45]

Two further sites of Late Classical or Early Hellenistic date were located close to PS 29. The first one, PS 49, is located ca. 300 m to the southwest of PS 29, and probably was a single building. The second one, PS 30 and PS 48, is located ca. 300 m to the north of PS 29. This site consists of three concentrations of roof tiles and pottery in the

[43] Forsén *et al.*, this volume, sites PS 31, PS 37 and PS 44.
[44] For this site, see Forsén *et al.*, this volume, site PS 29.
[45] For the coin, see Talvio, this volume, no. 14; for the rest of the finds see Forsén *et al.*, this volume, site PS 29.

fields, each one probably indicating the location of a building. The distance between the buildings (PS 30, PS 48A and PS 48B) is ca. 90-100 m and the whole site covers an area of ca. 100x100 m.[46] PS 49 could theoretically be interpreted as a farmstead, PS 29 and PS 30 and PS 48 as small villages or hamlets. However, one has to bear in mind that we could not walk the fields to the north of Agora as intensively as the fields in the neighbourhood of Mavromandilia, thus making it rather likely that there existed further concentrations of roof tiles and pottery that we may have missed. This goes especially for the surroundings of PS 49, where several fields could not be searched at all due to thick vegetation.

The cluster of sites at Agora is in many ways very similar to those already described at Kyra Panagia and Mavromandilia/Gephyrakia. It consisted of a group of small villages and separate farmsteads all located rather close together, on the crest of a low ridge demarcated to the northwest and southeast by two parallel ravines originating at the foothills of the Paramythia mountain range and descending towards the Kokytos in the southwest of the valley. Like the two other clusters of sites described above, the peak of the population in the cluster at Agora seems to have occurred during the Late Classical and Early Hellenistic period, although the origin of settlement may go back as early as to the second half of the sixth century BC.

Having identified the three clusters of sites at Kyra Panagia, Mavromandilia/ Gephyrakia and Agora, the first question that arises is whether similar clusters of sites may exist elsewhere in the Kokytos valley. Although the rest of the valley has not been searched as intensively, some other possible candidates can still be suggested (Fig. 4). Another cluster most likely existed at the modern village of Gardiki, where a Late Classical to Early Hellenistic cemetery with at least 23 cist graves was excavated some 40 years ago next to the Paramythia-Glyki highway. Further graves and orthogonal limestone blocks have been reported further east near the Middle Byzantine church of Gardiki.[47] Another possible candidate may be located at the modern village of Sevasto, where an Early Hellenistic house has been excavated, but where graves and a small fortress also have been recorded.[48]

A certain pattern appears when we mark all these clusters of sites on the map. Thus, the distance between the cluster at Kyra Panagia and the one at Mavromandilia/ Gephyrakia is ca. 2 km, whereas the distance between the cluster at Mavromandilia/ Gephyrakia and the one at Agora is ca. 2.5 km. Furthermore, the distance between the cluster at Agora and the one at Gardiki is ca. 2 km, whereas the distance between the clusters at Kyra Panagia and Sevasto would be only ca. 1 km. Now, does such a settlement pattern find any parallels elsewhere in the Greek world?

Recent survey work has revealed that a large part of the population of ancient Greece lived in second-order, politically subordinated villages/hamlets not only in large *poleis* such as Athens, but also elsewhere, e.g. in Boiotia, Arcadia, the Argolid and the Cyclades. The distance between these villages/hamlets varies, depending on topography and other factors, between 1-2 and 4-5 km. This settlement pattern, which probably is

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[46] Forsén *et al.*, this volume, sites PS 49 as well as PS 30 and PS 48.

[47] For the rich finds from the graves, dating from the second half of the fourth and third century BC, see Vokotopoulou 1971, 332-333; Vokotopoulou 1972, 443-444. For further graves in Gardiki see Dakaris 1972, 138, no. 399.

[48] For the house, see Turmo, this volume. For other finds close to this house, see Forsén *et al.*, this volume, sites PS 15 and E 3, with further references.

based upon kinship groups, tends to originate in the Geometric or Archaic period and continue throughout the Hellenistic period, although some of the centres meanwhile develop into *poleis*, sometimes incorporating other villages/hamlets into their territories.[49]

The similarity of distribution of the clusters in the Kokytos valley with the villages observed elsewhere in the Greek landscape makes it tempting to interpret the clusters as non-nucleated settlement centres inhabited by kinship groups, occupying the same space of the valley beginning from the Geometric and Archaic periods. If this is the case, then further settlement centres could be suggested on the basis of the average distance between the centres in the valley, which as we have seen is ca. 1.5-2 km, although sometimes only 1 and sometimes as much as 2.5-3 km.

The urban centre at Elea and the fortress of Agios Donatos of Zervochori may well have originated as smaller villages or non-nucleated settlement centres, although we have no clear indication of this, except for the fact that both sites have produced a handful of finds going back to the Early Iron Age or Archaic period (Fig. 4).[50] One could also imagine a similar settlement cluster at the favourable location of Sternari or Delvitsi on the western side of the Kokytos (with the only excavated site being a Middle to Late Roman farmstead built on the foundations of an Early Hellenistic farmstead in which also an Early Iron Age kanthariskos was found),[51] or even at the modern village of Daphnoula, where black glazed pottery is said to be found in nearly every backyard garden (Fig. 4). The graves E 1, E 2 and E 21 may also have a connection to such a settlement cluster at Daphnoula.[52]

If one assumes a fairly even distribution of Late Classical to Early Hellenistic settlement clusters in the landscape, one would expect further conglomerates of sites close to the modern village of Zervochori (could sites E 25 and E 26 perhaps be parts of it?), somewhere to the east of the modern village of Rachouli (and not far from the monumental grave PS 13), near the modern village of Pankratai and also close to the modern village of Karyoti with its very rich springs (Fig. 4).

The settlement pattern suggested for the Kokytos valley, from the Early Iron Age throughout to 167 BC, is thus one centred on kinship groups living scattered over the landscape with a certain average distance between them. The kinship groups seem to have lived in clusters of villages and farmsteads all located close to each others. The sizes of the sites described as villages (PS 15, PS 5-6, E 15, PS 35, PS 36, PS 46, PS 30 and PS 48, PS 29) vary between 0.5 and 3 ha, whereas the farmsteads (E 17, PS 11, PS 31, PS 44, PS 37, E 26, PS 49, E 13) typically cover an area of only 0.01-0.2 ha.[53] Due to the

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[49] For Boiotia, see e.g. Bintliff 1999a or Bintliff 1999b; for Arcadia, Forsén and Forsén 2003, 260-265; for the Argolid, e.g. Mee and Forbes 1997; for the Cyclades, Hoepfner 1999, 132-133. In Boiotia the average distance between the villages/hamlets is ca. 5 km, on Thera in the Cyclades 4-5 km, whereas in Arcadia it varies between 1-2 and 3-5 km.

[50] For Agios Donatos in general, see e.g. Forsen *et al.*, this volume, site PS 25; Suha 2009; Suha, this volume; Forsén and Reynolds, this volume, with further references, for Elea in general, see e.g. Dakaris 1972, 97-99 and 139; Riginos and Lazari 2007 with further references. For the early finds from these sites, see n. 34 above.

[51] Forsén *et al.*, this volume, site E 13 with further references. The spread in date of the finds from this site speaks for a more complex and long-lived site than an isolated farmstead.

[52] Forsén *et al.*, this volume, sites E 1, E 2 and E 21.

[53] These sizes confirm those suggested by other survey projects, where the size of farmsteads usually has been suggested as below 0.5 or 0.3 ha and that of hamlets and villages as between 1.0 and 5.0 ha. See e.g. Bintliff and Snodgrass 1985, 136-137, 139-140; Snodgrass 1990, 125-134 (Boiotia); Jameson *et al.* 1994, 249 and 383 (Southern Argolid); or Mee and Forbes 1997, fig. 2. In Laconia Catling (2002, 187-195) divides the farmsteads

closeness to the other sites in the clusters, most of the farmsteads cannot be considered as isolated as elsewhere in Greece during the Late Classical to Early Hellenistic period, but should rather perhaps be described as "satellite farmsteads",[54] heavily dependent on adjacent villages or hamlets.

Most of the settlement centres of the Kokytos valley seem to originate in the Early Iron Age or the Archaic period, and they all seem to continue being settled until at least the Early Hellenistic period. However, the apogee of these centres occurs in the Late Classical or Early Hellenistic period, when the valley most likely also was experiencing a peak in population.[55] This is also the time when Elea developed into an urban centre, and when Agios Donatos of Zervochori (as well as Kioteza) was fortified. It should be noted that there is no sign of abandonment of any of the other settlement centres (rather they all flourish) concurrently with the development of Elea into an urban centre – thus indicating that the main factor behind the urbanisation process was a strong population increase, and not a *synoikismos* where the population from several villages would have been forced to move together to a new urban centre.

Apart from the fortified urban centres, another new feature appears in the Late Classical to Early Hellenistic landscape, namely the monumental graves. Two graves of this type have been excavated in the Kokytos valley: the Prodromi grave (E 1)[56] and the Marmara grave (E 11).[57] Remains of two further possible monumental graves were detected by the Thesprotia Expedition (PS 13 and PS 25).[58] The monumental graves indicate an increased social stratification and the appearance of a well-off local aristocracy. However, no luxurious buildings belonging to such an aristocracy have been found, unless one interprets the small Early Hellenistic fortresses Agios Donatos (PS 25) and Kioteza (PS 34) as seats for the local aristocracy.[59]

Après le Déluge – the Late Hellenistic to Early Roman periods

Towards the end of the Third Macedonian War, Aemilius Paullus on his way home to Rome, after the victory against Perseus in the battle at Pydna, gave his army orders to pillage Epirus, so as to punish the Molossians and those Thesprotians who had supported Macedonia in the war. The devastation was of epic proportions; 70 *oppida* are said to

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into smaller farms (0.01-0.15 ha) and large farms or villas (0.16-0.30 ha) and the villages into hamlets (0.40-2.0 ha) or villages/towns/forts (>3.0 ha).

[54] For the term "satellite farmstead", see Forsén and Forsén 2003, 318-319, who use it to describe Medieval to Early Modern farmsteads of a similar character in Arcadia. Of all the sites detected by the Thesprotia Expedition there are only two, PS 11 and E 17, which perhaps could be described as isolated farmstead. Unfortunately our knowledge of these sites and their closest surroundings is very superficial due to the cultivation of the fields in question.

[55] All of Epirus and Illyria seem to have experienced a population peak in the fourth and third centuries BC. Cf. e.g. Stocker 2009, 866-877 for the area around Apollonia, where however the isolated farmstead represents the typical site outside the urban centre.

[56] Choremis 1980.

[57] Riginos 1999, 172-174; Pietilä-Castrén 2008, 42-47. Cremation was used in both of these monumental graves. Further on the difference between cremation and inhumation, see Aidonis, this volume.

[58] Tikkala 2009 for the possibility that the frieze-epistyle blocks on Agios Donatos may have belonged to a barrel-vaulted tomb.

[59] Baatz 1999 describes the Hellenistic fortress at Nekyomanteion near the Acheron river as an "Adelssitz", i.e. as the seat of a local aristocratic family.

have been sacked and 150,000 inhabitants carried off as slaves, making it the largest slave-hunting operation in Roman history.[60] Epirus was, according to Strabo (7.7.3), left desolate and abandoned.

The destruction inflicted by Aemilius Paullus's troops on Epirus has been taken as a starting point for all archaeological conclusions drawn concerning the Late Hellenistic and Early Roman period in Thesprotia. The fortified urban settlements have been considered abandoned and the countryside desolated, and new inhabitants have been expected to move in only slowly, in connection with Caesar establishing colonies at Butrint and possibly also at Photike and with Augustus somewhat later at Nikopolis.[61] New work during the last decade, including that of the Thesprotia Expedition, is however slowly giving us a more nuanced picture of the changes taking place after 167 BC – a reality which is no longer dominated by absolute desolation, but by continued settlement, although on a much reduced scale. This goes e.g. for several of the fortified urban centres, such as Dimokastro, Phanote and Gitane, where habitation lingers on at least until the first century AD.[62] A similar pattern is followed by cemeteries in the countryside, such as those at Kephalochori and Neochori.[63] Recent research also shows that some of the destruction layers noted by excavators may in fact date to the late third century rather than 167 BC.[64]

In the more systematically studied Kokytos valley, we can today follow the settlement patterns of the Late Hellenistic and Early Roman period in greater detail. The urban centre of Elea seems to have been destroyed by the Romans in 167 BC and only sporadic coin finds bear testimony to some activity after that date.[65] A clearer continuation of settlement can be seen at two of the three clusters of Late Classical to Early Hellenistic sites that we have identified in the valley. In the cluster of sites at the foot of the Liminari hill at Kyra Panagia, some kind of continuation seems obvious on the basis of the finds from the small rural sanctuary, where no break or change in cult is visible after 167 BC. The sanctuary was not abandoned until a later stage, probably towards the end of the first century or in the second century AD.[66] One of the single cist graves near Daphnoula might also include burials dating after 167 BC.[67]

In the second cluster of sites at Mavromandilia/Gephyrakia, some kind of continuation is visible in the two villages identified by us (PS 35 and PS 46). In PS 35

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[60] Liv. 45.34.1-6; Plut. *Aem*. 29; Pol. 30.16. See also Hammond 1967, 628-635, 685-688; Gruen 1984, 512-513, 516-517 or Ziolkowski 1986, 69-80. Only part of the Thesprotians supported the Macedonians, the rest being pro-Roman. However, we do not know which and how large a part of the Thesprotians was pro-Roman and thus apparently would not have been punished.

[61] In general see e.g. Cabanes 1997 with further references. For the Roman period in Epirus see also Karatzeni 2001, Lambrou 2006a, Gravani 2007 and Bowden 2009 with further references. For the question whether Nikopolis ever had the status of a *colonia*, see Bowden 2011, 102-104 with further references.

[62] In general, see Lambrou 2006a, 258-263 and Riginos 2007. For more details on Dimokastro, see now also Lazari *et al.* 2008, and in general for Phanote, see Lambrou 2006b.

[63] For Kephalochori, see e.g. Riginos 1999, 175-180; for Neochori, see Lambrou 2006a, 263.

[64] See Turmo, this volume. The turn of the third to second century seems to have been even more of a period of changes for the Illyrians in modern Albania. See e.g. Stocker 2009, 872-873 and 877.

[65] Riginos and Lazari 2007, 26 and 79.

[66] According to Svana 2009 the last figurines date to the first century BC, but according to Lambrou 2006a, 263, they continue until the second century AD. Lambrou in the same context (2006a, 263, fig. 2Δ) publishes a photograph of Italian *terra sigillata* dating to the first century AD, probably originating from the sanctuary.

[67] Forsén *et al.*, this volume, site E 21, where the cist includes one burial dating to the late third, and another dating to the second century BC. Unfortunately no exacter date for the second burial is obtainable.

the excavations of the building with the channel produced at least one coin struck by the Epirotic League between 148 and the second half of the first century BC.[68] Roman pottery was also found in connection with one of the other houses of PS 35 that we localized in the survey.[69] In PS 46 the Late Hellenistic and Early Roman finds are concentrated to the western margins of the village in an area where no Late Classical to Early Hellenistic finds were made. This part was later excavated by the Greek Archaeological Service and was therefore treated as a site of its own (E 9).

The Greek excavations at E 9 revealed parts of a farmstead with a size of 30x9.5 m and at least four rooms. The foundations of the walls were constructed of worked limestone blocks, the rest of the walls probably consisting of mudbricks. The finds from the excavation have not yet been studied in detail nor published, but the farmstead can be provisionally dated on the basis of a silver coin from the first century BC or the first century AD. This date is supported by bulbous unguentaria and Italian *terra sigillata*, some of which already was found before the excavation in connection with the survey.[70]

The most interesting Late Hellenistic to Early Roman site of the central Kokytos valley is Agios Donatos of Zervochori (PS 25). At some stage shortly after the Roman destruction in 167 BC a large villa was constructed inside this Early Hellenistic fortress. The villa is built on three different terraces and has a size of at least 90x40 m. The walls of the villa are constructed in *opus incertum*. Further evidence of Italian workmanship is given by the high-quality wall paintings found in one of the rooms (Trench D) that were excavated. They represent the Second Pompeian style and find their best parallels in Pompeii and Rome between 50 and 30 BC.[71] The villa on Agios Donatos is apparently older than the wall paintings of Trench D, as evidenced by the closed deposit found in Trench F which dates to between the late second and early first century BC.[72] The earliest single find seemingly belonging to the villa is a coin minted by Prusias II of Bithynia between ca. 183 and 149 BC.[73] The apogee of the villa is clearly in the first century BC and the first century AD, although some kind of continued activity, on a much smaller scale, is evident also during the second and third centuries AD.[74]

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[68] Forsén *et al.*, this volume, fig. 18. The coin is similar to those published by Talvio, this volume, nos. 16-17 (one of the coins is from PS 25, and the second one, obviously a chance find originates from PS 15). It should be noted that Riginos and Lazari 2007, 94-95, refer to several coins dating after 167 BC that were found in the building with the channel.

[69] Roman pottery was catalogued only from PS 35/27, 35/26 and 35/28, i.e., the squares next to the spot that the Greek Archaeological Service had excavated under the name Agioi. The pottery, which could not be dated more exactly, is probably Early Roman in date. Further, see Forsén *et al.*, this volume, site PS 35.

[70] Forsén *et al.*, this volume, site E 9. It should be noted that this is the only site except for PS 25 (Agios Donatos of Zervochori) where the survey teams managed to find *terra sigillata*.

[71] For the villa in general, see Forsén *et al.*, this volume, site PS 25.

[72] Forsén and Reynolds, this volume.

[73] Talvio, this volume, no. 20. Other early coins that can be given an exact date include a Roman denarius of 56 BC (no. 22) and a coin minted by Kleopatra between 50 and 31 BC (no. 21).

[74] Forsén *et al.*, this volume, site PS 25. A handful of fragments of cooking pots dating to the fifth and sixth centuries AD were also found, but the very small quantity of these late finds rather indicates the presence of squatters or temporary visitors on the site. There are certain parallels concerning phases of occupation with the villa at Diaporit outside Butrint (cf. Bowden and Përzhita 2004). The earliest building phase at Diaporit dates to the Late Hellenistic/Republican period (second century BC to early first century AD) and pre-dates the apogee of the villa that dates to between the second half of the first and the late second century AD. Thereafter activity at the site dwindles until it is deserted around 250AD and later resettled between the late fifth and mid-sixth century AD.

Fig. 5. Tile stamp reading COS from PS 25 (Agios Donatos of Zervochori).

There are several details in the villa of Agios Donatos that point to very good contacts with the Italian peninsula, such as the *opus incertum* walls, the wall paintings and a large amount of imported Italian *terra sigillata* dating to the first half of the first century AD. Do these finds indicate that the owner of this large villa, and perhaps also some of his workmen and the other inhabitants of the villa, were Roman settlers who had moved to Thesprotia? This may very well be the case, although it should not be forgotten that the early closed deposit in Trench F mainly consisted of locally produced pottery.

We know from Cicero's correspondence with T. Pomponius Atticus and from Varro's *De re rustica* that large villas were owned in Epirus by affluent Romans, the *synepeirotae*, by the early first century BC (Atticus owned his villa at Butrint already in 68 BC).[75] Some of these early Roman settlers are even known by name through Varro, whose treatise on stock breeding in *De re rustica* is presented in the form of a dialogue between himself and Roman villa owners in Epirus such as T. Pomponius Atticus, L. Cossinius, Murrius and Cn. Tremellius Scrofa. The villa on Agios Donatos probably belonged to one of the early Roman land-owners described by Cicero and Varro. One of the tile stamps occurring at Agios Donatos reads COS (Fig. 5),[76] which perhaps could be a shortening of L. Cossinius,[77] in that case indicating that the villa belonged to him or that the tile had been produced on his domains in Epirus. L. Cossinius, who died in 45 BC is also mentioned by Cicero (*Att*. 1.19.11; 1.20.6; 2.1.1) in connection with Atticus in 60 BC,[78] and his involvement in Epirus probably goes back to the first half of the first century BC, which would fit well with the date of the villa on Agios Donatos.

The remarkable Italian traits of building technique, wall paintings and pottery in the villa of Agios Donatos stand out better if compared with other possible villas or farmsteads of the same period. In the farmstead E 9, Italian *terra sigillata* was found, but no wall paintings, whereas the walls were constructed in the traditional Greek way, i.e. with foundations built of worked limestone blocks, rather than in *opus incertum*.

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[75] For the *synepeirotae*, see e.g. Cabanes 1997, 124-126; Bowden 2003, 73-74; Bowden 2009, 169 or Hernandez 2010, 76-80.

[76] The tile stamps and the graffiti from Agios Donatos will be published in *Thesprotia Expedition* III. The late second to early first century closed deposit in Trench F on Agios Donatos also includes one COS-stamp (Forsén and Reynolds, this volume), thus probably indicating that the stamp is synchronous with the first building phase of the villa.

[77] Roman names beginning with COS are rather rare (cf. Solin and Salomies 1988, 61-62). Stamps beginning with COSS or COS do however appear in Rome in the second century AD: Coss () Amb (), Cos () Fla (), Cos () Grat () or Cos () Sulp (). There are also stamps with the names Cosinius Satrianus and C. Cosconius written out. Cf. e.g. Bloch 1948, 26 and Steinby 1974, 90.

[78] For L. Cossinius, see Münzer 1901, 1671-1672.

This could be explained in two different ways. Either the owner of E 9 was poorer than the one of the larger establishment on Agios Donatos (a clear villa), something which could be supported by the fact that the farmstead E 9 is smaller (30x9.5 m) than the villa PS 25. The discrepancy may, however, also be explained by suggesting that the owner of E 9 was a local aristocrat, who stuck to the architectural traditions of the region or who did not have access to the new Roman technical know-how.

Another reference point to the villa of Agios Donatos is the farmstead excavated by the Greek Archaeological Service on the hill of Mastilitsa next to the delta of the Kalamas river.[79] This building with large storage and work spaces, as well as one room with mosaic (*opus spicatum*) floor, seems to originate during the second half of the second century BC, the earliest find being a coin of the Thessalian League dating to between 196 and 148 BC. The building was in continuous use until at least the first half of the third century AD[80] and contained large quantities of Arretine *terra sigillata* of high quality, as well as Roman coins of the second and third century AD. No wall paintings were found, however, and judging by the published photographs, the walls were mainly constructed in the traditional Greek way with the foundation consisting of worked limestone blocks. The size of the farmstead (23x16 m) is also more in line with that of E 9 than the villa on Agios Donatos and should thus be considered a large farmstead rather than a villa.

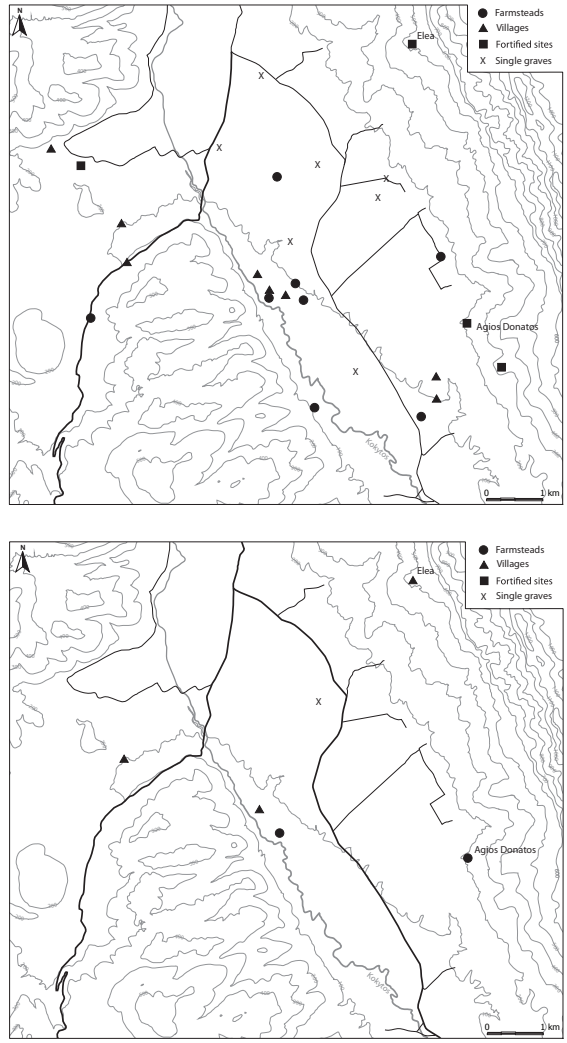

Fig. 6. Two parallel maps marking the Late Classical to Early Hellenistic sites (above) as compared with the Late Hellenistic to Early Roman sites (below).

The archaeological evidence from the Kokytos valley seems to indicate a decline of population after the Roman destruction of 167 BC (Fig. 6). Life continues, however,

[79] Preka-Alexandri 1994, Lambrou 2006a, 260 and *HGAtlas* 2008, 95 with a photograph.
[80] Lambrou 2006a, 260, also mentions a handful of Early Christian pottery (i.e., of fifth to sixth century date).

although on a smaller scale, above all in the countryside, where two of the three clusters of Late Classical to Early Hellenistic sites studied persist throughout the Late Hellenistic and into the Early Roman period. Some activity can also be seen in the urban centre of Elea after 167 BC, although the site soon is totally abandoned, perhaps in connection with the foundation of Photike.

The first signs of Roman colonisation in Thesprotia may go back as far as to the late second or early first century BC as exemplified by the villa of Agios Donatos. Further and perhaps clearer indications of Roman immigration can be found during the first century BC in the *colonia* Photike and the recently discovered Roman settlement/cemetery of Mazarakia, where primary cremations for the first time are introduced to Thesprotia.[81] It is, of course, possible that people from the countryside concurrently moved to new nucleated sites like these,[82] thus strengthening the impression of a depopulation that can be observed in the Kokytos valley. Anyway, the Roman immigration must at least have led to a slow recuperation of the population, beginning in the first century BC, although this is not visible in the archaeological record of the Kokytos valley.

The old settlement pattern going back all the way to the Early Iron Age or Archaic period was not obliterated at once in 167 BC, but lingered rather on for another couple of centuries – at the same time as new elements were introduced, such as the *colonia* Photike or the Roman village/cemetery at Mazarakia just to the west of our study area. Another new element consists of large villas or farmsteads, which bear testimony of a concentration of wealth in the hands of a small group of people.[83] Some of the owners of these new countryside estates were affluent Romans, while some of them may have been local aristocrats.

The rate of desolation after 167 BC and the arrival of immigrants and slow resurgence of population is also evident – except in the diminished number of sites – from a comparison of the preserved animal bones from PS 36, a mainly Early Iron Age site and from PS 25 (Agios Donatos). Together these two sites give us a picture of the changing animal-based subsistence through time, as shown by Markku Niskanen and Vivi Deckwirth.[84] In PS 36, cattle were more abundant than ovicaprids, with pigs and horsees in a minority. In PS 25 three different layers with remains of animal bones could be identified, the first one dating to the late second and early first century BC, the second one to the first century AD, and the third one to the late second and third century AD. In

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[81] Our knowledge of Photike is mainly based on the published inscriptions (cf. Hatzopoulos 1980; Samsaris 1994 and Sironen 2009). It was founded during the reign of either Caesar or Augustus (Samsaris 1994, 20-21 and Rizakis 1996, 270-271). The cemetery at Mazarakia dates between the first century BC and the second century AD (cf. *HGAtlas* 2008, 137 with photographs of some of the finds). I owe thanks to Ourania Palli and Asterios Aidonis for further information concerning the cemetery at Mazarakia, where the typical Roman primary cremations dominate as contrasted to the Hellenistic type of cremation burials in Thesprotia (for the latter one, see Aidonis, this volume.

[82] This seems at least to be the picture around Apollonia, where the depopulation of the countryside is paralleled by an increase in urban residence (cf. Stocker 2009, 877-888). Unfortunately our knowledge of Photike is much too limited for such conclusions to be made. See also Gravani 2007, who argues that even some Thesprotians were forced to take part in the *synoikismos* of Nikopolis, or Bowden 2011, who discusses to which extent the new settlers really were Romans.

[83] According to Cabanes 1997, 124, the manumission acts of Butrint, which date to between the third and first century BC, also indicate an increasing degree of social stratification, with a progressive reduction in the number of group manumittors and a corresponding increase in the number of individual slave-owners.

[84] Niskanen 2009; Deckwirth, this volume.

all three layers, ovicaprids were the most common animals. In the late second to early first century, *Cervus* is the second most commonly occurring animal species group, making up 20-31% of the bones depending on whether the teeth are included or not. In the layer of the first century AD, 10.2-17.2% of the bones represent wild mammals (*Cervus* and *Lepus*), whereas they are absent altogether from the late second to third century AD layers. The amount of pigs and cattle rises when moving from the late second to first century BC layer to the first century AD layer, but falls drastically to the lowest percentages in the late second to third century layers, which are dominated by the ovicaprids.

Written sources indicate that the economy of Epirus after 167 BC was specialized on animal husbandry and secondary products such as milk, cheese, wool and skins. The surplus in livestock, and especially in ovicaprids, may even have been the factor that attracted affluent Romans to invest in villas in Epirus in the first century BC, as suggested by David Hernandez.[85] The difference in subsistence between PS 36 and PS 25, which implies a change to an economy with ovicaprids as the most common animals, could be related to this process. It cannot, on the other hand, be excluded that the change took place already several centuries before 167 BC, as ovicaprids in Kassope were the most commonly occurring animals throughout between 360 and 30 BC.[86]

A parallel to the noticed shift to a larger percentage of wild mammals on Agios Donatos can be found during the last centuries BC in Kassope.[87] This shift could indicate a sharply decreasing population combined with a rise in numbers of wild animals. On the other hand, one should not forget that wild game was part of the subsistence of higher social classes in the Roman period. This could partly explain their appearance in the bone assemblage of Agios Donatos, although not in Kassope. The total lack of wild mammals and the dominance of ovicaprids among the bones from the late second to third century AD should, in turn, rather be connected with the obvious loss of wealth and social status that characterizes the late stages of the villa on Agios Donatos.[88]

The new reality of the Middle and Late Roman periods

The surprisingly static settlement pattern originating in the Early Iron Age/Archaic period, seemingly even surviving the havoc of 167 BC, was not completely abandoned until the Middle Roman period, giving way to a totally new settlement pattern representing the third to the sixth century AD. Thus two of the three clusters of sites identified by us and dating between the Early Iron Age/Archaic and the Early Hellenistic period continued, as we have seen, to be settled during the Late Hellenistic and Early Roman period, but none any longer during the Middle and Late Roman period.

Three sites of the Late Classical and Hellenistic period seem on the other hand to have been resettled during the Middle and/or Late Roman period. Thus, E 13 (Delvitsi or Sternari), which produced some evidence of settlement during the Early

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[85] Hernandez 2010, 65-80.
[86] Boessneck 1986.
[87] Boessneck 1986.
[88] According to Powell 2007, 306, 313 and 318 wild mammals were part of the subsistence in the Triconch Palace at Butrint during the late third to fourth century AD, indicating that game at least was available for people belonging to the higher social classes.

and Late Hellenistic period, was resettled as a farmstead from the late third until fifth century AD.[89] The two Early Hellenistic fortresses Agios Donatos of Zervochori (PS 25) and Kioteza (PS 34) show a similar pattern. Inside the fortress of Agios Donatos a Roman villa was built which flourished in the first centuries BC and AD, followed by a contraction of the quantity and quality of finds in the second to third century. The villa was probably abandoned in the third century AD. A handful of pottery dating to the fifth and sixth centuries AD indicates some kind of later activity at the site. Kioteza in its turn is not reused until the fourth and fifth centuries AD.[90] The small amount of pottery dating mainly to the Late Roman period seems to indicate a short usage of Agios Donatos and Kioteza, perhaps as temporary hilltop refuges. Similar hilltop refuges and fortresses are a common feature of Epirus in the sixth century, when Photike also was moved from the valley bottom to the fortress Agios Donatos above modern Paramythia.[91]

The new sites mainly dating to the Middle and Late Roman period can be divided into two different types. First of all there are typical farmsteads (PS 7, E 7, PS 16, E 4, PS 39, PS 41, E 6, E 12, E 13, and possibly also PS 40 and PS 42). Graves were found very near several of the farmsteads (E 7, PS 16, E 4, PS 41, E 6, E 12 and E 13). Four of the farmsteads were intensively surveyed, turning up as 10-20x10-20 m large concentrations of tiles, stones and pottery, although the finds in some cases, probably due to recent agricultural work, were spread beyond the core area itself as a carpet with lower find density, in one case covering almost 0.4 ha (PS 41).[92]

Apart from the typical farmsteads there are also larger sites with several concentrations of finds, obviously indicating the location of different buildings (PS 14, PS 10, PS 32, PS 27, PS 38, and possibly also E 18). The number of buildings documented in these sites through find density distribution (counted in 10-20x10-20 m large areas) or magnetometer surveying varies between two and six,[93] but it should be stressed that there may have been further buildings that could not be recorded on the surface. The area covered by these sites varies between one and three ha. The only exception is PS 38 which covers ca. 0.4 ha although revealing as many as four find concentrations.

The sites of the second category could be interpreted either as large villas consisting of several buildings or alternatively as villages. Due to the absence of any indicators of wealth such as mosaics or larger amounts of imported fine ware[94] I am

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[89] Forsén *et al.*, this volume, site E 13.

[90] Forsén *et al.*, this volume, sites PS 25 and PS 34 with further references.

[91] In general for the hilltop refuges and fortresses of the sixth century, see Bowden 2003, 180-185 and Bowden 2009, 177-178 with further references. For Photike and Agios Donatos of Paramythia, see Triantaphyllopoulos 1984 and Bowden 2003, 175 with further references.

[92] For details on the farmsteads, see the description of the single sites by Forsén *et al.*, this volume. PS 41 could on the basis of its total size possibly be regarded as a small village. It has still been treated as a farmstead since there is only one very clear find concentration inside the site, this core area covering just 10x10 m. There are also three sites that only have revealed possibly Late Roman graves (E 8, PS 33 and E 23). E 23 could perhaps be connected to the farmstead PS 39 and PS 33 to the village PS 32, whereas one would assume yet another farmstead somewhere near E 8.

[93] PS 14 having two, PS 10 five, PS 32 three (or possibly four) and PS 38 four find concentrations. In PS 27 six possible buildings were spotted by magnetometer. Further see Forsén *et al.*, this volume. It should be noted that PS 38 theoretically also may include the farmstead PS 39, which was located only 70-80 m from PS 38. The total size of PS 38 would then be closer to 1 ha.

[94] According to Alcock 1993, 63-71, tables 5 and 6, Roman villas are characterized by "elite features" such as kilns, ashlar walls, standing remains, mosaics, imported ceramics and baths.

inclined to regard them as villages. Further indications as to their function can be deduced from their location in relation to other sites and buildings. Thus the six buildings of PS 27 were built in close proximity to a Late Roman basilica. A similar village may have existed next to the second known Late Roman basilica in our study area, i.e., E 18. A milestone of the third century AD, which was found near this basilica, indicates that the main road leading through the Kokytos valley from north to south must have passed by close to it.[95]

The main road leading through the Kokytos valley in the Middle and Late Roman period connected Photike to Butrint in the north, and to Euroia and Nikopolis in the south, and might as a matter of fact even have been indicated on the Peutinger Table.[96] It is likely that the road in some way influenced the settlement pattern in the valley. The known Late Roman basilicas are located as a string from north to south through the valley with the basilica at Krystallopigi some four km to the northwest of Photike,[97] whereas the basilicas of Chrysaugi and Zervochori are some six and ten km to the south-southwest of Photike respectively. Allowing for some kind of average distance between the basilicas, the following one towards the south would be located somewhere at Gardiki, where none so far has been found.

Most of the Middle and Late Roman sites in our survey area are, just like the two Late Roman basilicas, located in the middle of the valley and not along the slopes of the Paramythia mountain range or along the Kokytos as previously (the exceptions being PS 41, E 12 and E 13). The sites are not evenly spread, but rather form clusters with a distance of ca. two km from each other – one around the basilica of Chrysaugi, another one between Xirolophos and Daphnoula, a third around Paliokklisi of Zervochori and a fourth to the north of Skandalo (Fig. 7). The area around Paliokklisi of Zervochori was most intensively surveyed. Therefore the cluster around this basilica is also best known, consisting of at least three villages (PS 27 next to the basilica, PS 32 and PS 38) and possibly as many as seven farmsteads (E 4, PS 16, PS 39, PS 40 (?), PS 41, PS 42 (?) and E 6), all of which lay within a radius of ca. one km from the basilica. The second cluster between Xirolophos and Daphnoula consists of at least two villages (PS 10 and PS 14) and one farmstead (E 7), whereas the first and fourth possible clusters are known only through excavations.

The pottery from the Middle and Late Roman sites mainly consist of cooking pots and storage vessels, and only to a small degree of imported fine ware. Thanks to the partly unpublished cooking pot chronology established by Paul Reynolds for northwestern Greece and Albania, the badly worn sherds from a total of 14 Middle to Late Roman sites could be dated to specific centuries. In Fig. 8 the numbers of these sites that produced pottery dating to the second, third, fourth, fifth, sixth and seventh centuries AD are indicated. Although the sample is small and the dates to a large extent depend on the very poor state of preservation of the pottery, Fig. 8 still gives us a pretty good picture of the general trends of settlement during the Middle and Late Roman periods. Thus only two of

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[95] Forsén *et al.*, this volume, sites PS 27 and E 18.

[96] The exact route of the road between Butrint and Nikopolis is, however, disputed and dependent on where to localize the station *ad Dianam*. According to Stadtmüller 1954, 246-248 this station was located at Photike, whereby the road would have passed through the Kokytos valley. Hammond 1967, 86, on the other hand prefers to place *ad Dianam* about a kilometre west of Gitane. From here he suggests that the road would have continued roughly along the modern highway via modern Igoumenitsa and Margariti to Nikopolis. Hammond is followed by Soustal 1981, 90 and Bowden 2003, 16.

[97] Vasilikou 2009.

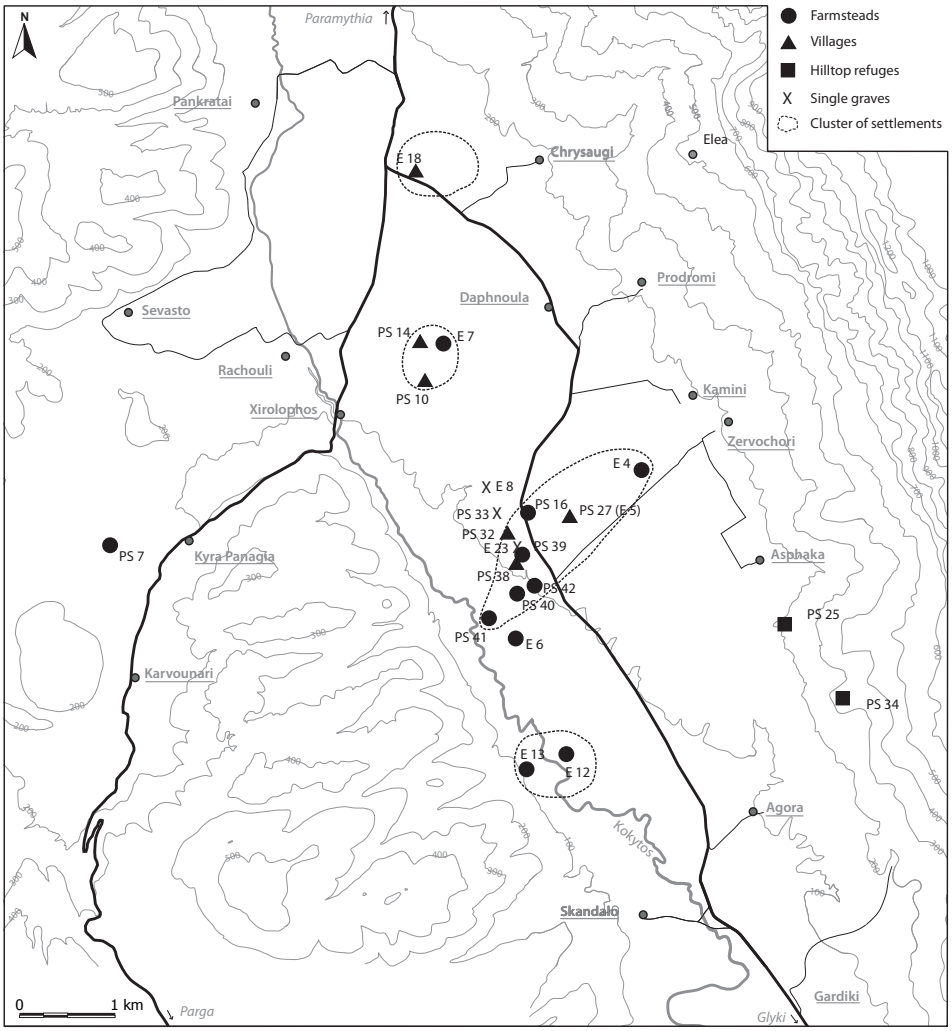

Fig. 7. Location of Middle to Late Roman sites.

the 14 sites were settled in the second century as compared to five in the third and seven in the fourth century. The peak is reached in the fifth century with 14 sites, whereas the number in the sixth century has fallen slightly, to nine. Finally, none of the sites is settled any longer in the seventh century AD.

Fig. 8 does not include any of the Early Roman sites that were abandoned before the new settlement pattern was created (PS 25, however, is included as a hilltop refuge of the fifth and sixth centuries AD). Of these, the small sanctuary at PS 5-6 and the farmstead E 9 seem on the basis of our present knowledge to have been abandoned by the second century, whereas the large villa of Agios Donatos (PS 25) after its apogee in the first century BC and AD continued in some kind of use, although on a much smaller scale, also during the second and third centuries AD. The general picture given in Fig. 8 is also slightly biased by the fact that another two of the Middle to Late Roman sites (PS 32 and PS 38) produced a handful of Hellenistic and Early Roman sherds that could not be dated

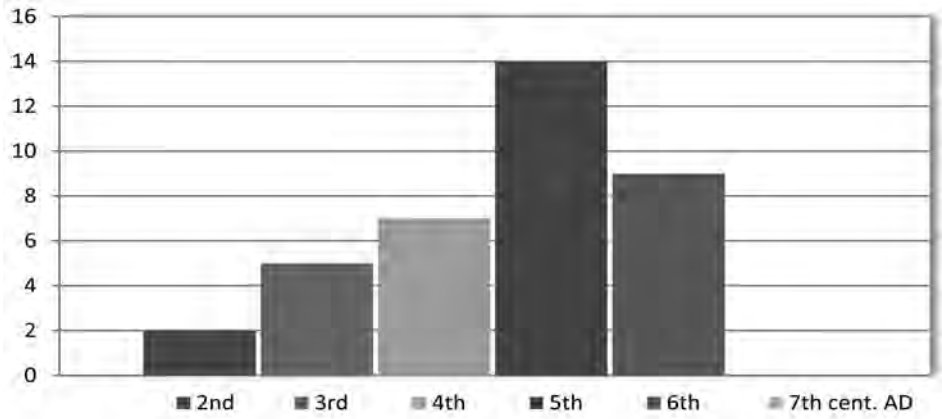

Fig. 8. The rise and fall of the Middle to Late Roman settlement pattern in the Kokytos valley as reflected in number of settled sites.

explicitly to a certain century. The number of the sites already settled in the second, or even first, century may thus be larger.

The change of settlement pattern in the Kokytos valley seems to have been gradual, taking place during the second and third centuries AD. The evidence seems to speak for a peak of settlement in the fifth century AD, after which a slow retardation already can be seen in the sixth century before the arrival of the Slavic Dark Ages that lasted for several centuries. This picture is further strengthened by the fact that the largest amount of Middle to Late Roman sherds, which can be assigned to a definite century, date to the fifth century AD, whereas, for instance, few can be dated to the second or third centuries AD.

Other intensive field surveys conducted in the neighbourhood of Butrint and Nikopolis give an only slightly different picture. There the landscape is characterised by a rather static Roman and Late Antique settlement pattern, obviously taking form in the late first century AD.[98] In Nikopolis a clear change of clay resources used for cooking ware, combined with a standardization of certain pottery shapes, takes place at the same time.[99] Major residential building in the countryside in the form of large villas seems mainly to occur in the first and second centuries AD and then to diminish during the third century. No major construction phases of private dwellings are then discernible for the fourth, fifth and sixth centuries.[100] The Roman and Late Antique settlement pattern survives until the sixth century. Thereafter follow the Slavic Dark Ages between the seventh and ninth centuries AD.

The formation of the Middle and Late Roman settlement pattern in the Kokytos valley seems thus to have taken place only about a century later than in Butrint and Nikopolis, a time lag that does not seem altogether impossible. The increase in the

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[98] For the static settlement pattern and Butrint, see Bowden 2003, 79-81 and Pluciennik 2004, 54-57. Wiseman 2001 is still the best overview of the results of the historical periods collected by the Nikopolis project (although not giving any date for the formation of the static Roman settlement pattern). For the indications that the settlement of the countryside next to Butrint develops towards the end of the first century AD, see Hodges and Hansen 2007, 8 and 10.

[99] Moore 2000, 211-212, 243-244, 251; Moore 2001, 83-86. Interestingly enough, no changes in the ceramic repertoire following directly upon the Roman conquest of Epirus in 167 BC could be noted in Nikopolis.

[100] Bowden 2003, 81.

number of sites during the Late Roman period finds parallels in several other regions of Greece, where it generally has been interpreted as an increase in population.[101] The preliminary results of the surveys in Nikopolis and Butrint did not seem to support a similar increase, thus leading Bowden to form his thesis of a rather static Roman and Late Antique settlement pattern.[102] This picture may however have to be refined when the results of the surveys are published in detail.[103]

Epirus was all throughout the ancient period characterised by huge estates mainly specialised on stockbreeding. The owners in the Middle and Late Roman periods were typically absentee landlords who lived in the cities, the most affluent even outside Epirus. A good example is the Thesprotian Klearchos family. One member of the family enjoyed a long career as a top-ranking government official and member of the Senate in Constantinople under the reigns of Valens and Theodosius I. As *praefectus urbis Constantinopolitanae* he was even associated with the building of an aqueduct and the public library of Constantinople. His son also had a magnificent career, becoming *praefectus urbis Constantinopolitanae* and praetorian prefect of Illyricum in the early fifth century AD.[104]

The interest of the aristocratic class in the urban life is visible in the construction of private dwellings, sometimes of palatial dimensions, in the urban centres, beginning from the late third and continuing until the mid-fifth century.[105] The tendency of the ruling class to show off its wealth in this way probably is connected with the concurrent absence of investments in private dwellings in the countryside. The contraction of and final abandonment of the luxurious villa of Agios Donatos in the second and third centuries AD should be related to this general trend. Thereafter the landscape was mainly settled by small farmers and slaves, living and working on domains probably largely belonging to absentee landlords.

The Kokytos valley was an integral part of Late Roman Epirus. Two of the ten settlements in the province Epirus Vetus that in the *Synekdemos* of Hierokles ca. 527/528 are described as having the status of *poleis* were located in or close to the valley (Photike in the north part of the valley and Euroia just to the south of it). Both sites were bishoprics, the latter one well known for the fact that the relics of Agios Donatos were kept there.[106] Christianity had become firmly established in Epirus by the second quarter of the fifth century, with several bishops from the region attending the council of Ephesus in 431 and that of Chalcedon in 451 AD. As shown by Bowden, the majority of the large number

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[101] For an early overview, see Alcock 1993, 33-49. For a more recent overview and discussions on how to interpret the increase of finds (partly due to increased visibility etc.), see Kosso 2003, Pettegrew 2007 and Bintliff *et al.* 2007, 155-167.

[102] Bowden 2003, 79-82.

[103] Crowson and Gilkes 2007, 122-123, now speak of a general revival of the settlement in the unwalled suburb outside Butrint after AD 400. In Apollonia to the north of Butrint an infilling of the rural landscape also occurred in the Late Roman period. The process of infilling apparently began already towards the end of the Middle Roman period. Cf. Stocker 2009, 885-886.

[104] For Klearchos, see *PLRE* I, s.v. Clearchus 1 and Clearchus 2. For the economic and social conditions of Epirus in the Middle and Late Roman periods, see e.g. Chrysos 1997, 156-160.

[105] Cf. e.g. Bowden 2003, 46-58. Gilkes *et al.* 2007 or Bowden and Hodges 2011 define a new kind of "grand" housing that was constructed from the mid-fifth century onwards, i.e. two-storey houses with working spaces on the first floor and living quarters and dining rooms on the second floor.

[106] For Photike and Euroia, see Soustal 1981, 236-237 and 158. Euroia is generally located at Glyki next to the Acheron, although Bowden 2003, 108 expresses doubts as to the validity of this suggestion.

of palaeochristian churches that are found all over the region, both in towns and in the countryside, were built between the mid-fifth (and especially from 475) and the mid-sixth century AD. Interestingly enough, this boom in ecclesiastical construction followed upon the apparent decline in the construction of grandiose urban private dwellings, thus indicating a shift in where surplus wealth was invested.[107]

Through the Epirote bishoprics, or rather through the papal correspondence with them, we can trace the end of the ancient period in Thesprotia fairly well. Epirus had been hit by several barbarian invasions in the fourth to early sixth century, but the decisive strike was apparently caused by the Slavic invasion of 586/587 AD. The bishop of Euroia escaped with his clerics (and part of the population?) to Corfu, taking with him the relics of Agios Donatos. By 596 there were only five bishops left in Epirus Vetus as compared to the eight mentioned by Hierokles in the 520s, and by 603/604 four of these bishops were already guests of the fifth, Alkison of Corfu.[108] A second incursion by Slavs in 614-616 to Epirus and other parts of Greece merely confirmed the fact: Thesprotia and the Kokytos valley had moved into a new phase of history, the Slavic Dark Ages.

The Medieval and Early Modern centuries

The settlement patterns of the Medieval and Early Modern periods are difficult to trace in archaeological terms in the Kokytos valley. The number of known excavated sites and standing monuments belonging to these centuries is very small.[109] The intensive field survey did not help much in enlarging the number of known sites of these periods, partly because the settlements then were located higher up on the mountain slopes, in locations that nowadays are either superimposed by modern villages or badly overgrown by impenetrable vegetation. It is not until the twentieth century and the advent of modern roads and cars that the villages once again move down closer to the valley bottom.

The catalogue of sites in our study area includes ten sites with remains from the Medieval or Early Modern periods. Most of these sites are Early Modern in date (PS 23[110], PS 2, PS 8, PS 9, PS 47, E 14, PS 24 and PS 26) and only two produced remains of Medieval date (E 10 and PS 25). No clearly identifiable Medieval pottery was found at any site, and the church ruins at E 10 have thus been suggested to be Medieval in date only on the basis of a handful of cast window panes found next to them. The location of this site is strange and atypical for the Medieval period: it lies in the middle of the valley bottom not far away from the Late Roman village and basilica PS 27.[111] Most

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[107] Bowden 2003, 105-159.

[108] For the papal correspondence see e.g. Soustal 1981, 51; Chrysos *et al.* 1997, 182-184 or Bowden 2003, 197-198 with further references.

[109] For an overview of recent archaeological finds from elsewhere in Thesprotia that date between the tenth and fifteenth centuries, see Drosou 2006, 284-293. The most interesting excavations have been made along the Kalamas river with several important cemeteries, such as the one of Korytiani dating to the tenth and eleventh centuries and the one of Doliani dating to the fourteenth and fifteenth centuries. For the latter one, see also Aidonis and Emmanouil 2009.

[110] PS 23, Mikro Karvounari, is actually a Palaeolithic to Mesolithic site, located in the terra rossa badlands to the west of Karvounari. The Early Modern house built on this site is probably was a seasonally settled hut for shepherds.

[111] Forsén *et al.*, this volume, site E 10.

likely E 10 has been an isolated chapel next to the main road through the valley, perhaps commemorating the existence of a village near-by more than half a millennium earlier.

The second site that has revealed Late Medieval remains is Agios Donatos of Zervochori (PS 25). Next to the chapel dating to the seventeenth century, a small cemetery was detected. Only one grave was excavated, revealing a woman buried with her head towards the west. There were no grave goods, but a C-14 sample taken from a bone dates the burial to 1310-1435 cal. AD.[112] The date of the grave suggests that the chapel originated already in the Medieval period. However, no remains of a synchronous settlement have been found on Agios Donatos although the hillock was thoroughly surveyed and several trial trenches dug. Ca. 200 m to the south of Agios Donatos there is, however, an Early Modern to Modern seasonal Vlach camp-site (PS 26), which might indicate that transhumantic tribes already during the Late Medieval period camped in the surroundings of Agios Donatos during the winter and perhaps buried their dead at the chapel.

Only one Early Modern village site (PS 24) was surveyed and it was located high up on the Paramythia mountain range slope, at a level of 594 masl (i.e. more than 500 m above the valley bottom). The village PS 24 (Koutsiates) had been constructed on an easily defensible outcrop that could be reached from the east through a gate, thus emphasizing the importance put on security at that time. The site seems even to be marked on Aravantinos' late nineteenth century map as Logkates (previous name of present village Agora).[113]

In general the Early Modern sites located on or near the valley bottom seem to have a special function. For example, the site E14 (Ganadia) is a water cistern, whereas PS 2 and PS 8 possibly belonged to one and the same tile and/or pottery manufacture, known from nineteenth-century Ottoman sources and dated by thermoluminescence analyses to the second half of the eighteenth century.[114] The remaining two sites (PS 9 and PS 47), which are both located close to the Kokytos on the very valley bottom, have been described in the site catalogue as farmsteads although their exact function is unclear.[115] They may well have had some special function (e.g. as a khan or a seasonal hut) which however cannot be ascertained on the basis of the available data.

While planning the Thesprotia Expedition it was clear that there existed Venetian and Ottoman archives with extensive written sources which could give us more information concerning the Early Modern period in Thesprotia. Above all we wanted to enlarge our knowledge of the administrative subdivision of the region and its settlement patterns in general, including the social and economic realities, the ethnic and religious composition of the population, and the development of demographic trajectories throughout the centuries. We also wanted to throw more light on the cultural clashes that occurred because of the fact that the region was located on the crossroads between west and east (represented by the Venetians on Corfu and Parga and the Ottoman Empire on the mainland).

Most information concerning the encounter between east and west and how the local Thesprotians were affected by living on the crossroads can be found in the Venetian

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[112] Forsén *et al.*, this volume, site PS 25.
[113] Forsén *et al.*, this volume, site PS 24.
[114] Forsén *et al.*, this volume, sites E 14, PS 2 and PS 8. For PS 8, see also Forsén 2009, 6-7.
[115] Forsén *et al.*, this volume, sites PS 9 and PS 47.

archives. In this volume Mika Hakkarainen concentrates on describing the perhaps best known single event belonging to the not infrequent border skirmishes between the Venetians and Ottomans in the region, i.e., the Venetian short conquest of the Ottoman fortress of Margariti during the War of Cyprus in the early 1570s. This event very well describes the conflicting interests attached to the relations, where even during open war parts of the Venetian and Ottoman authorities as well as the local population had an interest in, and tried to avoid, larger conflicts that might lead to a change of the status quo.

The Venetians were dependent on grain import from the mainland in order to feed the large population of Corfu, and any larger military conflicts could have direct effects on the supply, causing famine.[116] Therefore the Venetians were interested in avoiding open conflict at the same time as they maintained a kind of no-man's zone along the border, where the Ottoman authorities had but limited influence. This was done by supporting local tribes, especially the Souliotes by funds and arms, thus creating confusion in the region. No large-scale attempts were undertaken, however, at enrolling the martial, to a great extent Christian, Albanians as Venetian mercenaries, thus differing completely from the Venetian and Spanish policy against the Christian Albanians from Chimara further north of Butrint in modern Albania.[117]

The team directed by Evangelia Balta that has worked in the Ottoman archives has managed to clarify the administrative structure of the region, as well as to shed new light on the ethnic and religious composition of the population and the development of demographic trajectories. The Albanian tribes (the Chams or Tsamides) that had settled in Thesprotia in the fourteenth century were still mainly Christian in 1551 according to the defter *TT* 273, but during the centuries of Ottoman rule large parts of them converted to the Muslim faith,[118] especially in the kaza of Margariti, until nearly every second inhabitant in Thesprotia in 1902 was Muslim.[119] Large-scale conversions to Islam are known to have taken place in the Balkans especially in the seventeenth century,[120] but we now know that this process began in Thesprotia already during the late sixteenth century, as there are Muslim inhabitants in nearly a third of the Thesprotian villages recorded in the defter *TT* 608 of 1613.[121]

The two defters published by Evangelia Balta and her team, *TT* 273 of 1551 and *TT* 608 from 1613, seem to indicate an increase of population during the second half of the sixteenth century, continuing into the early seventeenth century.[122] The total number of *neferan* (i.e. taxpayers including both married men and bachelors above 15 years old)

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[116] Hakkarainen 2009.

[117] For the Souliotes, a Christian Albanian tribe living in the mountains to the east of the Kokytos valley, see now Psimouli 2006. For an overview of Chimara and its relation to Venice and Spain, see e.g. Bartl 1991.

[118] Balta *et al.*, this volume.

[119] Balta *et al.* 2009, 253, 256 and 259 giving the following figures for the kazas of Aydonat/Paramythia (9000 C, 6000 M), Filyat/Philiates (15000 C, 10000 M) and Margaliç/Margariti (9000 C, 15000 M). It should be stressed that these numbers are based on Greek sources.

[120] In general see e.g. Minkov 2004. For the same process in neighbouring Chimara, see Bartl 1991, 323-326.

[121] According to Balta *et al.*, this volume, 12 villages of 87 in the nahiye of Aydonat had Muslim inhabitants, 38 villages of 53 in the nahiye of Parakalamo and finally 7 of 35 in the nahiye of Mazaraki.

[122] Balta *et al.*, this volume. It needs to be stressed that the defters are taxation lists and not census lists, which implies that no definite demographic figures can be extracted from them. However, the situation is not much better concerning early censuses, which in several cases really cannot be taken at face value. Cf. e.g. the discussion concerning the validity of the figures given by the Grimani census of 1700 by Forsén and Forsén 2003, 328-329.

rose, for instance in the nahiye of Aydonat (Paramythia) from 5411 in 1551 to 6800 in 1613, which implies a yearly increase of 0.37% per year. This figure should be compared with what we know from the rest of Early Modern Greece, where the population on the basis of the figures given by the defters doubled, or in some cases even quadrupled, between the mid-fifteenth and mid-sixteenth centuries. In general the population began to decline already during the late sixteenth century, although in some cases – such as in the Megarid, the Cycladic and Ionian islands as well as in Crete – the decline is less sharp and does not begin until during the seventeenth century.[123]

The question is whether the population in Thesprotia really continued growing until 1613, or whether it reached a peak some 20-30 years before and already was in a stage of decline in 1613. There are certain factors that may speak for the second option, although this cannot be proven with certainty. First, the rate of yearly increase between 1551 and 1613 is surprisingly low: only 0.37% per year as compared to a rate of 0.7% which would be needed for the population to double in a hundred years and which confirms to the general trend in Europe and large parts of Early Modern Greece (with much higher rates of increase having been measured e.g. for Boiotia and Thasos).[124]

Fig. 9. Group of Vlach families in 1913 on their way to the summer pastures in the mountains (F. Boissonas 1913, after Thesprotia 2004, 89).

[123] For general overviews with further references, see e.g. Forsén 2007, 239-240 and Forsén 2008, 192-193, arguing for a considerable migration from the Greek mainland to the islands.

[124] For different rates of increase measured for the sixteenth century, see Forsén 2009, 192. For the average European increase of population between the mid-fifteenth and mid-sixteenth century, see e.g. Braudel 1972, 420.

Second, the ratio between bachelors and households changes from ca. 1/7 in 1551 to 1/3 in 1613,[125] indicating that the population had moved from a stage of rapid increase in 1551 to one of stagnation or even decrease in 1613.[126] In pre-modern societies a larger number of unmarried men is symptomatic of a peaking population, where attempts are made to react to overpopulation by reducing the amount of children.[127]

There is one well-known part of Medieval and Early Modern Thesprotia that is difficult to trace not only in the archaeological record, but also in the archival sources, namely the Vlachs (Fig. 9) – a people living on transhumance, i.e. the seasonal migration of livestock in order to provide the animals with food, during the summer in the mountains and during the winters in lowland valleys. We know that these transhumant societies played an important role in Epirus, including the Kokytos valley, since at least the eleventh century AD.[128] Transhumance most likely also formed part of ancient Thesprotia although mostly representing what Horden and Purcell describe as "'vertical' transhumance, by which herds of only moderate size move seasonally to nearby upland pastures" rather than "the far grander 'horizontal' transhumance associated with the Spanish Mesta or the Neapolitan Dogana, involving at the extreme the seasonal movement of millions of sheep over several hundred miles".[129]

Concluding remarks

In this chapter, on the basis of the results reached by the Thesprotia Expedition and by the 32nd Ephorate for Prehistoric and Classical Antiquities during the last 10 years, I have tried to sketch the general outlines of the Braudelian *longue durée* oscillations in settlement patterns of the Kokytos valley beginning from the Middle Palaeolithic period and continuing until the advent of the modern era. The fertile Kokytos valley has most likely been settled by human beings throughout these millennia. Some dark ages still remain even though we have managed to fill in several of the previous gaps in the history of the valley.

The interpretations suggested in this chapter should not be seen as any final truth. The third volume of the Thesprotia Expedition will produce more results from special categories of finds and sites that will help in fine-tuning the broad lines sketched here. The same, of course, also goes for future excavations and research. The purpose of this chapter is thus more to stimulate discussion and to function as a stepping-stone for further research in the history of the Kokytos valley, as well as of Thesprotia in more general terms.

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[125] These ratios have been calculated on the basis of 2294 *neferan* from the nahiye of Aydonat in 1551 and 1999 *neferan* from the same nahiye in 1613, data that most kindly were supplied to me by Evangelia Balta.

[126] Cook 1972, 25-27, was the first to use this ratio for demographic observations, noting an increase of the ratio of bachelors to adult males in some parts of Anatolia from ca. 3% in the late fifteenth century to 48% in the late sixteenth century. For similar ratios in the Peloponnese, see Forsén and Forsén 2003, 328.

[127] The easiest way to do this is to raise the marriage age, something that automatically would give a higher ratio of bachelors. For the influence of the average marriage age on population growth and the ability of pre-modern societies to change the pattern of marriage age, see Livi Bacci 1999, 95-107.

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Multi-Proxy Analysis of Lake Sediments in Thesprotia and Its Implications for the Palaeoclimatic History

Sjoerd J. Kluiving, Myrsini Gkouma, Jan Graven and Inge De Kort

Introduction

This chapter describes the geo-archaeological research of three (former) lake areas in Thesprotia (Fig. 1). The three lakes have been subjected to sedimentological, palaeobotanical, and palaeoclimatic research in order to reconstruct landscape history.[1] Lake sediments have been shown to be excellent archives of regional climatic and environmental history, as their sedimentary record is related to a variety of factors: bedrock composition, tectonics, vegetation and climate.[2] Furthermore, we intended with our geo-archaeological research in the lakes to find evidence for presence and absence of human occupation.

Our work aimed at obtaining a long undisturbed core from the lake sediments for detailed laboratory analysis in order to: (a) reconstruct the environmental setting of the lakes on a sedimentological basis, (b) reconstruct the palaeobotanical record of the lakes based on pollen analysis, (c) give a palaeoclimatic signal of the diverse lake settings based on the stable isotope analysis, (d) assess the correlation of the above proxies (stable isotopes, sediments, pollen) in the framework of a multi-proxy palaeolandscape analysis, and (e) give an insight into the landscape variations, in conjunction with the regional archaeological record.

The three lakes to be studied were selected in the neighbourhood of the main study area of the Thesprotia Expedition, that is, the Kokytos valley. Initially Lake Limnoula and Lake Prontani were selected for coring (Fig. 1). These two lakes, however, have been occasionally subject to remarkable water level changes and drought periods in the past, and these environmental conditions have caused oxidation of pollen, making the sediments unsuitable for analysis. Therefore, a third lake, Lake Kalodiki, although located somewhat further away from the Kokytos valley (Fig. 1), was selected for analysis as it was considered more suitable for pollen preservation.

Landscape reconstruction studies in Thesprotia have previously been sparse, with the exception of work done in Lake Kalodiki[3] and the lower Acheron river.[4] In the

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[1] The results described in this chapter are a synthesis of a research project of students of the Institute for Geo- and Bioarchaeology and the Department of Palaeoclimatology and Geomorphology, VU University, Amsterdam, the Netherlands, which is published as Graven *et al*. 2009. We thank Sjoerd Bohncke for his advice in the pollen analysis, and Hubert Vonhof for interpreting the stable isotope data. Geert Jan Vis assisted constructively in the field and helped out with the magnetic susceptibility data. Finally we thank Martin Konert and Martine Hagen from the Sediment Analysis Laboratory at the VU University Amsterdam for their assistance with the TGA and grain size analysis. All illustrations are by the authors, Figs. 1-3 and 7-8 were redrawn for publication by Esko Tikkala. We also thank Björn Forsén for a thorough review process that helped to improve the chapter.

[2] Talbot and Allen 1996, 101.

[3] Botis *et al*. 1993; Ioakim and Christanis 1997.

[4] Besonen 1997; Besonen *et al*. 2003.

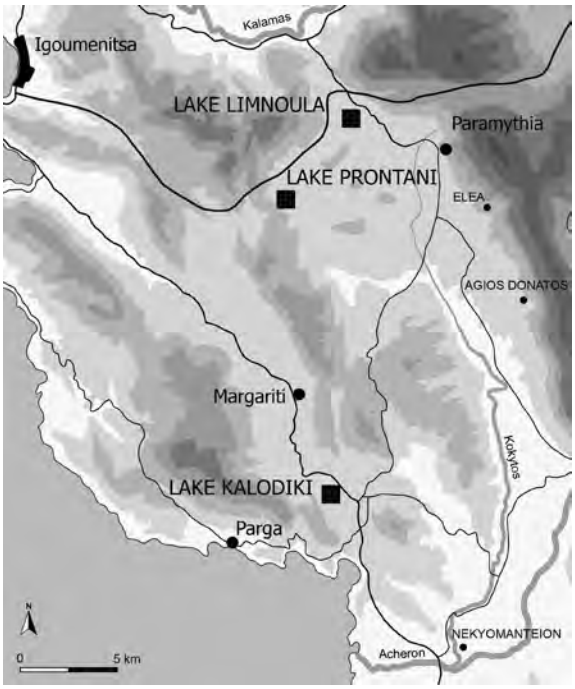

Fig. 1. Study area in Thesprotia indicating the location of the three lakes Limnoula, Prontani, and Kalodiki.

extended Epirus area on the other hand, extensive research has been conducted in Lake Ioannina,[5] in the Gramousti lake[6] and the Rezina marsh.[7]

Methods

In order to answer the proposed research questions, a suite of geological methods was employed. Cores were taken in the field with a hand-operated sediment drill and auger. Two types of auger were used: a manual auger corer of 10 cm and a 2.5 cm diameter gouge. From the 55 cores taken during the survey, 41 were regarded suitable for construction of cross sections, as they were considered representative of the sedimentological setting studied, in terms of their location, depth and lithology. Two long cores from Lakes Limnoula and Kalodiki were used for detailed sampling and laboratory analysis. These cores were selected based on the potential for good preservation of organic matter content. From Lake Prontani no long core was retrieved.

The grain size is the most fundamental property of sediment particles, affecting their entrainment, transport and deposition. Grain size analysis therefore provides important clues to the sediment provenance, transport history and depositional conditions. Thermogravimetric analysis (TGA) is an analytical technique used to determine a material's thermal stability and its fraction of volatile components by monitoring the weight change that occurs as a specimen is heated.[8] In this study it is used to measure the total organic matter and $CaCO_3$ content.

In this research project 211 samples have been analysed, usually simultaneously, for grain size and TGA. Analyses were conducted in 70 samples from Lake Kalodiki. At core KAL04 grain size analysis was performed every 10 cm only in the upper 3.25 meters, due to the high organic content in the lower samples, while TGA analysis was conducted for the entire core, sampled every 5 cm for 3.40-9.30 m. For Lake Limnoula, core LIM11 was sampled every 10 cm and additionally samples were analyzed in core LIM06 for each of the layers described in the field. In total, 122 samples were analyzed

[5] Hughes *et al*. 2006; Lawson *et al*. 2004; Tzedakis *et al*. 2003.
[6] Willis 1992a.
[7] Willis 1992b; Willis 1992c.
[8] Heiri *et al*. 2001.

for Lake Limnoula. For Lake Prontani, only 19 grain size measurements were analysed for cores PRO01 and PRO06.

Stable isotope geochemistry has been used as an indicator of palaeoclimate since the 1950s,[9] when the potential for oxygen isotope compositions to be used for palaeotemperature reconstruction was highlighted. The technique has been applied to marine and non-marine sediments and fossils. In lacustrine environments, stratigraphic changes in $\delta^{18}O$ values are commonly attributed to changes in temperature or precipitation/evaporation ratio, whereas those of carbon are used to demonstrate (often climatically induced) changes in carbon, cycling and productivity within the lake and its catchment. For this study forty samples were measured for $\delta^{18}O$ values after being ground to fine material. This analysis is done for the long core from Lake Kalodiki (KAL04).

Magnetic susceptibility is a method of measuring how susceptible is the sediment to be magnetized is. The signal originates primarily from *in situ* pedogenic production of fine-grained minerals, so a magnetic susceptibility curve will show the changes in composition of the intact sediment core.[10] The principle of measuring is that a loop generates a magnetic field, which magnetizes the susceptible substances in the sediment. A point sensor, placed directly after the loop, measures the changes in magnetic susceptibility. This is done with the GEOTEK Multi-Sensor Core Logger (MSCL) system. This analysis is done for the long cores from Lakes Kalodiki (KAL04) and Limnoula (LIM11).

The pollen record from lake sediments is an important proxy in the climate reconstruction.[11] The distribution of species through the samples will give an indication of the climatic conditions during sediment deposition. Not all sediments were considered suitable for pollen analysis. The clays in Lakes Prontani and Limnoula showed signs of periods of wetting and drying during the sedimentological history. These conditions lead to oxidation of the pollen, making them unsuitable for counting. Only Lake Kalodiki was considered to be most suitable for pollen analysis, although the same problem of oxidation appears for the top three metres of clay found in KAL04.

Results of multi-proxy analysis

Lake Prontani

Lake Prontani is a temporary lake situated to the north of the village Ambelia and south of Psaka at an altitude of ca. 240 masl. The surface of the lake is estimated to be 333 m^2, with a maximum length of 1.4 and maximum width of 0.4 km; however, the extent of the lake may vary, as the water level fluctuates remarkably seasonally and, according to local people, even dries out completely in periods of intensive aridity. The southwestern border of the lake is a steeply rising slope. On all other sides, the lake is surrounded by flat land shaped by alluvial fans. This area is used for sheep herding, while there are several plots of land with small orchards. The valley walls are composed for the most part of Paleocene and Eocene limestones, while the basin is filled with recent Holocene alluvial and lacustrine deposits. To the west, east and north, the walls of the valley consist of limestone formations, mainly crystalline massive dolomites, with narrow laminations

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[9] Leng and Marshall 2004.
[10] Thompson *et al*. 1975.
[11] Bradley 1999.

of gravel. At the south, limestone is present with fossils and flint in large banks and gravelly limestone, with generally solid fragments of algae dated to the lower and middle Triassic.[12]

This study indicates that the main infilling of Lake Prontani is of alluvial origin from the surrounding hills. The lake has experienced several erosion and infilling phases, which can be determined from the heterogeneous sedimentary infill. The difference in grain sizes encountered in the cores indicates different types of sedimentary environments – ranging from fine clay, representing a low-energetic setting, to coarse material with large limestone inclusions, which indicates a setting with higher energy. A translocation of the deepest part of the lake through time is observed, as indicated by the spatial pattern of the finest sediments. The coarse material suggests a mass movement from the surrounding hills, which formed the recent topography features, like the terrace in the centre of the east lake shore and the depressions on either side. In this type of sediments it is unlikely that pollen will be preserved, and therefore this lake was considered unsuitable for climate reconstruction. In Lake Prontani the entire sedimentary record can be subdivided in four sedimentary stages.[13]

Stage 1 corresponds to the deepest part of the cross section. It consists of clay to silty clay sediments with abundant gravel inclusions. The presence of fine and coarse material within the same sedimentary unit is indicative of two depositional processes. The fine material, clay and silt, is characteristic of a low-energy depositional process. This type of sediment is deposited on the bottom of deep-water lakes, assumed to originate from settling out of suspension, and indicates that the source of inflow is not close. The transitions within the unit between silt and clay layers signify alterations from deep to shallower water levels, and are related to the fluctuations of the lake water level in the past. On the other hand, the coarse material indicates a high-energy depositional process. This process is mainly related to the processes of mass movement on the steep hillsides, and is also responsible for the formation of the large fans that surround the lake.

Stage 2 consists of clay, silty clay and silty clay loam. The lithology indicates that during this stage the lake was gradually filled with sediment. This fine material is indicative of a standing water lacustrine environment, settling from suspension and filled by a low-energy source that is not proximal to the lake. It is possible that during this phase, the shore extended further than the present shoreline, and that therefore the lake level was considerably higher.

Stage 3 is found throughout the lake filling and is representative for the formation of the present topography around the lake. It consists of a relatively thick layer of loam (clay, sandy silty), loamy sand and sand as well as finer matrix sediments with limestone inclusions. The lacustrine fine sediments deposited during suspension phases are interrupted and eroded by coarser sediments indicating fluvial events. The coarse material can be attributed to more than one stream flowing into the lake with different degrees of flowing energy and capacity. Thickness and texture vary, depending upon distance from the source. The fact that the sediments include many plant remains is an indication of a shallow lake water level; the fact that they are highly oxidized suggests a long-time exposure, suggesting temporary dry conditions.

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[12] See the geological map IGME 1969.
[13] Graven *et al*. 2009.

Stage 4 consists of silty clay to silty clay loam. The sediments are relatively fine, but the bi-modal distribution of the grain size fraction indicates a double depositional origin. Most likely, the deposits are derived from different streams of relatively low energy, which flow into the lake at a continuous influx rate, as is suggested by the well to moderate sorting of the samples.[14] It is suggested that at this stage the water level was relatively low. During a drier stage with lower lake-levels, associated extensive run-off processes, caused by heavy rain, have produced the erosion and deposition of coarse material.

Lake Limnoula

Lake Limnopoula, Chotkova or Limnoula is a temporary (winter) freshwater lake situated 0.7 km southwest of the villages Krystallopigi and Kephalovryso near Paramythia at an elevation of ca. 190 masl. The lake covers an area of 1.33 km^2, but it floods nearly every winter, giving a maximum water depth of 10 m and a total additional flooded area of around 1 km^2. In the dry season, half of the lake bed is used for rice cultivation; the other half is used for pasture.

Lake Limnoula is surrounded by recent alluvial deposits formed by the seasonal fluctuations of the lake. The valley walls are composed for the most part of Paleocene and to a lesser extent of Eocene limestones, while the basin is infilled by recent Holocene alluvial and lacustrine deposits. To the south and southwest the limestone formations are dolomitic, while on the north, east and west limestones are cherty, range from fine-grained to sub-lithographic, and are usually fossiliferous. Oligocene flysch outcrops are formed at the base of the northeastern valley wall. The flysch is composed for the most part of alternating soft micaceous sandstones and shales with intercalated thinly-bedded biogenic limestones and marls near the top. Recent talus and scree slopes cover the contact of the basin with the flysch unit. Quaternary siliceous deposits are located at the base of the west valley wall.[15]

Five main multi-proxy stages of formation constitute the sedimentary record in Lake Limnoula. The lowest and oldest part of the lake infill is represented by stage 1, which consists mostly of a black-coloured clay substrate with an increasing organic content towards the top boundary. Immediately above the organic matter increase, an abrupt coarsening of the matrix occurs. Some charcoal macro remains were found at the top of this stage. Magnetic susceptibility measurements show a pronounced peak at the same level of the sudden coarsening and the black coloured sediment, suggesting the presence of a palaeosol (Fig. 2). The depositional environment at the time would be a relatively dry period of the lake, leading to low water level, subaërial sediment exposure, and soil formation.

Stage 2 appears to be characterized by frequent water level fluctuations, indicated by small-scale changes in grain size and organic matter content and by larger-scale changes in the carbonate content. Carbonate content correlates inversely with organic matter content, which can be explained by the occurrence of two alternating environments. One environmental setting has a high clastic influx and a high carbonate content that has a grey, bluish grey colour and consists of fine material with some shells. In this environment there was occasionally a more intense inflow, preserved as thin layers of

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[14] Talbot and Allen 1996, 101.

[15] See the geological map of IGME 1969.

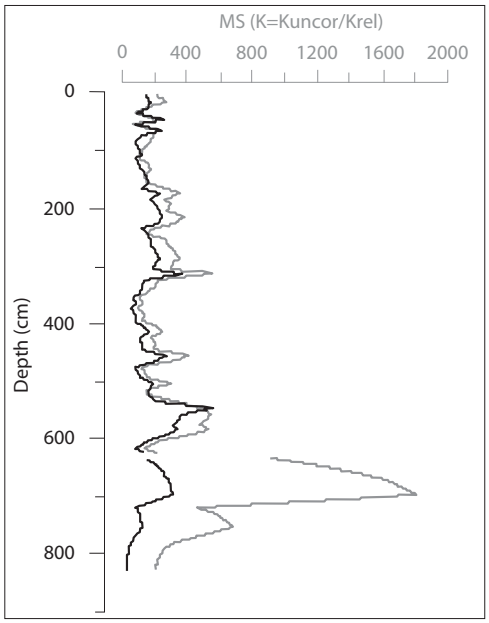

Fig. 2. Lake Limnoula: Magnetic susceptibility results from core LIM11, depth 0-830 cm. The black line shows the measured data; the gray line shows the volume-corrected data.

relatively coarse material (silt clay to silty loam). The other environmental setting has a limited influx, leading to conditions favourable for organic matter accumulation; this is shown in the TGA results and the dark grayish brown and black colour. The phases with high organic matter are probably linked to low water level conditions and coincide with high magnetic susceptibility values represented as two peaks at the same depth (Fig. 2).

The latter data support the hypothesis for the start of pedogenesis (soil formation). Additionally to the high clastic inflow, high carbonate content might be explained as a result of pedogenic processes. During this process, the carbonate in the top layer is leached to the lower layers. This would also be an explanation for the low carbonate values between 150 and 300 cm. The same process might also explain the low carbonate percentages in stage 1, and would account for the absence of correlation between the carbonate and organic matter content.

Stage 3 consists of fluvial deposits from slope washes or seasonal streams that flow into the lake. This top sediment is dried out as a result of a seasonal fluctuating water level. This conclusion fits with the historical information about the lake before being drained. The top stage contains, at a depth of 60 cm, a black soil layer with a higher amount of organic matter and low carbonate content. There are also some small fluctuations in grain size and magnetic susceptibility, which would indicate the presence of seasonal streams, coming from different parts of the lake.

Stage 4 is only found in small parts at the edges of the lake. This stage consists of sandy loam with gravel and is similar to stage 3, but is differentiated from it in terms of stratigraphic position. Stage 4 is interpreted as an extensive erosional event, successive of stage 2 and preceding stage 5. The diffuse boundary with stage 2 indicates, however, a gradual and slow depositional process, originating from the sedimentary process, alleviation, that formed the fans surrounding the lake basin. Further to the edge of the basin, so more proximal to the fans, the boundary between stage 4 and 2 becomes sharper. Fe/Mn nodules are found and prove that the sediments in this stage originated from the dissolution of the surrounding limestone bedrock.

Stage 5 constitutes the more recent rising stage of the lake, covering in parts the alluvial deposits described above. The sediment that is found in this stage is silty clay and silty clay loam with few thin layers of clay and silt loam. This stage indicates the final rising and shallowing phase of the lake before its final drying out. The sediments are indicative of a fluctuating water level, which is already shallower than at the former stages

(1 and 2). These gradual fluctuations are indicative of a seasonal lacustrine environment, with a succession of episodes of deepening and shallowing in a seasonal time-scale. This suggestion correlates with the oral information for the recent history of the lake (before it has been drained out) that the water level would fluctuate significantly on an annual basis. Reduced to oxidized sediment, the presence of snails, shells, plant remains and plant roots are indicative of soil formation processes. Supporting characteristics are the presence of charcoal nodules and concretions and more abundant organic matter content. The magnetic susceptibility results confirm the gradual infilling and shallowing of the water level, with a decreasing trend to the lower part followed by a sharp rise in the upper part suggesting distinctive changing from wet to drier climatic conditions.

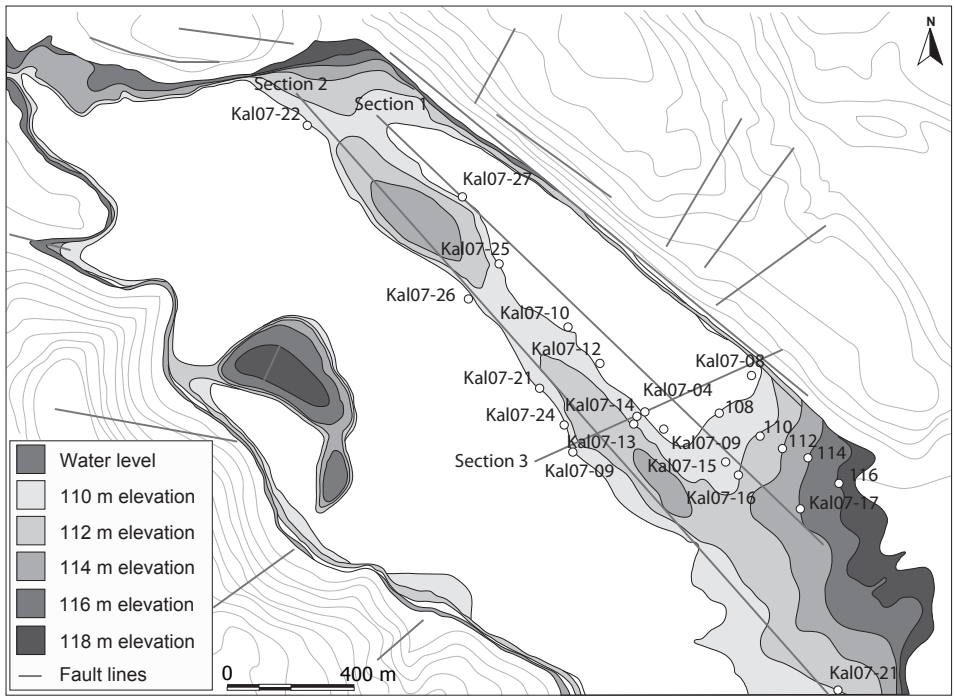

Fig. 3. Lake Kalodiki with the location of the boreholes. Three cross sections are indicated with lines. For the elevation cf. the legend. Fault lines are drawn after Botis *et al*. 1993.

Lake Kalodiki

Lake Kalodiki is situated in an extended basin with the longest axis running northwest-southeast at ca. 108 masl (Fig. 3). The maximum length is about 3.7 km and the width about 0.7 km. The basin actually consists of two fens, separated by a ridge running along the length of the basin. The ridge is believed to have carried the main road in earlier times. Nowadays only a dead-end dirt road runs along the ridge and the modern road is situated to the west. The area is partly in use as pasture for flocks of sheep.

The basin is filled with alluvial and fluvial sediments, whereas the surrounding hillsides mostly consist of crystalline massive dolomite, with narrow laminations of gravel. Dolomite is nearly absent to the east of the basin, where it is replaced by schists of late Triassic to late Jurassic age. The northeastern edge consists of limestone with fossils and flint in large banks and gravelly limestone, with generally solid fragments of algae

dating from the lower and middle Triassic. The southeastern edge of the basin is formed by Triassic breccias consisting of cemented limestones and dolomites.[16]

To the northwest and east of Lake Kalodiki, there used to be two further lakes that were drained in the last ten or twenty years. Lake Kalodiki was preserved because of its importance as a nature reserve. Even though the lake was chosen by us because of its ability to hold water, it does dry out in periods of severe aridity, once in several years.[17]

Sample no.	Date		
1. KAL 04 432.5-435	40230 +/- 1100 BP	-20.8 o/oo	40300 +/- 1100 BP
2. KAL 04 670-674.5	39900 +/- 1100 BP	-21.6 o/oo	39960 +/- 1100 BP
3. KAL 04 905-910	40230 +/- 1100 BP	-18.1 o/oo	40340 +/- 1100 BP

Fig. 4. Radiocarbon (AMS) dating results.

Absolute and relative dating of the Lake Kalodiki core (KAL04)

Three radiocarbon samples were taken of the calcareous mud in the Lake Kalodiki core KAL04 from peaks in the $CaCO_3$ content. They all resulted in dates around 40,000 years BP (Fig. 4.). This is most likely caused by the fact that the samples are beyond the range of ^{14}C dating, and therefore they can only be used as a minimum age for deposition at the sampled depth of core.

Relative dating means fitting the pollen record into a record of known age. The rate of accumulation of the calcareous sediment can be estimated at between 0.8 and 1 mm per year. The 610 cm calcareous rich sediment (from 320 to 930 cm depth) would have taken between 6,100 and 7,625 years to accumulate. The sequence is characterized by a high *Quercus* component, and one major cold period near the top.

In Lake Ioannina four main interglacials are defined with a complete vegetation development, based on the Ioannina 249 core. These are the Dodoni I (390-410 ka), Pamvotis (326-338 ka), Zitsa (208-221 ka) and Metsovon (117-129 ka) periods (Tzedakis and Bennett 1995). All these periods have a high dominance of *Quercus* and a tree-pollen percentage of around 80%, just as the KAL04 pollen record shows (Fig. 5). Because of regional differences, a precise match between pollen curves of diverse environmental settings at Kalodiki and Ioannina is not possible, even though the warmer-colder periods should be visible.

Between the minimum radiocarbon date at KAL04 and the Metsovon period there are several other forested periods, the Thyamis, Perama, and Vikos periods. These three periods of potential dates are of the early Weichselian age; Thyamis and Perama are often dated together (91-100 ka), Vikos is slightly younger (76-85 ka). All have about 70 to 75% of tree pollen, and all show a roughly equal number for *Quercus* and *Pinus*. The Kalodiki pollen record shows more *Quercus* than *Pinus*, but this could easily have been caused by the higher elevation of Lake Ioannina (470 masl as compared to 108 masl for Lake Kalodiki), favouring *Pinus* over *Quercus*. Since our pollen sequence spans only about 6,000 to 7,000 years, and because of the difficulties of correlating individual pollen curves, relative dating also using lithostratigraphic criteria indicates that the most recent period (early Weichselian) does seem the most probable date for the interpreted pollen sequence at core KAL04 (Fig. 5).

[16] See the geological map of IGME 1969.
[17] Botis *et al*. 1993.

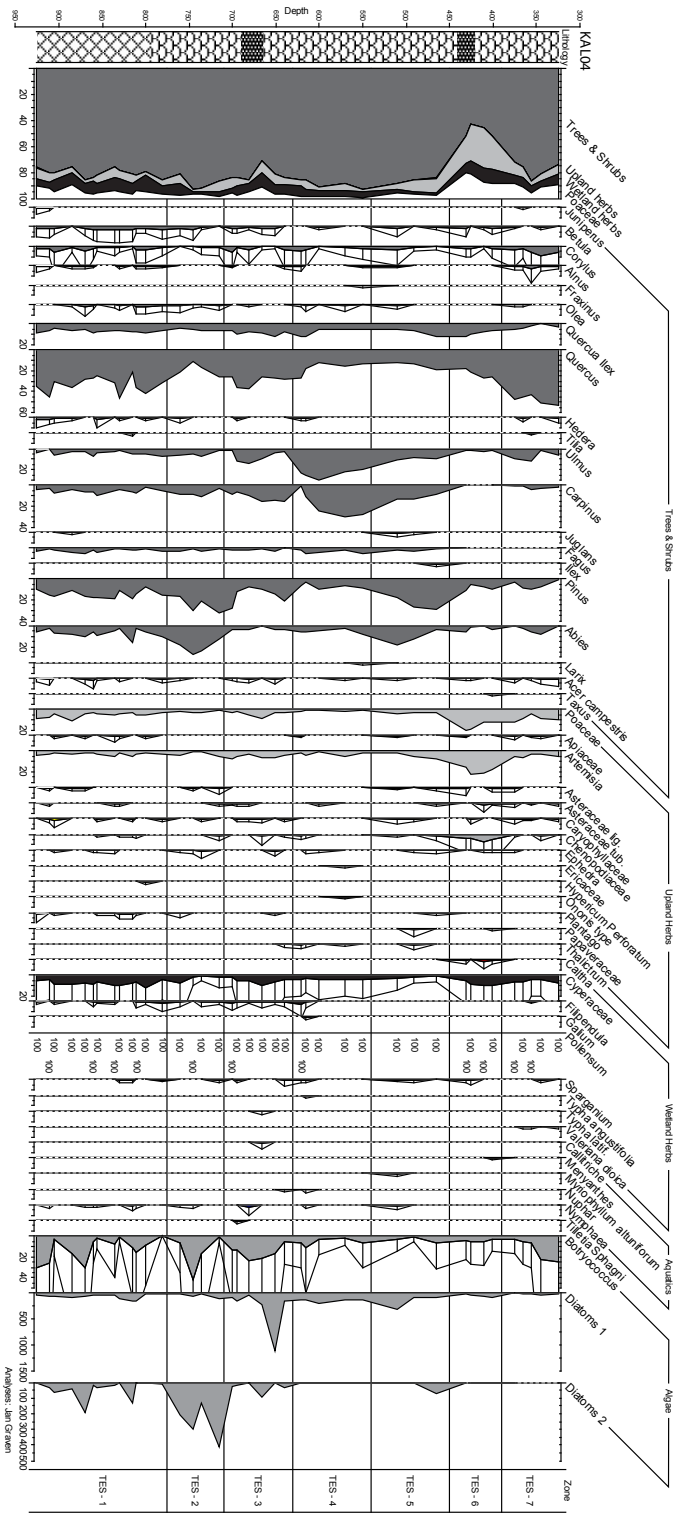

Fig. 5. Pollen diagram for core KAL04, Lake Kalodiki.

Stage	Lithology	Pollen	Stable isotopes	Interpretation
1	Interfingering layers of organic calcareous gyttja and calcareous gyttja	Quercus	Small-scale fluctuations	Fairly stable climatic conditions with short-period oscillations reflected in water level fluctuations
2.1	Calcareous gyttja	Pinus and Abies	Wet conditions	Wet and cold climatic
2.2	Organic calcareous gyttja	Quercus	Dry conditions	conditions are slowly evolving into dry and warmer
3	Clay			Tectonic event
4.1	Minerogenous calcareous gyttja	Quercus	Shift to wet climate	Long period of wet temperate climate and high water level
4.2	Organic gyttja	Open vegetation, herbs	Dry conditions	followed by a short time of cold dry conditions with shallow water levels
5	Minerogenous calcareous gyttja/ few organic layers	Quercus	Wet and dry conditions	Temperate wet conditions
6 & 7	Silty clay/clay			

Fig. 6. Summary of multi-proxy data (lithology, pollen, and stable isotopes) of sediments of Lake Kalodiki, and subdivision of environmental interpreted stages.

In Lake Kalodiki we distinguish seven multi-proxy stages of lake evolution (Fig. 6): Stage 1 consists of interfingering layers of organic calcareous gyttja and calcareous gyttja (Fig. 5). The pollen data show a *Quercus*-dominated dense forest, while the stable isotope values indicate small-scale fluctuations, which represent fairly stable climatic conditions (Figs. 5, 8). It is therefore suggested that the pollen record reacts with a time lag to rapid climate change (except for *Botryococcus*), being a less sensitive proxy in comparison to isotopes and lithology. Consequently, all proxies indicate the existence of stable climate conditions with small fluctuations in the water level, therefore a more temperate climate than the present.

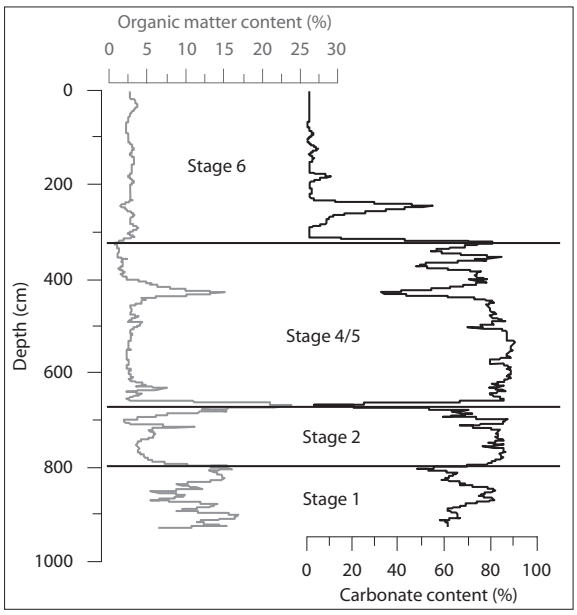

Fig. 7. Plot of the TGA results of core KAL-04, depth from 0-930 cm.

Stage 2 comprises of two lithological units, which correlate well with pollen and stable isotope data. The lowest one consists of pure calcareous gyttja, indicating a deeper lake level during a wetter period. At the same time pollen data show a slight cooling, seen from the decrease in *Quercus*, in favour

of *Pinus* and *Abies*, while stable isotope data suggest wet climatic conditions. The upper lithological unit of this stage, consisting of organic calcareous gyttja, indicates a drier period with a lower water level. Pollen shows this stage as a return to a warmer period, as seen in stage 1. Stable isotopes suggest the gradual changing from a wet to a drier climate. The extreme peak indicates a very short wet period; this precedes the explosive algae growth, shown as high organic matter content and low carbonate content (Fig. 7).

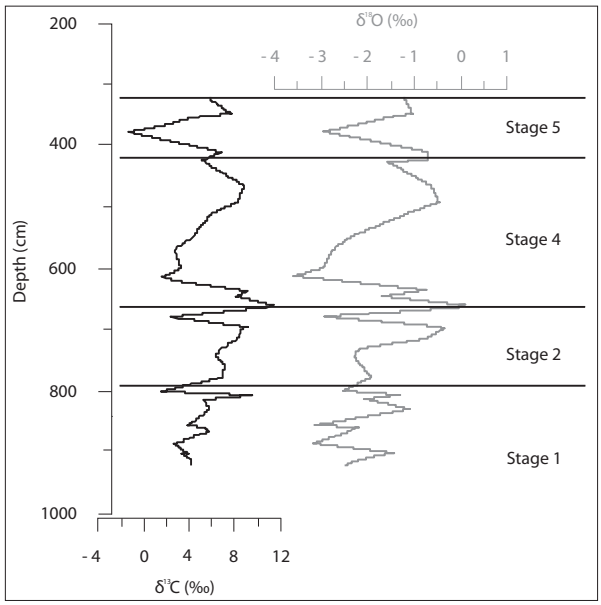

Fig. 8. Plot of the Stable Isotope results of KAL04, depth from 320-930 cm.

Stage 3 comprises the result of one or more tectonic events. During this time, a ridge is formed in the northwest part of the lake, as a result of the uplift of a former sedimentological setting, whose lithology (clay) is not recognized in any of the identified stages (1 or 2). It is therefore concluded that the sediment of the stage must have accumulated prior to stage 1 and been uplifted probably in a later stage.

Stage 4 consists of two lithological units. In the lowest part, minerogenous calcareous gyttja is present. At this stage, pollen suggests the existence of a temperate climate with a *Quercus*-dominated forest, while the isotope data show a quick shift to a wet climate. The upper unit consists of organic gyttja. In the upper part of this stage, pollen data indicate the transition to a cold period with open vegetation and abundant herbs, while stable isotopes show a slow increase to values suggesting drier climatic conditions.

Stage 5 consists mainly of minerogenous calcareous gyttja with a few very thin organic layers, indicating rising of the water table, whereas no shallowing of the water table was indicated. It is suggested, though, that the upper layers of this stage might have been eroded by alluvial sediments of stage 7; see below. The pollen record in stage 5 shows a marked increase in temperature displayed by a rapid rise in *Quercus*, while stable isotopes show wet conditions followed by a drier period.

Stages 6 and 7 comprise one period as indicated by the lithological data. No pollen or stable isotope data are available for this period. During this period the calcareous gyttja deposits are replaced by silty clays and clays (stage 6). These layers are interrupted by erosional events of coarse detritus input (stage 7). This change must be related to a different geomorphological environment and climate. The source of the lake water has changed from the inflow of non-clastic groundwater to a detritus input derived from the surrounding hills forming alluvial fans (most likely from the Holocene). These fans are now an important part of the basin topography.

Regional correlation

The research performed by Botis *et al*. in 1993 gives a good insight into the climatic conditions in the lower Thesprotia region. When comparing these results with the present data, the following can be concluded. (A) Calcareous mud was deposited during the Late Glacial, from early Weichselian (76-85 ka) to approximately late Weichselian (11,049±144 years BP), over the greatest part of the basin. (B) Peat accumulation started according to Botis *et al*. (1993) in the southern part of the big fen during the late Weichselian, whereas our research indicates the presence of peat layers in the northern and eastern part of the big fen as well. During the same timeframe, unstable climatic conditions resulted in the temporary extension and contraction of the lake shore. (C) During the Holocene, the ridge in between the big fens started forming as a result of tectonic activity, and has been further shaped by the influx of clastic material from the alluvial fans.

Lake Ioannina is the location nearest to our area where intensive palaeobotanical research has been carried out.[18] The lake has a continuous and stable sedimentation history and has been constantly filled with water. This gives a good chance for undisturbed pollen records reaching a depth of 319 meters.

A major problem when correlating the Kalodiki core with data from Ioannina is the distance between the two sites. While the lakes are only just over 50 km apart, they are located at different elevations in two different climatic settings and are separated by a high mountain range. Kalodiki therefore has a Mediterranean climate, while the climate in Ioannina is more moderate, with lower temperatures and more rainfall. These differences are clearly seen when comparing the Kalodiki pollen record with those of Ioannina. The Ioannina record shows a large amount of *Pinus* favoured by the colder climate, while the Kalodiki pollen record shows *Quercus*, which is more suited to the milder climate of Kalodiki. The assumption is made that large-scale climatic changes and trends will be visible in both records and will therefore be used as a basis for obtaining a relative date for the Kalodiki record, compared to records from Lake Ioannina, resulting in a possible date in early Weichselian for the calcareous mud at Lake Kalodiki.

As far as the Holocene record is concerned, there is little palaeoclimatic information available for Greece. A low-resolution record of interpreted lake-level fluctuations exists for Lake Ioannina, but the data from the last 5,000 years are too sparse to relate to geomorphic changes in our area. A record of lake-level fluctuations exists for Lake Xinias,[19] 160 km to the east, but the lake is located on the other side of the Pindos Mountains, a major orographic boundary, and thus a comparison to our area is not appropriate. Furthermore, the data from Lake Xinias – like those from Lake Ioannina – are very sparse for the middle and late Holocene.

While middle and late Holocene palaeoclimatic information from Greece may not be significant, there does appear to be increasingly robust evidence for a significant, abrupt aridification event around 4200 BP over the eastern half of the Mediterranean and West Asia.[20] Presumably this event would have affected Greece as well, and may have led to a reduction in vegetation cover, thus increasing the impact of erosion. However,

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[18] E.g. Frogley *et al*. 1999; Lawson *et al*. 2004; Tzedakis 1994; Tzedakis *et al*. 2002.
[19] Digerfeldt *et al*. 2007.
[20] Besonen, 1997; Besonen *et al*. 2003.

this issue cannot be adequately addressed with the present body of Greek palaeoclimatic information. Furthermore, this event may be impossible to recognize with a proxy like pollen because of the strong overprint of anthropogenic influence that begins at this time. To resolve the issue, development of multi-proxy records including moisture balance measurements that are unaffected by human activity (e.g., an oxygen stable isotope record) would be more suitable.

Multi-proxy data from two sites located ca. 80 km to the north of Kalodiki recognized several erosive events during the middle to late Holocene. More specifically, using pollen data from the Gramousti lake and the Rezina marsh, Willis recognized erosive events from ca. 6300-5000 BP, 4300-3500 BP, and finally at 2500 and 2000 BP following vegetation contraction.[21] Climatic shifts, anthropogenic influence, tectonic activity and karstic hydrology were cited as possible causes for these periods of increased erosion, whilst anthropogenic influence was the more favoured explanation, especially for the event dating to 4300-3500 BP, correlating to the Early Bronze Age. The 6300-5000 BP erosive event correlates to the Final Neolithic Period.

The study of Besonen highlights the locality of these events and the existence of diverse micro-climates within short distances in the lower Acheron valley, where none of the above erosive events were identified.[22] According to Besonen, an extensive erosive event took place around AD 1500, which is roughly contemporaneous with the start of the Little Ice Age.[23] The cooler and wetter climate of this time would have resulted in an increased delivery of sediment to the fluvial system. Alternatively, anthropogenic activities such as deforestation and land use for agriculture would have led to an increased delivery of sediment. This later interpretation is supported by the fact that the area was intensively cultivated during the Early Modern period. According to Besonen no other correlation between periods of increased or decreased valley infilling due to climatic or anthropogenic factors could be positively or negatively deduced.

Conclusion

An undisturbed palaeoenvironmental, palaeoclimatic and palaeobotanical record was obtained from Lake Kalodiki, while at the same time insight was gained into the palaeogeographic evolution of Lakes Prontani and Limnoula. There seems to exist a pronounced variability between the environmental settings of the three lakes and the factors that have influenced their formation. These factors are related to the intensive tectonic activity, the diverse karst hydrology and the complex topography, which creates various climatic shifts within a limited study area.

More specifically, Lake Prontani is a part of an open basin covered with alluvial fan deposits, while the lake itself is filled with water originating from the fans. This means that there are short periods of erosion and sudden infilling, which interrupt the slow and continuous sedimentation – conditions that render this lake unsuitable for climate reconstruction. Lake Limnoula is also prone to erosional streams flowing into the basin, while at the same time the continuous sedimentation is interrupted by pedogenetic

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[21] Willis 1992a; Willis 1992b; Willis 1992c.
[22] Besonen 1997; Besonen *et al*. 2003.
[23] Grove 1988.

processes due to extensive drought periods coinciding in time with equivalent stable landscape conditions. While the several cycles of rising and falling of the water level in Lake Limnoula can be further related to climatic oscillations of wetting and drying, the sediments of the lake can be highly bioturbated and disturbed, due to the soil formation processes mentioned above. These pedogenetic processes, even though destructive for the palaeobotanical reconstruction study, can be used as chronostratigraphic evidence of climatic stability and stable landscape conditions, and combined with radiocarbon dating could be correlated with archaeological periods in the Kokytos valley.

Lake Kalodiki was the most promising lake for palaeoclimatic, palaeobotanical and palaeogeographic reconstruction. Using the multiple laboratory analysis, we assessed the correlation of the three environmental proxies: lithology, pollen, and stable isotopes. From the combined data discussed in the stages described above, it is suggested that lithology results are in accordance with the stable isotopes' values, whereas there is a time lag to the results of the pollen record. This relatively strong correlation gave the study evidence for interpreting the palaeoenvironmental, climatic and botanical data.

The most challenging part of this research is related to the question of linking the landscape variability to the archaeological evidence of the region, as this is studied by the Thesprotia Expedition. Two important factors render this part particularly complex and need to be taken into account.

- In terms of landscape variability, the complex topography and hydrology of the area favour the existence of several microclimatic environs within short distances. In this region, the location of Lake Kalodiki, outside the Kokytos river basin, at a lower elevation and more proximate to the sea, makes the palaeoclimatic correlation of the lake with the study area of the Thesprotia Expedition questionable.
- The second factor is related to the chronological framework of the study. Even though this study is informative in terms of the palaeogeographic evolution of the region, there is a lack of chronostratigraphic data, which renders the correlation between the palaeolandscape changes and the archaeological data problematic. As mentioned above, the dating of the soil layers identified in Lake Limnoula could have constituted evidence for climatic and environmental stability periods, potentially to be related to the existence of archaeological evidence in the surrounding area.

The Lake Kalodiki record is dated, according to the radiocarbon results, to a minimum of 40,000 ^{14}C yrs BP. At that time the basin of Kalodiki was enclosed and the surrounding hills were covered with dense vegetation of *Quercus*. These conditions prevented the occurrence of erosion and provided the ideal setting for the accumulation of an undisturbed sedimentological sequence, which delivered an ideal archive for regional climate and environmental reconstruction. This environmental setting changed with the activation of the alluvial fans and the subsequent erosion of the lacustrine deposits. It is suggested that this event either is related to the dramatic climatic change from Pleistocene to Holocene, or was due to a dramatic event followed by alteration in the hydrological conditions. At the shores of the lake, the Holocene sediments are most likely eroded, and therefore the Holocene palaeoclimatic reconstruction study should be focused on the deeper central part of the lake (see also Lelivelt, this volume).

The pollen sequence from this study suggests a possible early Weichselian dating of Kalodiki lake sediments, whereas the same sedimentological sequence continues until the late Weichselian. This period can be related to the Middle to Upper Palaeolithic archaeological framework and is represented by rich scattered finds and sites in Epirus. In

the proximity of Kalodiki, Palaeolithic tools at the site of Morphi are relatively dated to the Middle and Upper Palaeolithic period.[24] At least during the Middle Palaeolithic period the basin of Kalodiki was enclosed and the surrounding hills were covered with dense vegetation of *Quercus*. Kalodiki formed one of the numerous basins (poljes) that are found in Epirus, which would have provided a favourable environment to the Palaeolithic populations, constituting a refuge for animals and plant species and providing a secure source of water within an inhospitable mountainous environment.

[24] For the finds from Morphi, see e.g. Runnels and van Andel 2003, 61, 72-74, 94, 105, 107-108, 129.

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A Lithological Analysis of Holocene Lake Sediments in the Kalodiki Fen

Ruben Lelivelt

Introduction

In landscape archaeology, palaeoenvironmental reconstruction is essential to the study of topics such as landscape and climate change, human-climate interactions, and the introduction and subsequent development of certain agricultural crop species. The present palaeolandscape study from the Kalodiki basin focuses on the interval ranging from the end of the Last Glacial to the present, using information from sediment cores.[1]

An important prelude to the present research occurred in 2007 when a geoarchaeological study of three lacustrine environments in Thesprotia was carried out.[2] The Kalodiki Fen appeared to be the most promising basin in terms of Holocene pollen preservation. However, the pollen (an important proxy in the palaeolandscape reconstruction) that was recovered from the Kalodiki basin dated to the Early Weichselian,[3] i.e., to the Middle to Upper Palaeolithic archaeological framework. Therefore, a second fieldwork campaign was carried out in 2008 with the aim to retrieve Holocene sediments containing pollen.[4] The results of this fieldwork, which formed part of the Thesprotia Expedition, are presented here.

Research questions

The objectives of this study are to: 1) Reconstruct the environmental history during the Holocene period, 2) Understand human-climate interactions, 3) Detect evidence of human influence in the Kalodiki Fen by studying the sedimentation characteristics in the Kalodiki basin, and 4) Detect evidence of the appearance of new crop species (i.e. olive, grape and cereal cultivation).

The third objective focuses on the local situation in the Kalodiki basin, especially the southeastern part, whereas the other objectives are formulated at a regional scale, for the southern part of Thesprotia. An important proxy that provides such a regional environmental signal is pollen. The pollen data bear a climate signal and are expected

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[1] This research is part of the master programme Landscape Archaeology at the Institute for Geo- and Bioarchaeology, VU University Amsterdam (the Netherlands) and is carried out within the framework of the Thesprotia Expedition. The complete results of this research together with an extensive literature review will be published in Lelivelt forthcoming. Fig 1. was drawn by Esko Tikkala on the basis of maps supplied by the author. All other illustrations are by the author.

[2] Graven *et al*. 2009. For the work carried out by Inge de Kort, Jan Graven and Myrsini Gkouma, cf. also Kluiving *et al*., this volume.

[3] The Weichselian is the last glacial period (116,000-11,500 BP) and forms the last stage of the Pleistocene. The Weichselian is followed by the Holocene.

[4] The field work was conducted in June 2008 by Jan Graven and myself.

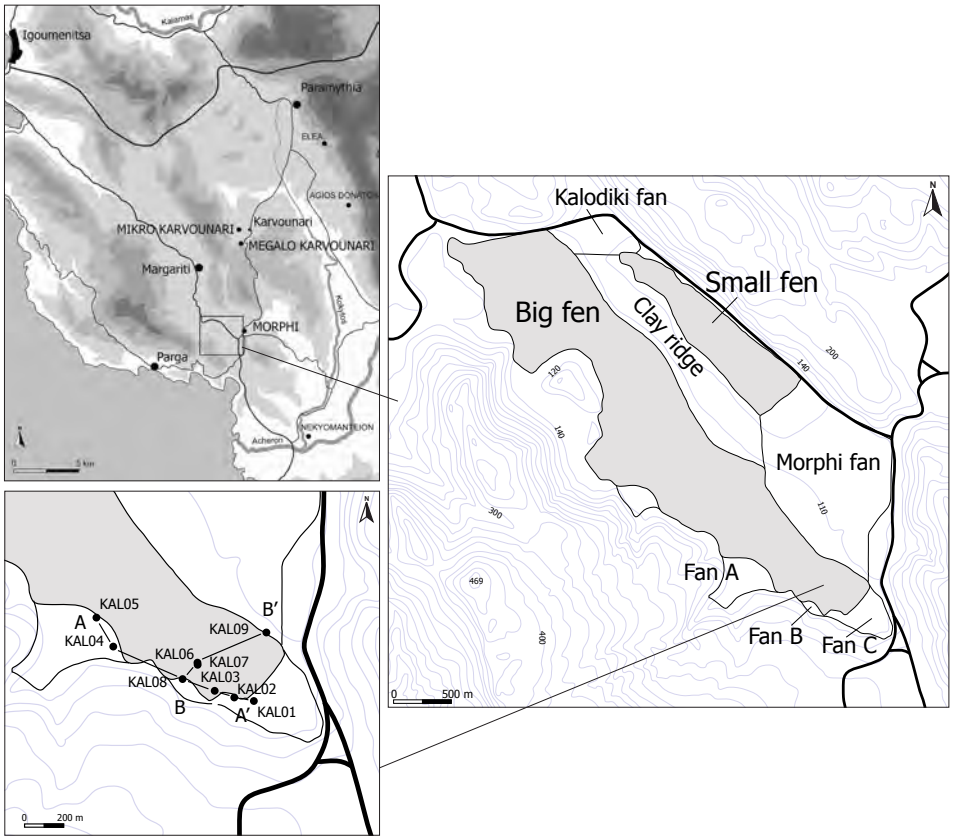

Fig. 1. Map of the Kalodiki Fen with the major geomorphological features (Fan: alluvial fan) and the boreholes located in the south-eastern part of the Kalodiki Fen.[6]

to be representative of the vegetation of the (wide) surroundings of the Kalodiki basin. How large the surrounding area is depends on different factors such as how pollen are dispersed, climate and topography.

In this study one pollen core (KAL08-06) was obtained from the southeastern part of the Kalodiki Fen in almost the same location as a pollen core (K-26) had been recovered already by an earlier fieldwork campaign in the mid-1990s.[5] The aim of the current fieldwork project was to extend the pollen sequence produced by the previous study and to achieve a higher resolution in the pollen record. The influence of the alluvial fans on the infilling process of the Kalodiki Fen was studied by positioning sediment cores on the alluvial fans around the central pollen core KAL08-06 (Fig. 1).

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[5] Ioakim and Christianis 1997, 95-104.

[6] Codes are simplified. KAL01 = KAL08-01 (name, year and number). KAL08-01, 02 and 03 and KAL08-04 and 05 are located on two large alluvial fans, KAL08-08 in a small flat alluvial fan, and KAL08-09 on the large Morphi alluvial fan . KAL08-01, 02, 03, 04, 05, and 09 are all placed around KAL08-06 and KAL08-07, which again are situated in the central peat deposits of the basin. KAL08-06 was used for pollen studies and KAL08-07, next to KAL08-06, was used for sediment analysis.

Previous research

In the past, two palaeoenvironmental research projects have taken place in the Kalodiki basin. An extensive geological coring programme was carried out in the early 1990s in the dried out Kalodiki Fen floor. About 20 boreholes were made with a maximum depth of 10 m.[7] This work was followed in 1997 by a palynological study consisting of the analysis of a Holocene pollen sequence dating between 4500 and 23,000 BP. This time a core (K-26) was positioned in the south-eastern part of the fen, as the thickest peat layer was formed here. About 51 pollen samples were taken at regular 20 cm intervals between 0.28 and 10.34 m.[8]

The pollen levels in the core K-26 were sufficient for reconstructing the palynological history during the period stretching from the Late Glacial to the Late Holocene. In the Kalodiki basin and its surrounding area an evergreen temperate forest, dominated by oak, developed during the Holocene at the expense of grass communities. In the upper part of the pollen diagram an increase of the *Taraxacum* type and the *Centaurea nigra* type can be observed.[9] According to Bottema the appearance of these types of pollen in a pollen diagram can be interpreted as possible human influence on the landscape because they are associated with open ground vegetation and cultivated plants (mainly cereals).[10] The increase in pollen numbers of the *Taraxacum* type and *Centaurea nigra* type occurs at a depth of less than 2.65 m in K-26. The interval 2.60-2.65 m beneath the fen surface is dated and has a radiocarbon date of 4498±80 BP (ca. 3250 cal BC). Taxa that are associated with maquis (*Olea*, *Phillyrea*, *Pistacia*, *Ericaceae*, *Cistaceae* and *Ephedra*)[11] and phrygana vegetation (*Pistacia* and *Liliaceae*) also appear, or become more abundant after approximately 4498±80 BP (ca. 3250 cal BC). Maquis and phrygana are regarded as typical degradation-vegetation types in the Mediterranean and thus also indicate human influence.[12]

In 2007 Inge de Kort, Jan Graven and Myrsini Gkouma, as part of the Thesprotia Expedition, focused on the clay ridge and the Morphi alluvial fan. They applied different techniques to their sediment cores, such as macroscopic description and sediment analysis. Pollen analysis, oxygen ($\delta^{18}O$), carbon ($\delta^{13}C$) stable isotopes and magnetic susceptibility of the sediment were performed on a sediment core (KAL07-04) on the clay ridge. The sediments appeared to contain pollen from the Early Weichselian, preserved in calcareous gyttja.[13] The same study also revealed evidence that a tectonic event created the boundary conditions for the increased activity of both the Kalodiki alluvial fan and the Morphi alluvial fan. Similarly Ioakim and Christianis in 1997 attributed the presence of clay layers within the peat deposits mainly to tectonics which control the basin morphometry. The tectonic movements led to phases of temporary extension and contraction of the lake. When water levels are too deep, peat formation cannot occur and thin layers of limnic sediments are deposited (clay and calcareous muds) in the basin.

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[7] Botis *et al*. 1993, 27.
[8] Ioakim and Christianis 1997, 97.
[9] For the pollen diagram, see Ioakim and Christianis 1997, 98-99.
[10] Bottema 1974.
[11] The ecological interpretation of the vegetation type is based on Atherden 2000, 62-78, table 5.2.
[12] Tivy 1993, 194.
[13] Graven *et al*. 2009, 71-72.

Stage	Lithology	Geomorphological unit	Tectonics	Geological period[16]
1	Interfingering layers of organic calcareous gyttja and calcareous gyttja	Clay ridge and Morphi alluvial fan		Early Weichselian
2	Calcareous gyttja and organic calcareous gyttja	Clay ridge and Morphi alluvial fan		Early Weichselian
3	Clay	Clay ridge	Tectonic event	Early Weichselian
4	Minerogenous calcareous gyttja and organic gyttja	Clay ridge and Morphi alluvial fan		Early Weichselian
5	Minerogenous calcareous gyttja/few organic layers	Clay ridge and Morphi alluvial fan		Early Weichselian
6	Silty clay/clay	Clay ridge and Morphi alluvial fan	Succeeding tectonic event	Holocene
7	Clay loam and sandy silt gravel	Clay ridge and Morphi alluvial fan		Holocene

Fig. 2. Modified and simplified table with the stages of development that are defined for the clay ridge and the Morphi alluvial fan (after Graven *et al.* 2009).

Based on the results of these previous studies, the thickest Holocene peat sequence[14] (and thus an expected higher temporal resolution in the pollen record) was expected to be present in the south-eastern part of the Kalodiki basin. In this part of the basin the peat layer is interrupted by two thin clay layers. The presence of Holocene pollen records in the peat deposits was furthermore to be expected in the southwestern part of the Kalodiki Fen.[15] Older pollen records from the Early Weichselian are found in calcareous gyttja deposits on the clay ridge. The clay ridge consists of sequences of clastic material and (organic) calcareous gyttja (Fig. 2). The upper part of the clay ridge sequence is of Holocene age.

The stratigraphical sequence of the alluvial fans A, B and C (Fig. 1) was unknown before the fieldwork in 2008. In view of the previous studies the alluvial fans were expected to consist of clastic material (clay/loam), possibly covering (calcareous) gyttja and/or peat deposits.

Technique	Field/Lab	Number	Technique	Scale
Macroscopic description	Field	9	Texture, organic matter, inclusions, oxidation/reduction, $CaCO_3$	Local
Pollen analysis	Lab	48	Vegetation	Regional
Grain size analysis	Lab	145	Texture, sorting	Local
Thermo Gravimetric analysis (TGA)	Lab	170	Organic matter, $CaCO_3$, clastics	Local

Fig. 3. The techniques used for the determination of environmental proxies, classified by scale. Sediment analyses were performed on core KAL08-01, -04, -07, -08 and -09. Pollen slides were prepared on KAL08-06 from the interval 255-490 cm.

[14] Botis *et al*. 1993, Ioakim and Christianis 1997.

[15] Ioakim and Christianis 1997, sediment core K-26.

[16] The dating of stages 1-5 is based on pollen data, that of stages 6-7 on stratigraphical characteristics (Graven *et al*. 2009, 71-72).

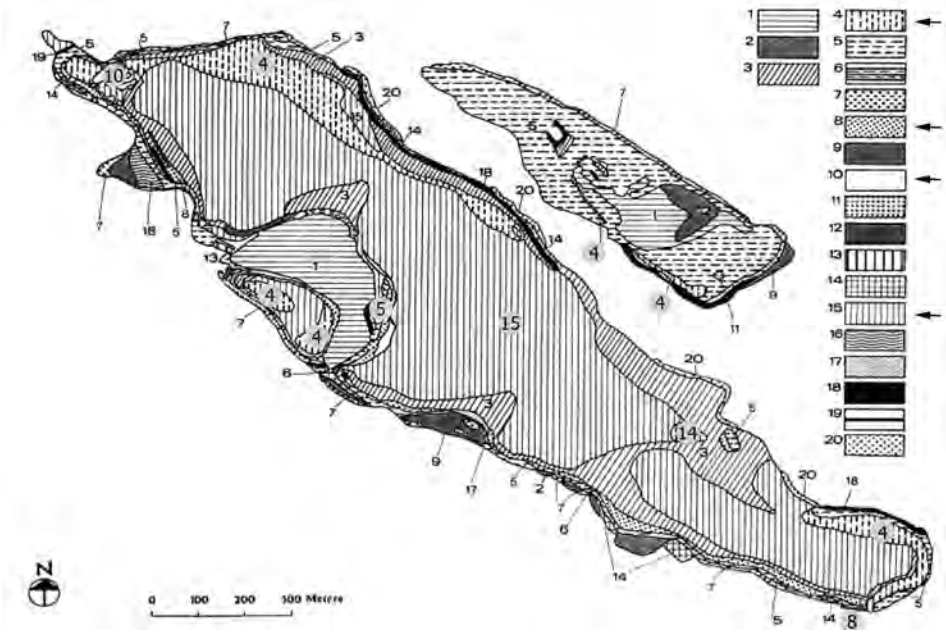

Fig. 4. Adapted vegetation map of the Kalodiki Fen (after Dimopoulos *et al*. 2005, 71, fig. 1). The vegetation mapping units indicated with arrows correspond to plant communities that occur in the deeper parts of the fen (black circles): mapping units 4, 8 and 15: mean water depth 200-250 cm and 10: mean water depth 350-400 cm. KAL08-06 and KAL08-07 are located in mapping unit 15.

Method

To test the research objectives, a combination of environmental proxies was determined, as shown in Fig. 3. The south-western part of the Kalodiki Fen was selected close to the location of core K-26.[17] Two cores were retrieved from the big fen: KAL08-06 was used for pollen studies and KAL08-07, positioned directly next to KAL08-06, was used for sediment analysis. Both cores were placed in the deepest part of the lake where pollen preservation conditions are expected to be relatively benign (Fig. 4). The waterlogged and thus reduced circumstances in these sediments inhibit microbial decay of the pollen grains. On the alluvial fans and the clay ridge, cores KAL08-01, -02, -03, -04, -05, and -09 were positioned around KAL08-06 and KAL08-07 (Figs. 1, 4).

All cored sediments were described in the field. In the laboratory, sediment analysis was performed on 315 sediment samples. The samples were taken from five sediment cores (KAL08-01, -04, -07, -08 and -09), located on five geomorphological units (alluvial A, B and C, the Morphi alluvial fan and the big fen). On the basis of ^{14}C-dates (Fig. 5), pollen slides

Sample number	Material	Sample weight
Thesprotia 350 ^{14}C	Peat (gyttja-like)	10 g
Thesprotia 610 ^{14}C	Peat (gyttja-like)	10 g
Thesprotia 760 ^{14}C	Peat (gyttja-like)	10 g
Thesprotia 615 ^{14}C	Peat (gyttja-like)	15 g

Fig. 5. Sample numbers, material and weights from KAL04 and KAL06 selected for AMS ^{14}C dating. The ^{14}C dating was performed in 2009 by the Tandem Laboratory (University of Uppsala) ^{14}C laboratory.

[17] Ioakim and Christianis 1997, 95-104.

were prepared from the interval between 255 and 490 cm. This interval was expected to represent the time interval 6200 to 2050 BP (4900 to 30 BC). This corresponds to the Atlantic to Subatlantic period, or in the archaeological time division to the interval between the Final Neolithic and the Hellenistic period.

Results

The lithology based on field observations and sediment analysis in the laboratory is briefly summarized in Fig. 6; the ^{14}C-dates are shown in Fig. 7. The correlation between the lithological data will be discussed per geomorphological units in the next section. Although organic material was present in KAL08-06 and KAL08-07, pollen appeared to be practically absent in KAL08-06 (further, see Pollen preservation below).

Sediment core	Geomorpho-logical unit	Lithological division	Lithology[18]	Depth top of layer (cm)	Max. thickness (cm)
KAL08-01 (L)	Fan C	Clastic layer 1	Silty clay loam/Silt loam	0	450
KAL08-02					
KAL08-03		*Sandy layer 1*	*Sandy layer*	50	50
KAL08-04 (L)*	Fan A	Clastic layer 1	Silty clay loam/Silt loam	0	850
KAL08-05		*Sandy layer 3*	*Sandy layer*	70	40
		Sandy layer 2	*Sandy layer*	170	40
		Sandy layer 1	*Sandy layer*	330	40
		Organic layer A	Peat	850	225
KAL08-06* (pollen core)	Big fen	Organic layer D	Floating peat layer	0	100
KAL08-07 (L)		Organic layer C	Peat	250	160
		Clastic layer 2	Clayey layer with sand grains	410	60
		Organic layer B	Peat	470	60
		Clastic layer 1	Clayey layer with sand grains	530	10
		Organic layer A	Peat	540	490
KAL08-08 (L)	Fan B	Clastic layer 1	Silty clay loam/ Silt loam	0	830
		Sandy layer 1	*Sandy layer*	50	80
KAL08-09 (L)	Morphi alluvial fan	Clastic layer 2	Silty clay loam	0	350
		Sandy layer 2	*Sandy layer with small grains*	50	80
		Sandy layer 1	*Sandy layer with small grains*	170	150
		Clastic layer 1	Silty clay loam	350	75

Fig. 6. The sediment cores, geomorphological units and simplified lithological layers (description from down to up). The sandy layers within the clastic layers are best observed in the cores that are analysed in the lab (L). Peat levels in the cores that are marked with a * are dated by the ^{14}C method (AMS) (see Fig. 7).

[18] Based on field observations and laboratory results.

Sample number	Lab no.	^{14}C age BP	δ13C‰ PDB
Thesprotia 350 14C KAL06	Ua-38400	3736 ± 50	-27,0
Thesprotia 610 14C KAL06	Ua-38401	8434 ± 64	-26,8
Thesprotia 760 14C KAL06	Ua-38403	11269 ± 76	-27,8
Thesprotia 615 14C KAL04	Ua-38402	12528 ± 84	-27,2

Sample number	Calibrated age 1σ (68.2%)	Calibrated age 2σ (95.4%)
Thesprotia 350 14C KAL06	2204-2116 BC (41.5%) 2099-2038 BC (26.7%)	2291-2016 BC (93.7%); 1997-1980 BC (1.7%)
Thesprotia 610 14C KAL06	7578-7472 BC (68.2%)	7587-7354 BC (95.4%)
Thesprotia 760 14C KAL06	11280-11149 BC (68.2%)	11339-11043 BC (95.4%)
Thesprotia 615 14C KAL04	12966-12495 BC (68.2%)	13082-12272 BC (95.4%)

Sample number	Holocene subdivision	Archaeological time period	Lithological division
Thesprotia 350 14C KAL06	Subboreal	Bronze Age	Organic layer C
Thesprotia 610 14C KAL06	Boreal	Mesolithic	Organic layer A
Thesprotia 760 14C KAL06	Preboreal	Mesolithic	Organic layer A
Thesprotia 615 14C KAL04	Preboreal	Mesolithic	Top Organic layer A

Fig. 7. Dating report of one peat sample from KAL08-04 and three peat samples of KAL08-06. The ^{14}C dating (AMS) was performed by the Tandem Laboratory (University of Uppsala) ^{14}C laboratory

Alluvial fans A, B and C

The sediments in the alluvial fans A, B and C differ slightly in texture, organic matter and $CaCO_3$ content and in the presence of inclusions. The sediments consist mostly of silty clay loam/ silt loam. The material is poorly to moderately sorted, which is typical for alluvial fans.[19] Small sandy peaks do occur in KAL08-01, -04 and -08 (Fig. 8) at around 90 cm, and at deeper levels in KAL08-04 at around 190 cm and 350 cm.

The top of the peat layer underlying fan A (KAL08-4) dates from around 13,000 BC (Late Weichselian) (Fig. 6). The silty clay loam/silt loam layer that covers the peat layer was thus deposited after 13,000 BC. Apparently, the activity of the fan starts, or increases around the Late Weichselian (at the location of KAL08-4) resulting in the deposition of the silty clay loam/silt loam layer. In the clastic layer no peat layers are observed, which means that at the location of alluvial fan A the sedimentation was never interrupted after the Late Weichselian by temporal marsh conditions. The increased alluvial fan activity is due to a complex combination of karstic processes, tectonics, climate and in the last

[19] Summerfield 1991, 222-223.

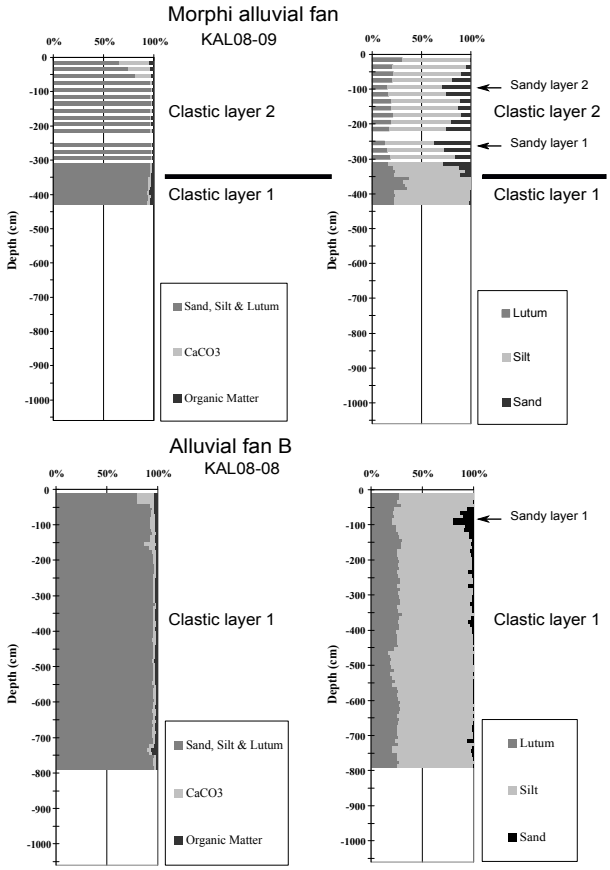

Fig. 8. Lab results of core KAL08-09 (Morphi alluvial fan) and KAL08-08 (alluvial fan B). In core KAL08-09 a sudden coarsening of the sediments is visible at a depth of around 350 cm below the surface (boundary clastic layers 1 and 2). The arrows indicate intervals where coarser intervals occur in the sediment characteristics (sandy layers 1 and 2). The division in clastic layers and sandy layers is determined per geomorphological unit and does not necessarily correspond between the units.

part of the Holocene, probably also by humans disturbing the natural vegetation. This human impact on the vegetation in the Kalodiki basin can be suggested on the basis of palynological evidence from the basin itself[20] and from Lake Ioannina, around 50 km northeast of the Kalodiki Fen.[21] Deforestation and traditional burning[22] of the natural vegetation in the Kalodiki basin may have led to (severe) erosion and therefore to an increased availability of sediments. Strong evidence of the human-induced destruction of the slope vegetation is the presence of maquis and phrygana vegetation[23] on the southern slopes. The degradation of the natural vegetation in the surroundings of the Kalodiki Fen took place at some stage approximately after 4498±80 BP (ca. 3250 cal BC).[24]

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[20] Ioakim and Christianis 1997, 95-104.
[21] Gerasimidis *et al*. 2009, 29-37.
[22] Traditional burning practices result in fresh young shoots for sheep grazing.
[23] Widely regarded as a typical degradation-vegetation type in the Mediterranean (i.e. Tivy 1993, 194).
[24] Ioakim and Christianis 1997, 98-99.

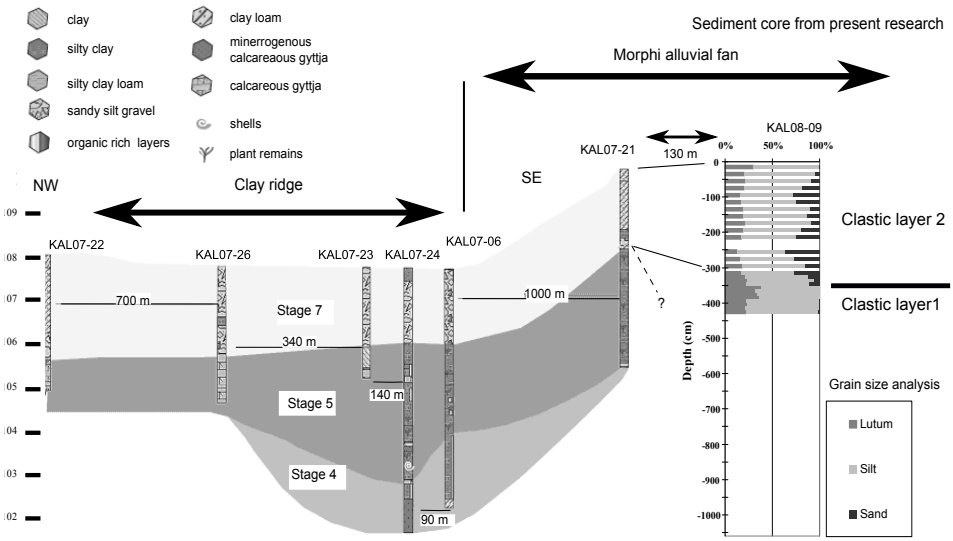

Fig. 9. Correlating clastic layers 1 and 2 discerned in KAL08-09 (Morphi alluvial fan) with the stages of development[26] defined for the clay ridge and Morphi alluvial fan by Graven *et al.* 2009. Given the lithology, clastic layer 2 in KAL08-09 corresponds to stage 7. Clastic layer 1 possibly matches stage 6 (silty clay/clay) or an undefined stage (see also Figs. 7 and 10). KAL08-09 is situated at around 130 m south-east of KAL07-21. Modified after Graven *et al.* 2009. Appendix C6.

During this fieldwork campaign evidence was found that humans did use the flat alluvial fans in the past: a small sherd, coarse and of reddish fabric with a black core (1.5 cm2) was recovered in core KAL08-03 in alluvial fan C at a depth of 210 cm. The sherd is probably of prehistoric (Neolithic/Bronze Age?) date.[25] It was found in an anthropogenic layer, consisting of a clay loam matrix with various inclusions such as small grains, angular rock fragments (dolomite), varying in particle size from several millimeters to a few centimeters, two angular stones (dolomite) and black spots (possibly humics).

Morphi alluvial fan

Core KAL08-09 is located in the Morphi alluvial fan, which is connected to the clay ridge, directly northwest of the Morphi alluvial fan. The dimensions of this alluvial fan are far greater than the smaller alluvial fans located on the opposite side of the basin (Fig. 1). A different depositional pattern developed here than in the southern margins of the basin in alluvial fans A, B and C. Less fluctuations in grain size distributions are recorded in core KAL08-08 (alluvial fan A) than in core KAL08-09 (Fig. 8). In core KAL08-09 up to a depth of 350 cm below the surface, the sediments are relatively fine and deposited under low energy conditions. These silty clay loam deposits are referred to as clastic layer 1 in Fig. 6. In the upper 350 cm of the sequence, clastic layer 2 consists of silt loam, and shows at least two sandy, coarse-grained peaks, described as sandy layers 1 and 2. They are especially well observed in the lab results (Figs. 8, 9 and 12). These levels are interpreted as being the result of increased activity of the Morphi alluvial fan

[25] According to Jeannette Forsén.
[26] Graven *et al*. 2009, 22-23, Appendix C2.

Present study		Graven *et al*. 2009	
Morphi alluvial fan KAL08-09		Morphi alluvial fan and clay ridge KAL07-22, -26, -23, -24 -06 and -21	
Lith. division	Lithology	Stage	Lithology
Clastic layer 2	Loam and clay	Stage 7	Clay loam and sandy silt gravel
Clastic layer 1	Loam and clay	Stage 6	Silty clay/clay
		Stage 5	Minerogenous calcareous gyttja/few organic layers
		Stage 4	Minerogenous calcareous gyttja/few organic layers

Fig. 10. The lithological subdivision of the present study correlated with the stages of development on the Morphi alluvial fan.

with relatively high runoff velocities and erosion energy. The sandy peaks are interrupted by a phase of a gentler runoff and relatively low erosion energy, interpreted as based on finer-grained, but still relatively sandy intervals.

It seems that this phenomenon is local, as it is not observed in the same way in cores on the southern side of the Kalodiki basin. The southern margins of the Kalodiki Fen can be characterised as relatively less active compared to the Morphi alluvial fan (Fig. 8). The sedimentation pattern observed in core KAL08-09 shows similarities with cores located on the clay ridge and the Morphi alluvial fan described by Graven *et al*. 2009. Also here, two relatively coarse peaks were observed in the upper part of the sediment sequence of several cores.

The two clastic layers 1 and 2 (Figs. 8, 9 and 12) that are discerned in core KAL09-09 can be correlated with the lithological units in the sediment cores described in Fig. 2.[27] It seems plausible that the upper part of the sequence, loam and clay of clastic layer 2, can be allocated to stage 7 represented by clay loam and sandy silt gravel in cores KAL07-22, -26, -23, -24, -06 and -21 (Fig. 9). Stage 7 is present all around the eastern shore of the big fen, forming the top of the sequence.

The underlying clastic layer 1 in KAL08-09 is more difficult to correlate. The texture description of silty clay/clay in stage 6 forms the best fits for the loam and clay in clastic layer 1 based on its lithology (Fig. 10). In KAL08-09 stage 5 may be present deeper than 425 cm, or stage 5 may have been (partly) destroyed by erosion at this location.

Big fen

The lithological sequence earlier found in pollen core K-26[28], retrieved from the big fen, is very much comparable to the profile found in cores KAL08-06 and KAL08-07 (Fig. 11). Clay layers were recognized at around the same depth, and the clay layers could therefore (in this part of the basin) be considered isochronous. When combining the radiocarbon dates for K-26 with the levels dated for KAL08-06, we can date the base of clastic layer 2 before 4498±80 BP (ca. 3250 cal BC) and the top before 3736 ± 50 BP (2000 cal BC) (Fig. 12).

[27] Based on Graven *et al*. 2009.
[28] Ioakim and Christianis 1997, 95-104.

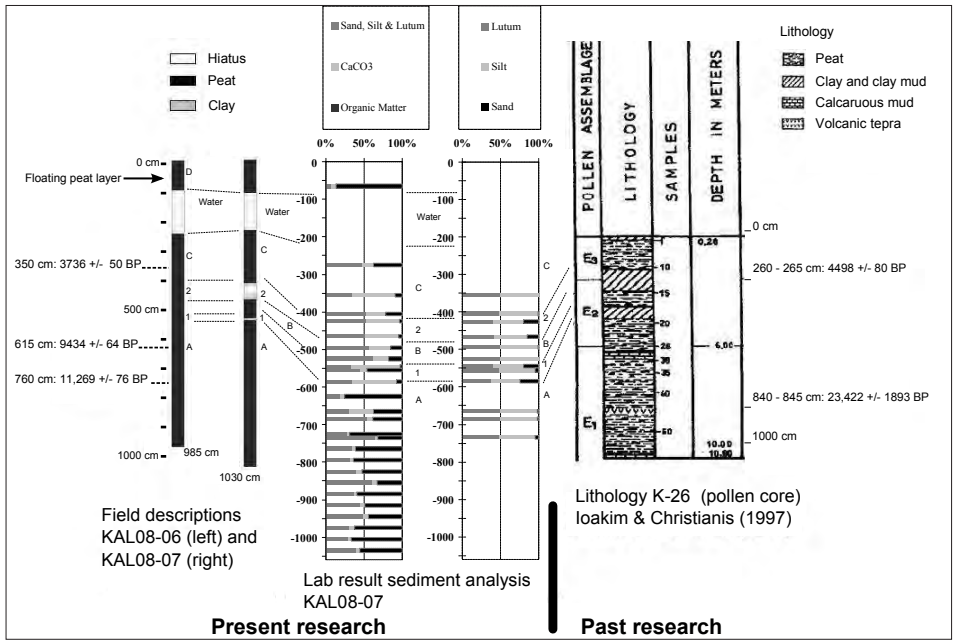

Fig. 11. Correlation. Field (left) and lab (middle) results of KAL08-06 and KAL08-07 compared to the pollen core K-26 by Ioakim and Christianis 1997 (right). Also indicated are the radiocarbon dates. The ground level in K-26 corresponds approximately to the 250 cm level in KAL08-06 en -07: there is no floating peat layer in K-26. Layers A, B, C and D represent organic layers (peat) and 1 and 2 are layers with a relatively low clastic component and an increased clastic and CaO_3 component.

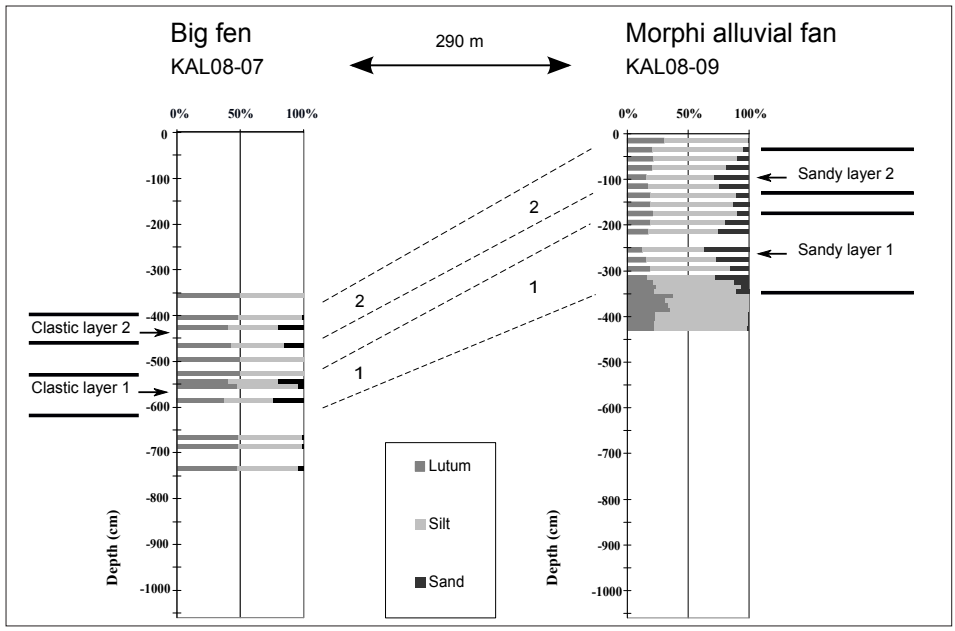

Fig. 12. Correlation of the sediment data (lab sediment analysis) of KAL08-07 (Big fen) and KAL08-09 (Morphi alluvial fan). Clastic layer 1 (KAL08-07) corresponds to Sandy layer 1; clastic layer 2 corresponds to sandy layer 2.

Correlation of sedimentation characteristics of the big fen and the Morphi alluvial fan
When comparing the grain size distributions of core KAL08-07 to the grain size distributions of the Morphi alluvial fan (KAL08-09), similarities in particle size distribution are striking. In both cores, relatively coarse-grained peaks are present in the grain size distributions. In Fig. 6 these coarse-grained peaks are described as sandy layer 1 and 2 for KAL08-09) and *clayey layer 1 and 2* for KAL08-07 (Fig. 11). These *sandy layers with small grains* and *clayey layer with sand grains* respectively can also be correlated with the clayey layers that are detected on several locations in the fen deposits as shown by Ioakim and Christianis 1997 and Botis *et al*. 1993 (for example K-26, Fig. 12). They are also recorded by Graven *et al*. 2009 on the Morphi alluvial fan and the clay ridge which is connected to the Morphi alluvial fan. The youngest of these layers is usually thicker but in composition they are identical.

These data suggest that the largest alluvial fan of the basin, the Morphi alluvial fan, is also the major source of sand and clay material throughout most parts of the fen[29] after a tectonic event took place. This tectonic event (for example an earthquake) can be dated, on the basis of lithological correlation combined with several ^{14}C-dates from the present study and previous palynological study by Ioakim and Christianis 1997 (Fig. 12), to have taken place after 8434 ± 64 (ca. 7500 BC, Boreal/Mesolithic) and before 4489 ± 80 (ca. 2500 BC, Subboreal/Bronze Age).

Human impact in the Kalodiki basin
What exactly caused these two high previously mentioned energy deposition phases to take place is yet unknown. A reduction in the density of the vegetation cover may have increased erosion processes. Plants protect the soil from impacting rain drops, and their root systems prevent further transport of soil particles. Apart from natural explanation such as climate change, it is also possible that humans damaged the vegetation cover on the Morphi alluvial fan, causing the development of the most recent sandy layer with small grains (sandy layer 2) in core KAL08-09 and the clayey layer with sand grains (clastic layer 2) in KAL08-06 and core KAL08-07. This would have taken place approximately in the period between 4498±80 BP (ca. 3250 cal BC) and 3736 ± 50 BP (2000 cal BC). This period corresponds mainly to the Early Bronze Age. The small sandy peaks in cores KAL08-01, -04 and -08 on the other geomorphological units may also correlate with this clayey layer with sand grains (clastic layer 2) in core KAL08-06, KAL08-07 and sandy layer 2 in core KAL08-09.

Evidence for agricultural practices, dating from the Early Bronze Age, was found by the Thesprotia Expedition at the site PS 12, which is located a distance of ca. 15 km to the north of the Kalodiki Fen, more exactly on the lowermost slope of the Liminari hill. At PS 12 chipped stone with sickle gloss and large amounts of bones of cattle, sheep and goat were found.[30] Palynological data from the Kalodiki Fen give further evidence for agricultural practices and indications for the development of maquis and phrygana vegetation in the (wide) surroundings at some stage after approximately 4498±80 BP (ca. 3250 cal BC).[31] Further away, in the area around Ioannina (around 50 km northeast of the

[29] Botis *et al*. 1993, 32.
[30] For the site in general, see Forsén *et al*., this volume, site PS 12, or Forsén and Forsén forthcoming. The animal bones are being studied by Vivi Deckwirth and will be published in *Thesprotia Expedition* III.
[31] Ioakim and Christianis 1997, 98-99. See also previous research above.

Kalodiki basin), palynological evidence suggests that forest vegetation decreased during the period 4500-2400 BC due to human impact.[32]

Pollen preservation

The absence of pollen in KAL06 is interpreted as being the result of the poor preservation conditions in the Kalodiki Fen. The most important processes in this regard are the fluctuating water levels in the fen due to the Mediterranean climate, which may have led to intermittent dry conditions. The fluctuating water levels have caused temporally oxidising circumstances (and subsequent oxidising of pollen grains) and mechanical degradation of pollen due to swelling and shrinking of the pollen grain. The relatively high pH values that prevail in the fen might be of less importance in the degradation process, as pollen were detected in calcareous gyttja in the Kalodiki Fen in 2007.[33]

The pollen core K-26[34] retrieved during a fieldwork campaign by Ioakim and Christianis and KAL08-06 are both taken from the same area of the Kalodiki Fen and share a similar lithological build-up. The difference in pollen preservation may be explained by local variations in hydrological conditions. Another possibility is that pollen destruction increased rapidly in the southeast part of the basin between the mid-1990s[35] and 2008 as a result of a deterioration of the hydrological conditions (i.e. desiccation of the basin). Finally, it cannot entirely be excluded that pollen were destroyed during transportation and/or storage of the sediment samples or during the preparation of the pollen slides

Conclusions and future research

The Kalodiki basin is considered an area with a high archaeological potential. It is a unique natural basin in Thesprotia given its location close to the sea, the availability of fresh water throughout the Holocene and other natural resources associated with the fen. Compared to other basins (Limnoula and Prontani) the Kalodiki Fen also constitutes (and constituted) the largest fresh water supply in the region throughout the Holocene. The relatively flat alluvial fans and the clay ridge provide suitable locations for agricultural practices and (temporary) settlement. In this study, archaeological and lithological evidence is found that may confirm this settlement theory; however, more (archaeological) evidence is necessary.

Landscape reconstruction based on lithological criteria in the southeastern part of the Kalodiki Fen resulted in the following discoveries:

- The hypothesis that the Morphi alluvial fan was activated as a result of a tectonic event (for example an earthquake) in Graven *et al*. 2009 is supported by the lithology found in core KAL08-09 on the Morphi alluvial fen.
- The period of increased activity of the Morphi alluvial fan that occurred after the tectonic

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[32] Gerasimidis *et al*. 2009, 35.
[33] Graven *et al*. 2009, 22-23. Appendix C2. For further information on pollen preservation, see Kars and Smit 2003, 47-49.
[34] Ioakim and Christianis 1997, 95-104.
[35] After 1992, when fieldwork was performed for the article Botis *et al*. 1993.

event is likely to have taken place after 8434 ± 64 (ca. 7500 BC, Boreal/Mesolithic) and before 4489 ± 80 (ca. 3250 BC, Subboreal/Bronze Age).
- After the tectonic event, the sedimentation behaviour of the Morphi alluvial fan shows at least two high-energy deposition phases, resulting in the deposition of two sandy layers with small grains (sandy layers 1 and 2; KAL08-06 and KAL08-07) reaching into the deeper parts of the southeastern part of the basin (clayey layers 1 and 2; KAL08-09).
- The youngest sandy layer with small grains (sandy layer 2), found in the subsurface of the Morphi alluvial fan, was deposited between 3250 and 2000 cal BC. This layer may be (partly) attributed to human impact on the vegetation cover of the Morphi alluvial fan.
- Alluvial fan A (and possibly also fans B and C) gradually expands during the Late Glacial.
- The presence of a sherd (Bronze Age/Neolithic?) in alluvial fan C, found in a context that was interpreted as an anthropogenic layer, may point at the presence of an archaeological site in alluvial fan C.

The archaeological potential of the Kalodiki fen, and the possibilities of multi-proxy analysis (such as lithology, pollen, macro remains and molluscs) on the lake sediments, make the Kalodiki area unique and well suited for further (geo)archaeological research. However, when future palynological research is performed it should be taken into consideration that pollen numbers might be significantly reduced locally. More detailed palaeobotanical research of sediment cores in the fen is suggested in combination with high-resolution information on the sedimentological build-up of the Morphi alluvial fan. This may shed new light on the role humans played in the erosion and sedimentation processes in the Kalodiki basin. Moreover, an intensive coring programme on the alluvial fans may reveal more traces of past human occupation, covered and thus protected by younger sediments. Below the groundwater table, in the distal part of the alluvial fans, organic archaeological material might be well preserved.

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Catalogue of Sites in the Central Kokytos Valley

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with contributions by Agneta Freccero, Nena Galanidou, Mika Lavento,
Stefanos Ligkovanlis, Ourania Palli, Paul Reynolds and Tatyana Smekalova

In this catalogue all available information concerning archaeological sites in the central Kokytos valley is collected.[1] The central Kokytos valley includes the core of the territory of Elea and roughly corresponds to the area in which an intensive field survey was conducted by the Thesprotia Expedition, although only covering a small part of the total area in question. Therefore this catalogue includes, apart from all sites studied by the Thesprotia Expedition (marked by PS), also sites previously known or excavated by the Greek Archaeological Service (marked by E).[2] The sites are catalogued starting from the northwest and proceeding towards the southeast (Fig. 1).

The central Kokytos valley covers the river basin itself and the lowermost slopes of the mountains surrounding it to the west and east. The northern limit is drawn at a line between the modern villages of Chrysaugi and Pankratai, whereas the southern limit roughly corresponds to a line between the villages of Agora and Skandalo. Between the villages of Sevasto and Xirolophos the study area protrudes like an appendix towards the west, stretching all the way until the redbeds of Karvounari.

Some of the previously known archaeological sites could never be re-localised by us and have therefore not been included in this catalogue. This goes especially for the Neolithic and Bronze Age sites that Higgs reported on the Paramythia plain, some of them probably inside our study area.[3] We have also omitted from the catalogue 'phantom sites', i.e. places that for different reasons repeatedly have been referred to as archaeological sites although there exists no real evidence to support this statement. The best example of such a phantom site inside our study area is the fortress on top of the Liminari hill in Sevasto.[4]

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[1] This catalogue has been written as a collaboration between the four main authors. The PS entries are written in collaboration between Björn Forsén, Jeannette Forsén and Esko Tikkala, the E entries in collaboration between Björn Forsén and Kassiani Lazari. Data have also been supplied by Mika Lavento (ML) for the geo-archaeological entries, as well by Nena Galanidou (NG), Stefanos Ligkovanlis (SL) and Ourania Palli (OP) for the chipped stone finds, Tatyana Smekalova (TS) for the magnetic survey data, Agneta Freccero (AF) for the R wall paintings and Paul Reynolds (PR) for the R pottery. The passages supplied by them are marked by their initials. For the dating of the arrowhead from PS 28 we owe thanks to Curtis Runnels. Fig. 5 is by Mikko Suha, Fig. 7 by Jeannette Forsén, Figs. 6, 28 and 33-34 by Björn Forsén and Figs. 32 and 39 by Anna Patteri. All other illustrations were produced by Esko Tikkala, apart from Figs. 9-10, 13, 15, 16-17, 20-21, 23, 25, 35, 38 and 40-41 which are courtesy of the Greek Archaeological Service in Igoumenitsa.

[2] Sites that were excavated by the Greek Archaeological Service, but that of some reason have not been published in *ArchDelt* are not included in the catalogue.

[3] Dakaris *at al*. 1964, 204-209.

[4] There have even been published photographs of this fortress (*HGAtlas* 2008, 74, figs. 100-101). The hill-top was extensively searched by us on several occasions, but we never managed to find even a fragmentary roof tile on it. The fortification walls that often are mentioned and even are visible on satellite photographs are in reality natural stone formations. Another example of such a phantom site is the fortress of Choika, located just to the south of our study area.

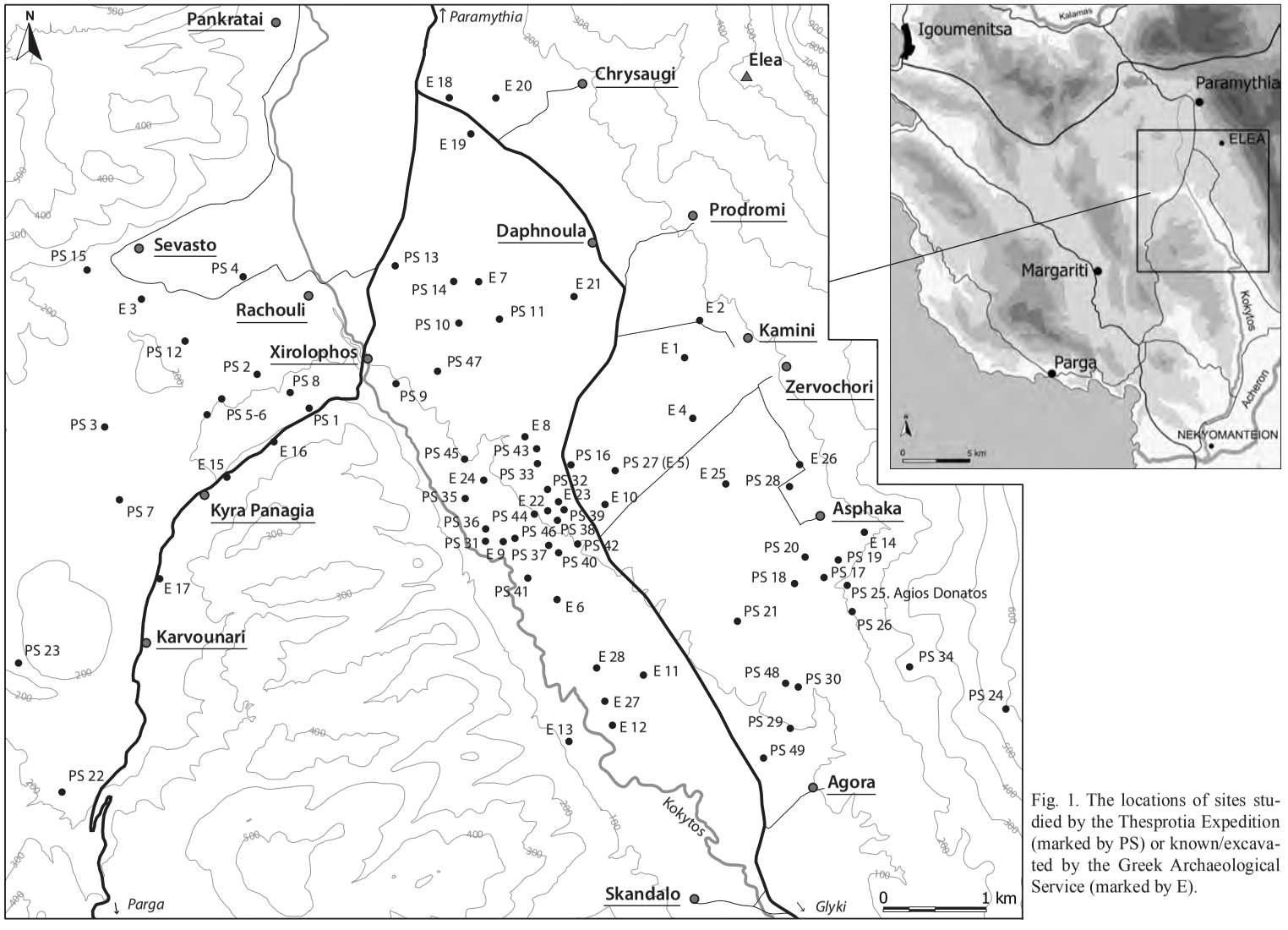


Fig. 1. The locations of sites studied by the Thesprotia Expedition (marked by PS) or known/excavated by the Greek Archaeological Service (marked by E).

The site entries in this catalogue are described with the help of the following headings:

Date and function: The dates of the material found are given with the following abbreviations: MPal – Middle Palaeolithic; UPal – Upper Palaeolithic; Mes – Mesolithic; Neo – Neolithic; EN – Early Neolithic; MN – Middle Neolithic; LN – Late Neolithic; FN – Final Neolithic; BA – Bronze Age; EBA – Early Bronze Age; MBA – Middle Bronze Age; LBA – Late Bronze Age; EIA – Early Iron Age; A – Archaic; LA – Late Archaic; C – Classical; LC – Late Classical; Hl – Hellenistic; EHl – Early Hellenistic; LHl – Late Hellenistic; R – Roman; ER – Early Roman; MR – Middle Roman; LR – Late Roman; Med – Medieval; EMod – Early Modern; Mod – Modern. Following the date a tentative interpretation of site function is given.

References: Under this heading any earlier references or references to the sites catalogued are given. If the sites are treated in other chapters of this volume, this is also mentioned here.

Location: Here the geographical settings of the sites, as well as proximity to other sites, water sources and roads, and altitude (Alt.), are given.

Description: Here information is given on whether the site has been surveyed or excavated, how large it is and what were the main building constructions and other features recorded. Survey methods are mentioned as well as, if possible, find density (as finds/100 m^2). Any results reached through magnetometer survey work are also taken up under this heading. For the methods and equipment used, see further *TE* I, 18-19.

Geo-archaeological data: Soil samples were taken from most of the sites in order to define the following characteristics.

- The phosphorus content (P) has been analyzed by diluting the soil samples in a 5% citric acid solution. The results are presented in the unit mgP/kg. Although the exact boundaries are not possible to give, in normal conditions the phosphorus values of natural soil remain below 50 mg/kg. Phosphorus values between 50 and 100 mgP have been interpreted as symptomatic, and values above 100 mgP/kg as anomalous, indicating anthropogenic influence on the soil.

- The pH values have been measured by pH indicator Consort p501 from 5 g samples diluted in distilled water. The pH value expresses the acidity of the soil. Higher pH values usually indicate human influence at the sites, but may in some cases also be caused by the local natural factors of alkaline minerals.

Finds: Under this heading all finds collected on the surface or found during excavations are described in a general way. The aim is to give an overview of the composition of the finds, not a full publication with references etc. More detailed studies of some of the find categories and sites have been or will be published as separate chapters in the Thesprotia Expedition publication series.

PS 23. Mikro Karvounari

Date and function: MPal to Mes temporary camp site and hunting stand. Also EMod house.

References: *ArchDelt* 20B (1965), 364; Higgs and Vita Finzi 1966, 2, 4; Higgs *et al*. 1967, 18; Dakaris 1972, 42, 45; Papaconstantinou and Vassilopoulou 1997, 465-466, 480; Papagianni 2000, 47-50, 66, 80 and 82; *TE* II, 123-158.

Location: In the redbeds to the southwest of the modern village of Karvounari, more exactly to the southwest of the mountain Mavrovouni on the highest point of the pass leading from Megalo Karvounari between Mavrovouni and Simitiri towards the northwest and the seasonal lake/polje

Saita. The finds are spread along the pass beginning at its highest point and continuing downwards in the direction towards Saita. Alt. 140-184.
Description: Consists of eroded spurs of red soil demarcated by areas of impenetrable prickly oak and mourtzia bushes, sometimes also interspaced by flatter ground covered by fern. The site comprises 4.14 ha and was divided into seven units. Each unit constituted a walkable area demarcated from the next unit by impenetrable vegetation or steep drops. From each unit all finds were vacuumed, but no find densities were calculated. On the border between units 4 and 5 there is a ruined EMod house foundation.
Finds: A total of 1175 artefacts of flint were collected in the seven units. The majority of the chipped stone dates to the MPal period (n=978), including 634 flakes, 82 laminar flakes, 43 cores and 128 tools (of which 14 unretouched points). There are also UPal tools, such as perforators, backed knifes, endscrapers, burins and crested blades, as well as two refit groups (i.e., individual knapping episodes) of unclear date and a late UPal to Mes component (n=87), including cores, flakes, blades and retouched tools. Next to the ruined house foundation 10 sherds were collected, one of them being a flat base with olive-green glaze on the interior and dark mustard glaze on the exterior.

PS 22. Megalo Karvounari

Date and function: MPal-UPal temporary camp site and hunting stand. Also one LR and one EMod sherd.
References: *ArchDelt* 20B (1965), 364; Higgs and Vita Finzi 1966, 2, 4; Higgs *et al*. 1967, 18; Dakaris 1972, 42, 45; Papaconstantinou and Vassilopoulou 1997, 465-466, 480; Papagianni 2000, 47-50, 66, 80 and 82; *TE* II, 159-180.
Location: In the redbeds to the southwest of the modern village of Karvounari and on the old route leading from Paramythia and the Kokytos valley via Morphi to Parga (still followed by the modern road). The red beds open and erode towards the northeast and the modern village of Karvounari. Mikro Karvounari (PS 23) is located ca. 500 m to the northwest of Megalo Karvounari. Alt. 140-220.
Description: Ancient polje consisting of terra rossa deposits deeply dissected by recent erosional gullies. Divided into 34 units not forming a continuous area, but interspersed by a quarry and parts covered by impenetrable vegetation. The total area covered by the 34 units is 11.7 ha. The border lines between the units often follow the ridge of one terra rossa spur down into the gully and up to the ridge of the next spur. Sometimes the units are demarcated by impenetrable prickly oak and mourtzia bushes. Unit 24, which is located lowermost towards the northeast, differs from the other units in being fairly flat and partly covered by fern. From each unit all finds were vacuumed, but no find densities were counted. An exception was unit 24, which was divided into 14 squares of the size 10x10 m. The highest find density counted in this way in one of the squares in unit 24 amounts to 399 finds/100 m^2.
Finds: A total of 2997 artefacts of flint were collected in the 34 units. The majority, i.e. 1601 lithics were found in unit 24. They were roughly evenly divided between MPal (n=353) and UPal or Aurignacian (n=361), the rest being unidentifiable. Among the MPal artefacts there are 31 cores and 147 tools (e.g. points, sidescrapers, notches and denticulates), whereas the UPal assemblage consists of 49 cores and 125 tools (e.g. endscrapers, burins, blades, truncations and points). Other units with more than 100 collected artefacts are unit 10 (n=118, of which 9 cores), unit 2 (n=147, of which 5 cores), unit 13 (n=112, of which 5 cores) and unit 34 (n=107, of which 5 cores). Of these units at least also unit 2 and 10 produced Aurignacian blades.

The 34 units finally also produced 8 tile fragments and 43 badly rolled sherds. Only two sherds could be identified, one being a Nikopolis type cooking pot of the fifth century AD (unit 15) and another an EMod strap handle with an olive green and dark green glaze (unit 20).

E 18

Date and function: LR basilica and MR-LR village (?).
References: Sotiriou 1929, 204-205; Evangelidou 1930, 62-65; Hammond 1967, 738; *SEG* XXIV 442.

Location: At Chalasma on the valley bottom on the east side of the Glyki to Paramythia road and ca. 100 m to the south of the small ravine originating above Chrysaugi and bringing water down to the Kokytos further to the west. Another site probably of the same date, E 20, is located only 300 m to the east of E 18. Alt. 150-152.
Description and finds: Triconch basilica, 23x14.5 m large, with the walls standing up to a height of ca. 5 m. Inside the main nave a small modern chapel was erected in the early twentieth century. Reused in the door-side of the modern chapel there is a milestone from the late third century AD, probably found in the vicinity of the chapel. According to local informants, house foundations, tiles and pottery have been found in the nowadays overgrown fields to the east of the chapel. There might have been a small village next to the chapel.

E 19. Plot of Aristoteles Mbika, Chrysaugi

Date and function: EHl cist grave covered by roof tiles.
References: *ArchDelt* 49B (1994), 424.
Location: On the valley bottom just to the west of the Glyki to Paramythia main road. Alt. 150-152.
Description and finds: Cist grave containing a child burial and a lamp (AE 4380) that dates to the late fourth or early third century BC.

E 20. Field of Vasilis Antoniou, Chrysaugi

Date and function: R (?) site of unclear function.
References: *ArchDelt* 33B (1978), 223.
Location: On the eastern edge of the valley bottom, 300 m to the east of the three-aisled basilica E 18 and just to the south of the small ravine originating above Chrysaugi and bringing water down to the Kokytos further in the west. Alt. 158.
Description and finds: The marble base of an Ionian column was found in this field, which also contains large amounts of marble chips. The base is 0.35x0.35 large. No further work has been done at this important site of unclear function.

PS 15. Pano Pigadi of Sevasto

Date and function: EHl village (?) with graves.
References: Dakaris 1972, 139-140, no. 405; *ArchDelt* 60B (2005), in press; *TE* II, 181-201. 309-312
Location: Just to the west of the modern village of Sevasto, in some fields on the lower slopes opening up towards the Kokytos valley in the east. Alt. 132.
Description: The site was detected in an overgrown field with olive trees during extensive survey in the summer of 2004 and revisited the same year in the autumn when the vegetation was less dense. Illicit digging in the northern part of the field had at that time revealed a substantial amount of tiles and pottery. In the winter of 2005 the Greek Archaeological Service conducted a rescue excavation in the field with olive trees, partly revealing a 16.6x9.0 m large house with four rooms (see *TE* II, 182-185).

The extensive survey of the surroundings produced tiles some 30 m further uphill in another field to the north of the excavated house. Furthermore, local informants speak of worked limestone blocks found some 70-80 m to the south of the house, thus indicating that the site continues also in that direction. Finally, the cist graves (one containing an iron sword) that according to Dakaris have been found on the northern outskirts of Sevasto most probably belong to this site. Taken together these finds could indicate a small village (Fig. 2). It is located close to the small fortress (E 3) on a rock-outcrop of the lower Liminari hill, at the chapel of Agios Arsenios, ca. 700-750 m to the southeast of PS 15.
Geo-archaeological data: Four soil samples were taken in a straight line beginning close to the southwest corner of the excavated house and extending towards the south with a distance of 10 m between the samples. The results of the samples were the following. Sample 1 – 403 mgP/kg, pH 7.79; sample 2 – 444 mgP/kg, pH 7.73; sample 3 – 417 mgP/kg, pH 7.62; sample 4 – 252 mgP/kg,

Fig. 2. The locations of E 3, PS 15 and the graves to the north of Sevasto.

pH 7.73. All samples are clearly anomalous, indicating human activity and the possibility of the existence of at least another building to the south of the excavated one.
Finds: In the survey Laconian roof tiles, some pithos fragments, a ring base, a kantharos base, a lekane rim, a cooking ware rim, three black glazed body sherds and some plain sherds were collected, preliminary dated to the LC or EHl period. The excavation produced quite a lot of pottery, lamps, loom-weights and coins, dating to between ca. 275 and 200 BC (for details see *TE* II, 185-194, 309-312).

E 3. Agios Arsenios of Sevasto

Date and function: EHl (?) small fortress.
References: Dakaris 1972, 139, no. 405; *ArchDelt* 49B (1994), 431.
Location: A small rock-outcrop of the northern lowermost slope of the Liminari hill, ca. 500 m to the southeast of the modern village Sevasto (Fig. 2). Alt. 136.
Description and finds: Dakaris reports finding remains of polygonal walls at the small outcrop of Agios Arsenios, which later were documented by the Greek Archaeological Service. The size of the fortress is by Dakaris reported to be only 0.1 ha, i.e., ca. 31.7x31.7 m. The hill is completely overgrown today.

PS 3

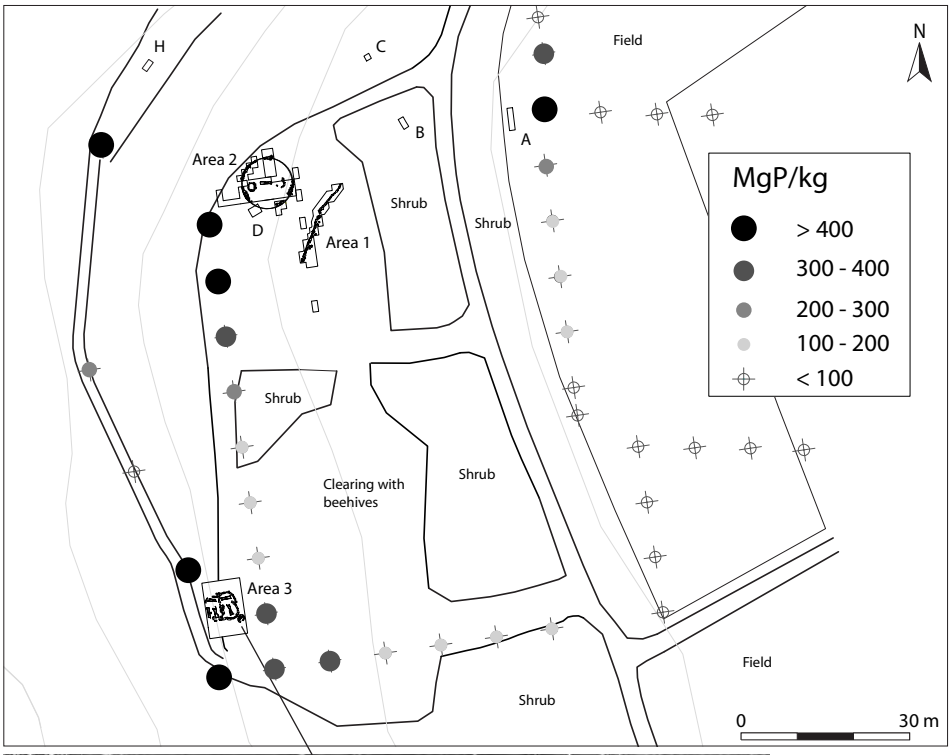
Date and function: Mes temporary camp site.
References: *TE* I, 25-38.
Location: Roughly midway between the modern villages of Sevasto and Karvounari, on the eastern lower slope of a small ridge thrusting out into what used to be a seasonally wet area called Nerotopos. Alt. 101-102, today at most one metre higher than the part of Nerotopos nearby. However, the level

of Nerotopos has probably risen by silting since the Mes period, implying that the small ridge at that time commanded the surrounding wet lands in a clearer way than today.
Description: Ca. 90x40 m large area, covered by large amounts of chipped stone, mainly made of beige, light grey and light brown flint. Further towards the south on the ridge a handful of EMod sherds were sampled. The borders of the site were determined by laying out a transect, whereafter several revisits were made collecting more lithics at different times of the year.
Finds: The lithic assemblage consists of a total of 534 artefacts, including cores, flakes and retouched tools. A large part of the retouched tools consists of microliths of non-geometric form (further see *TE* I, 28-32).

PS 7
Date and function: LR farmstead.
Location: Ca. 500 m to the west of the modern village Kyra Panagia, on the northeastern foot of a small hill, opening up towards the seasonally wet area called Nerotopos in the northeast. Alt. 105-106.
Description: Ca. 40x30 m large area in the southwest part of a field, covered by a scatter of pottery and tile fragments. The borders of the site were determined by laying out a transect. Part of the site may continue below the dirt road to the south of the site. Find densities in the ca. 10x10 m large core of the area covered by pottery and tiles varies between 240 and 280 finds/100 m^2, towards the periphery the densities fall to between 100 and 140 finds. The 10x10 m core area most likely indicates the location of the farmstead itself.
Geo-archaeological data: Two soil samples were taken from the site. One of the samples has the clearly anomalous phosphorus content of 160 mgP/kg.
Finds: The pottery collected is very worn, but includes a sherd of African red slipped ware, the transition from a base to a convex rim probably of the Hayes 57-58 series, which date from the fourth to the early fifth century AD. There are also some fifth and sixth century cooking pots and a piece of a LR C 3E or 3F dish dating to somewhere between the late fifth and mid-sixth century AD (PR).

E 17
Date and function: Hl farmstead.
Location: Just on the eastern side of the Paramythia to Parga road, between the modern villages of Kyra Panagia and Karvounari, ca. 900 m to the southwest from E 15. Alt. 114.
Description and finds: Most of the farmstead is located below the adjacent olive grove. Parts of four perpendicular walls were revealed, defining at least three rooms of unknown use. A small amount of mostly unpainted Hl pottery was found inside the rooms.

PS 12
Date and function: EBA to LBA settlement with cemetery. Also some Neo and EIA (or possibly even A to C) finds.
References: *AR* 54 (2007-2008), 62; *AR* 55 (2008-2009), 55; J. Forsén forthcoming; Forsén and Forsén forthcoming.
Location: On the lowermost eastern slope of the Liminari hill, in a sheltered small nook, mostly on the upper side of a small dirt road, but spilling over somewhat into the fields to the east of the dirt road. Towards the east a flat plain extending until the Kokytos opens up. Alt. 104-116.
Description: The site was found in 2004 in connection with the intensive survey. Trial trenches were excavated here in 2007-2010, soil samples were collected in 2008 and a magnetometer survey conducted in 2009. One of the trial trenches (Trench A) was located in the field to the east of the dirt road, all the others in the overgrown sheltered nook (Fig. 3). The trial trenches revealed a thick EBA cultural layer in Area 2 and Trench D and similar finds in Trench A. In between these trenches a terrace wall, following the contour lines was detected and traced for ca. 9 m. The terrace wall could be dated to the beginning of the LBA by a C-14 dating of a piece of bone found inside the



Figs. 3-4. Distribution of phosphorus anomalies and locations of trial trenches in PS 12 and orthographic photograph of the cemetery in Area 3.

wall itself. A single test trench, Trench H, was dug higher up on the slope, ca. 25 m to the northwest from Area 2, producing the remains of a massive rock tumble mixed with some pottery of historical date. On top of the EBA cultural layer in Area 2 a grave tumulus with a diameter of ca. 9 m and with a central cist grave dating to the very end of MBA or the beginning of LBA (1780-1610 cal. BC) was found. In the EBA layer below the tumulus itself and close to the centre of the tumulus a cremation grave was found. A medium-coarse wide-mouthed jar, probably of MBA date, and a bone needle were found just above or in connection with the heavily burnt area. Two C-14 samples taken from charcoal found in connection with the cremation grave date it to the MBA (1955-1755 and 1980-1865 cal. BC), which makes it to date the oldest known grave in Thesprotia. The cremation was found in situ in a shallow pit dug into the EBA settlement layer. At a later stage (approximately 100 years later) the tumulus was erected on top of the cremation grave.

Fig. 5. EBA spoon with flared ends and two rows of nail impressions along length of handle.

Some 75 metres to the south of the tumulus another cemetery was found in Area 3 (Fig. 4). Here six cist graves were excavated, every one surrounded by a small circle of stone with a diameter of 3-4 m. These circles are all attached to each another, except for a smaller single stone circle (diameter ca. 1.5 m) with a small cist grave for a child that was somewhat detached from the others. None of the graves contained any grave goods, but one of the graves in Area 3 could with the help of the C-14 method be dated to the very beginning of the LBA (1690-1490 cal. BC).

Geo-archaeological data: A whole series of soil samples were taken in order to define the borders of the site. Four clear concentrations of phosphorus anomalies were noted (Fig. 3), the first one close to Trench D and Area 2 (highest value 883 mgP/kg), the second one close to Area 3 (highest value 482 mgP/kg), the third one close to Trench A in the field to the east of the dirt road (highest value 703 mgP/kg) and the fourth one close to Trench H on the terrace above the main site (highest value 960 mgP/kg). Along the upper edge of the field to the east of the dirt road the phosphorus values are in general anomalous, but after some 30 m the values peter out, indicating that the site does not extend further towards the east. The total size of the site is probably ca. 140x100 m.

Fig. 6. EBA spindle whorls.

Finds: The EBA fine to medium ware pottery of Area 2 is mostly dark, either black or brown and either plain or burnished on the interior. Rims are either square-cut or slightly flaring, no out-turned rims are found. A red-slipped ware, burnished on the exterior and with incised lip, also occurs, which brings to mind similar pottery from other EBA sites in central and southern Greece. The cooking ware usually has a scored surface or carries a 'crust'. A common surface decoration consists of finger nail impressions. Finally, an impressive amount of Corded ware was collected, usually black, but also reddish-yellow and brown fabrics occur. The white-crusted filling remained only in a few Corded ware sherds. A special category of finds consists of spoons (Fig. 5), of which a total of 11 have been recorded. In general, the overall resemblance with the EBA pottery from the Thessalian site Pevkakia is striking, as well as the lack of southern imports. The Corded ware puts the site into a larger northerly network.

Remains of daub as well as a possible fireplace and several spindle whorls (Fig. 6), either biconical or made of pierced sherds, were also found in the EBA cultural layer. Two bobbins

Fig. 7. Bone needle (EBA layer).

likewise indicate wool production as well as some bone needles (Fig. 7). Several sickle elements on blades with silica gloss indicate agricultural activities, and the large amount of animal bones give a picture of the animal husbandry.

MBA and LBA pottery was found mainly in Area 1 and 3, but also to some extent above the EBA cultural layer in Area 2. There is orange and orange-red ware with out-turned or flaring rims, large horizontal handles, sometimes formed as horns, which are paralleled at Ephyra and considered to be of MBA date, as well as LBA wishbone handles. Large flat-rimmed cooking pots with sloppily made taenia bands probably also belong to the MBA to LBA, or even EIA repertoire. Furthermore, wheelmade pottery of historical date was found e.g. in Trench H, on the terrace above the main site. Here mostly body sherds of fine, very pale brown fabric, but also a flat base and a strap-handle, as well as some tile fragments were found.

Less than a handful of positively Neolithic sherds have been identified at PS 12, all in Area 2, e.g. a body sherd of so-called LN Crusted ware and one polychrome Dimini body sherd with dark red, grey and yellow paint on the exterior and likewise of LN date.

PS 5-6. Agia Paraskevi of Kyra Panagia

Date and function: LA to ER village with graves and a sanctuary.
References: *ArchDelt* 52B (1997), 626; *ArchDelt* 53B (1998), 538-540; *TE* I, 89-96; Svana 2004, 209-213; Lambrou 2006, 263, fig. 2d; Riginos and Lazari 2007, 90-92, 95-96; *HGAtlas* 2008, 81 and 85, figs. 120-121, 129-131.
Location: Just below the lowermost southeastern slope of the Liminari hill, next to Agia Paraskevi of Kyra Panagia. Alt. 99-100.
Description: Remains of houses, graves and a small temple were excavated here in 1997-1999 (Fig. 8). The temple, which is located ca. 200 m southeast of Agia Paraskevi, is 6.5x4.5 m large. A small altar (1.25x0.82 m) was found 2 m in front of the eastern short side of the temple. Part of a house (House I) with four rooms (11.5x8.5 m large) was excavated on the southeastern lower slope of the Liminari hill, between Agia Paraskevi and the temple. Part of a second house (House II) with six rooms was found next to House I. Further to the west-southwest of Agia Paraskevi parts of two additional houses were excavated, House IV located at a distance of ca. 200 m and House III ca. 650 m from the chapel. House IV had at least four rooms, one with a pithos sunk into the floor. Only the foundations of the houses that were built of local limestone blocks mixed with soil were preserved. Isolated pit graves and graves covered by tiles were also found between Houses III and IV.

During the intensive field survey the surroundings of Agia Paraskevi were badly overgrown and only a couple of fields could be walked. Two of the fields produced a thick scatter of C to EHl finds and were dealt with as PS 5 and PS 6 (Fig. 8). Two clear concentrations of finds were visible in PS 5 – the first one (square 7) characterised by a large amount of roof tiles, the other one (square 9) by a large amount of fine pottery. Square 7 probably indicates the location of a house, square 9 perhaps of a grave. The total size of the village PS 5-6 can be calculated to be at least ca. 350x150 m (even 700x150 m if House III is considered part of the same site).
Geo-archaeological data: Soil samples were taken in a line running through the field PS 5. One of the samples is clearly anomalous, having a phosphorus value of 339 mgP/kg.
Finds: During the excavation of the temple, large amounts of terracotta figurines and miniature vessels (skyphoi and kotylai), but also fragments of terra sigillata (first century AD) and other pottery, as well as coins and different metal finds (e.g. a gold earring, an iron dagger and an iron finger ring) were recorded. The earliest terracotta figurines date to the late sixth or early fifth century BC while the latest ones date to the first century BC. Two of the coins are of silver (Corinth, fourth or third century BC, and Macedonia, Alexander the Great); the rest are of bronze.

No finds from the houses have been published, but according to Svana 2004, 211, they contained apart from pithoi sunk into the floor also fragments of amphorae, jugs, cooking vessels,

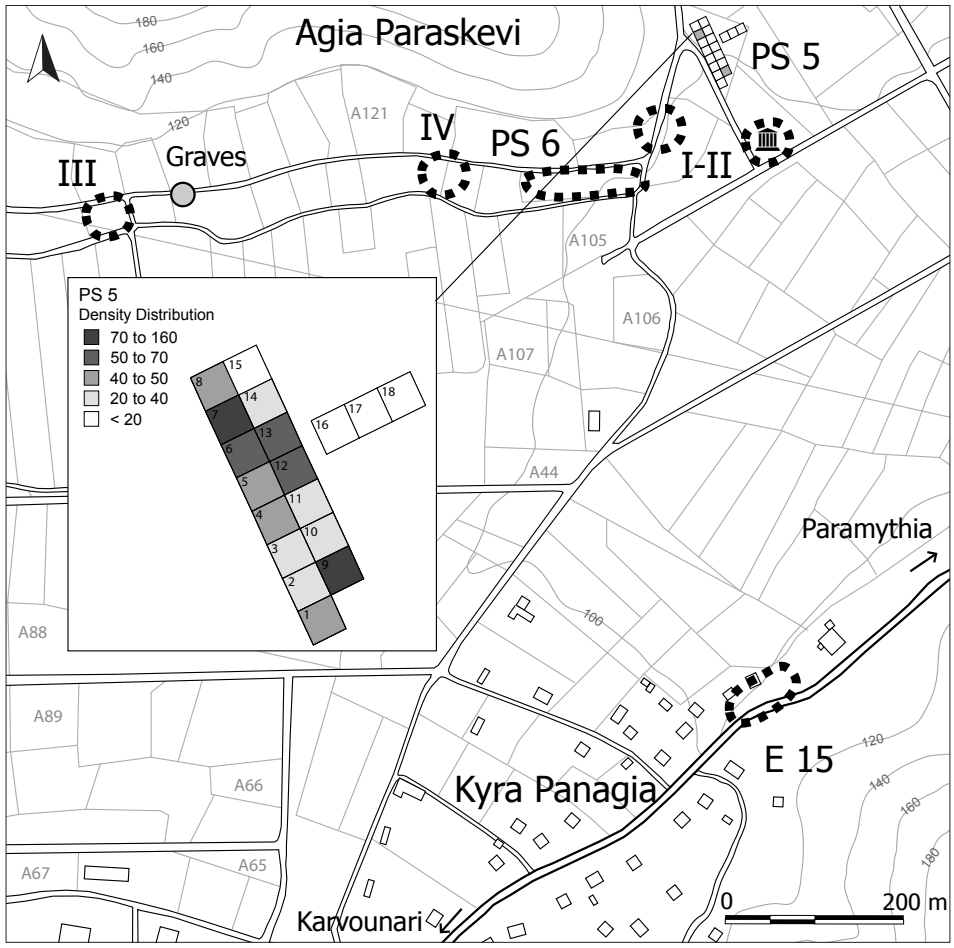


Fig. 8. The location of E 15 and the village and small rural sanctuary at Agia Paraskevi of Kyra Panagia.

lamps, plates and bowls, some of them black-glazed. Among the survey finds PS 5 produced black glazed fine ware, e.g. rims, bases and handles of bowls, drinking cups and jugs, seemingly LC to EHl in date. There is also plain ware such as a hydria with grooved face of the same date. PS 6 produced a medium ware lekane rim, but also fine ware ring bases and rims of bowls, plates and/or drinking cups, mostly LC to EH in date. Only one rim is black glazed. Apart from these finds PS 5 also produced a handful of prehistoric (LBA?) handles and body sherds.

E 15. Kyra Panagia

Date and function: EHl village (?), probably connected in some way to PS 5-6.
References: *ArchDelt* 47B (1992), 361; *ArchDelt* 65B (2010), in press.
Location: Next to and below the Paramythia to Parga main road near the northeastern edge of the modern village of Kyra Panagia, ca. 100 m before the church of the village and only 500 m to the south of the small temple of PS 5-6. Alt. 102-103.
Description: According to the report in *ArchDelt* 47B roof tiles and coarse ware pottery was found in 1992 along the western side of the main road. In connection with the widening of the road in 2010 remains of three different buildings were found. None of the houses could be excavated in their entirety as they all continued below the surface of the main road.

Fig. 9. The large building at E 15 from the southwest.

Closest to Kyra Panagia a large building with well built walls, at least 11x4.5 m in dimension, were exposed (Fig. 9). The walls are constructed in isodomic masonry, consisting of four rows of carefully carved rectangular limestones. Across the interior of the building scattered fragments of roof tiles were found in several layers, suggesting the existence of a tile roof. In the centre of the excavated part a rectangular clay construction and traces of burning suggest the existence of a fireplace. The function of the building is unclear, but because of its size it could be some kind of public (?) building.

Some 30 m to the northeast from the large building the remains of two residential houses were found. The northern complex consists of at least four rooms, in one of which a bathroom with tile floor and a ceramic bathtub was revealed. Only two rooms of the second building were uncovered, one of which probably was a storeroom as the lower parts of several pithoi were found in it.

Finds: The large building contained only a small amount of black glazed and unpainted pottery, some loom-weights, an iron arrowhead, iron nails, pieces of slag and a single Hl coin. In the residential houses some black glazed pottery, mainly from skyphoi, kantharoi and small bowls, parts of pithoi and ordinary household pottery, three conical loom-weights, iron spear- and arrowheads, an iron knife and a glass bead were found. Furthermore nine bronze coins, minted by the League of the Epirotes and Ambracia were recorded, all dating to the period between 238/234 and 168 BC. A single coin minted by Alexander the Great of Macedonia suggests that habitation in the area could have started earlier, in the LC period.

E 16

Date and function: LBA grave.

References: *ArchDelt* 65B (2010), in press.

Location: Just on the eastern side of the Paramythia to Parga main road between the modern villages of Xirolophos and Kyra Panagia, ca. 600 m from the northeastern edge of Kyra Panagia. Alt. 102.

Description: Two simple pit graves and a partly destroyed cist grave, which is built with large limestone plaques and orientated northeast to southwest and surrounded by a line of stones forming a rectangle, which was only partly preserved (Fig. 10). This grave type is similar to those found in PS 12, Area 3 and dated to the beginning of the LBA.

Finds: A bronze spiral bracelet and a few handmade pottery sherds were found inside the cist, while large quantities of handmade pottery (similar to the pottery at PS 12, Area 3) and chipped stone of flint were found around the cist.

Fig. 10. The cist grave of E 16. The surrounding line of stones is partly preserved to the left.

PS 4. Sternari

Date and function: MPal to UPal multifunctional site including flint "quarry". Also some Mes, Neo and BA finds.

Location: In several fields bordering the southeastern slopes of the hillock of Agios Georgios mainly to the northwest of a small asphalt road dissecting the site. The site is located ca. 600 m to the northeast of PS 12. Alt. 108-116.
Description: A circa 3 ha area is covered by a thick carpet of flint nodules, naturally broken flint nodules, but also stone artefacts produced by man. The flint occurs naturally in large amounts on the overgrown slopes of the hill and the site has clearly been used as a raw material source. The fact that also finalized tools were found indicates on the other hand a multidimensional use of the site.
Finds: Some 500 pieces of chipped stone were collected during several visits to the site. They include cores, debitage from the initial stages of stone knapping (primary flakes), plain flakes and tools. The artefacts are mainly unpatinated or lightly patinated, but there are also some heavily patinated examples. The use of the site begins in the MPal period (2 Levallois cores, some Levallois and Pseudolevallois points), continues through the UPal period (some bladelet cores, a few endscrapers and some burins) into post-Palaeolithic times. Some microliths and a few geometric tools shaped through truncation may indicate Mes activity, whereas a few blades and the abundance of punctiform butts among the flakes seems to point towards the Neo period and the BA (SL).

PS 2

Date and function: EMod kiln site.
References: *TE* I, 6.
Location: On the valley bottom to the northwest of the modern village of Xirolophos, ca. 250 m to the northwest of PS 8. Alt. 100.
Description: Small concentration (ca. 25x20 m) of burnt clay and lumps of slag. The finds are very similar to those made in PS 8. In principle PS 2 and PS 8 may very well belong to the same concentration of activity, as the fields between them had very low visibility. The find density of the centre of PS 2 was calculated in one square metre, giving as a result 1500 finds/100 m^2.
Geo-archaeological data: Two soil samples were taken from the site, the higher one having a phosphorus content of 80 mgP/kg.
Finds: The finds consist mainly of burnt pieces of clay (some parts of a kiln?) as well as three sherds possibly of EMod date.

PS 8. Keramareion

Date and function: EMod tile and/or pottery manufacture.
References: *TE* I, 6-7, 16-17.
Location: On the valley bottom to the northwest of the modern village of Xirolophos, ca. 600 m to the west of the Kokytos at a place that still remains wet and muddy during rain periods. Alt. 98-99.
Description: In an area covering at least 220x150 m a thick scatter of burnt clay and lumps of slag was detected. The area was sampled according to a grid system, thus revealing the location of six kilns. Three of the kilns had very high find densities (between 1460 and 2020 finds/100 m^2), whereas the three others had lower find densities (between 400 and 920 finds/100 m^2).
Geo-archaeological data: A total of 34 soil samples were taken at a distance of five metre from each other. 15 samples have a value over 100 mgP/kg, with the highest value being 134 mgP/kg. No strong phosphorus anomaly is thus visible at the site.
Finds: The burnt clay and lumps of slag can be identified as vitrified linings and wasters typically created at kilns producing tiles and pottery. Only a handful of sherds were collected, most of them probably EMod in date. Three thermoluminescence samples confirm the date of the kilns to the eighteenth century.

PS 1

Date and function: Mes (?) temporary camp site and possible quarry.
Location: On the valley bottom ca. 200 m to the southwest of Xirolophos, separated from the lowermost hill slopes by a 2 m deep ditch. Alt. 99.
Description: In a cultivated field (tract A2) a small concentration (ca. 0.1 ha) of natural flint, but

also chipped stone. Flint occurs naturally on the higher slopes above Xirolophos and it is possible that this site continues on the other side of the ditch, although this never could be ascertained due to extremely thick vegetation. The setting of the site thus bears a certain resemblance to PS 4, on the opposite side of the flat valley bottom, ca. 1.3 km to the north-northwest.
Finds: 47 pieces of chipped stone, including four cores, 11 blades, 15 retouched tools (e.g. composite tools, scrapers), 15 flakes and one microlith, were collected. They show a clear affinity to the finds from PS 3 and are most likely of Mes date (OP).

Fig. 11. One of the limestone blocks from PS 13.

PS 13
Date and function: EHl monumental grave?
References: *ArchDelt* 44B (1989), 316.
Location: In the middle of the valley bottom, ca. 600 m to the northeast of the Kokytos and 100 m to the east of the modern Paramythia to Parga main road. Alt. 114-116.
Description: 17 large rectangular (Fig. 11) blocks and a plaque were found along the northwestern edge of a corn field (tract A 75). These blocks were probably found and dumped here while building the new irrigation system in the late 1980s, and they must originate from a monumental structure somewhere nearby (according to *ArchDelt* 44 B from a wall that was destroyed by the workers). A magnetometer survey conducted in the surrounding fields revealed an anomaly at the northwestern corner of the field, which could be formed by a rectangular structure some 13-14x13-14 m large. Unfortunately this structure is cut in the middle by the border between A 75 and the field to the northwest of it, thus causing disturbances that make the interpretation of this anomaly uncertain.
Finds: The width of the blocks varies between 90 and 100 cm, the length between 90 and 110 cm and the height between 25 and 35 cm. The plaque is 66x88 cm large and 7 cm thick. The blocks are made of local grey limestone (mixed with some flint nodules), i.e. of the same material as the blocks used for the Early Hellenistic heroon at Marmara (E 11). The large size of the blocks suggests that they originate from a monumental structure such as a monumental grave: most of them can be interpreted as orthostate or perhaps even stylobate blocks, and the plaque could very well have been used a covering plaque of a grave. However, it should be noted that the dimensions of the blocks used for the heroon in Marmara differ slightly from those at PS 13: the blocks at PS 13 are in general somewhat wider and their heights smaller. At Marmara only one block with the same dimensions as at PS 13 could be found.

PS 14
Date and function: LR farmstead/small village.
Location: In the middle of the valley bottom, to the northeast of the modern village of Xirolophos, ca. 50 m to the northwest of the ravine originating at Elea and uniting with the Kokytos at Xirolophos. On the opposite side of the ravine, at a distance of only 220 m, there is another site of the same date, PS 10 (Fig. 12). Alt. 118-120.
Description: The site stretches over three fields. The first of these fields was gridded and surveyed as PS 14 in 2004. Most of the surrounding fields were overgrown at that time, but at a later revisit to the site two further adjacent fields were ploughed and walked as tracts A 123 and A 124, revealing that the site continues towards the northwest. In the gridded field a clear, ca. 30x20 m large find concentration was noted, with the highest find densities reaching over 1000 finds/100 m^2 (1120 finds/100 m^2 being the highest one noted, calculated in a 5 m^2 circle in the centre of the square). This is most likely the place of one large building (Fig. 12). While walking tracts A 123 and A 124 another clear find concentration was noted in the centre of A 124, probably marking the location of

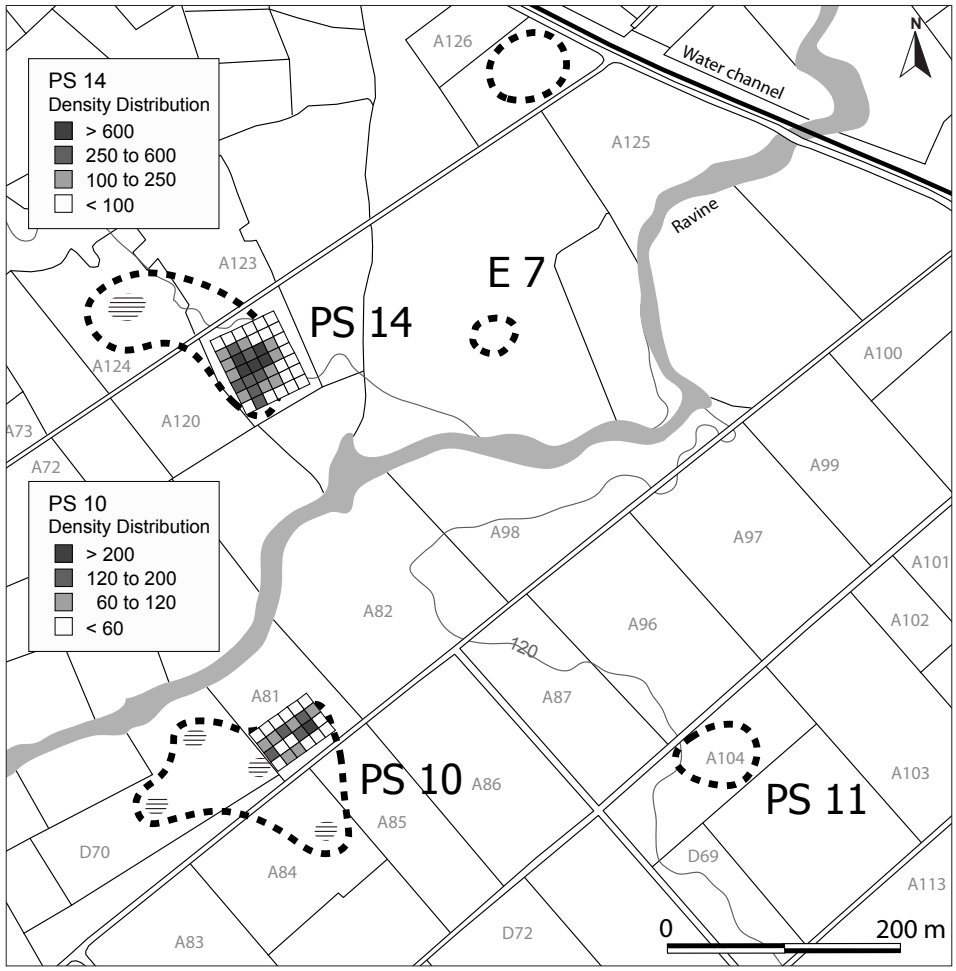


Fig. 12. The location of the LR sites PS 10, PS 14 and E 7. Marked are also PS 11, an EHl (?) farmstead, and another probably LR site known to the Greek Archaeological Service but never studied.

another building (Fig. 12). Due to time restrictions this concentration could not be gridded. There are also some finds in the southwest corner of A 123. In total the site covers an area of ca. 180x120 m and consists of at least two buildings, but perhaps even further ones, the exact location of which we did not manage to localise.

Geo-archaeological data: Five soil samples were taken from the site. The phosphorus content of one of the samples is slightly anomalous (118 mgP/kg, pH 7.68).

Finds: The finds collected in the gridded part of the site consist of roof tile fragments, pottery and three pieces of glass of LR date. The tracts produced similar finds. The pottery from the gridded area includes two pieces of LR C dishes, one with ruletting on the floor dating to the second half of the fifth century, the other one dating to the late fifth to early sixth century AD. There are also four pieces of LR 2 amphorae dating to the fifth or sixth century AD, one LR 1 amphora rim with handle attachment of the late fifth century AD, as well as several fifth to sixth century cooking pots and a possible clibanus handle (PR).

E 7. Aerodromio

Date and function: LR (proton metachristianikon aionon) farmstead with graves.

References: *ArchDelt* 60B (2005), in press; *HGAtlas* 2008, 97, fig. 159.
Location: On the very valley bottom, ca. 50 m to the northwest of the ravine originating at Elea and uniting with the Kokytos at Xirolophos and just 150 m to the east of PS 14. Less than 200 m to the north of E 7 there is yet another possible site of the same date that has been protected by the Greek Archaeological Service but not excavated (Fig. 12). Both these sites may in fact belong to one and the same larger Late Roman village. Alt. 122-123.
Description: The farmstead is 13.4x9.2 m large and consists of four rooms. Only the foundations of the walls (0.7 m wide) that were constructed of field stones and mud are preserved. A total of five graves covered with tiles, but with no grave goods, were found. Two of the graves were located just outside the farmstead and had a south to north orientation; the three others somewhat further away had a northwest to southeast orientation.
Finds: Iron nails, a bronze coin, fragments of glass vessels and coarse pottery, partly with combed decoration.

PS 10
Date and function: LR village.
Location: In the middle of the valley bottom, to the northeast of the modern village of Xirolophos, ca. 50 m to the southeast of the ravine originating at Elea and uniting with the Kokytos at Xirolophos. Alt. 112-116. On the other side of this ravine, only 220 m to the north there is another site of the same date, PS 14 (Fig. 12).
Description: The site stretches over three fields or tracts: A 81, A 84 and D 70. The first time we surveyed the site in 2004, D 70 was totally overgrown, whereas A 81 and A 84 were covered by corn with low visibility. Tract A 81 was at that time gridded, producing one clear concentration that was considered a house (highest calculated find density 280 finds/100 m^2, calculated on the basis of the finds collected in a 5 m^2 circle). While revisiting the site in 2007, A 84 and D 70 had a fairly good visibility and were rewalked, although not gridded due to time restrictions. Four concentrations of finds were still noticed (Fig. 12): one in the middle of A 84 and three in D 70, one of these on the border to A 81, perhaps spilling over somewhat into that tract. The total size of the village, which seems to have consisted of at least five houses, was estimated as ca. 180x160 m. The find concentrations have a diameter of ca. 10-15 m and are located at a distance of ca. 40-50 m from each other. Judging by the spread of finds, the buildings are probably badly preserved.
Geo-archaeological data: Five soil samples were taken from the site, of which three have a symptomatic phosphorus content (83-87 mgP/kg).
Finds: The finds collected in 2004 and 2007 consist mainly of cooking pots and amphora fragments, as well as one pithos fragment and several roof tile fragments. The cooking pots date to the late fifth or sixth century AD, whereas the amphorae include a LR 1 amphora handle (ca. 450-500 AD), a Cilician LR 1 amphora handle (late fifth century AD), a LR 2 amphora handle (fifth to sixth century AD) as well as two pieces of LR 3 amphorae (fifth to sixth century AD) (PR).

PS 11
Date and function: EHl (?) farmstead.
Location: In the middle of the valley bottom, some 250 m to the east of PS 10 and 220 m to the southeast of the ravine originating at Elea and uniting with the Kokytos at Xirolophos (Fig. 12). Alt. 120-121.
Description: Small scatter of roof tiles and a few sherds and lithics in a cornfield. Rather poor visibility; no clear borders of the site could be determined. The find density calculated in a 5 m^2 circle roughly in the centre of the site amounted to 540 finds/100 m^2, which in combination with the slightly anomalous phosphorus content indicate that this is a site, most likely a farmstead.
Geo-archaeological data: A soil sample taken at the site had the phosphorus content 81 mgP/kg.
Finds: Some tile fragments, a plain ring base, a downturned rim of a plain jug of Hl date, a vertical strap handle with a central ridge and four body sherds.

E 21. Daphnoula

Date and function: Hl grave.
References: *ArchDelt* 49B (1994), 424.
Location: On the very valley bottom, ca. 400 m to the southwest of the modern village of Daphnoula and exactly between two ravines flowing from the Paramythia mountain range down to the Kokytos. Alt. 138.
Description and finds: Cist grave (2.0x1.2 m) oriented northeast to southwest containing two burials. In the grave two spear heads and four unguentaria were found that date the burials to the late third century and to the second century BC respectively.

PS 9. Louri

Date and function: EMod farmstead?
Location: At the western edge of the valley bottom, just to the east of the modern village of Xirolophos and the Kokytos (only 150 m away). Alt. 98.
Description: Scatter of tile and pottery fragments in a corn field. The site was gridded in 10x10 m squares, from which all finds were vacuumed. Two clear concentrations of finds (210 finds/100 m^2 and 104 finds/100 m^2, calculated on the basis of all finds collected from the square), ca. 15x10 m in size were noted, located at a distance of ca. 15 m from each other. These concentrations were interpreted as the location of two adjacent buildings.
Geo-archaeological data: Five soil samples were taken from the site. All contained symptomatic levels of phosphorus content, the highest one being 82 mgP/kg.
Finds: Apart from roof tile fragments and a handful of iron pieces, several pieces of white china, some with brown strokes or grey lines on exterior, a handful of sherds with mustard glaze, one with green and purple added, one yellow glazed sherd as well as part of a large plate (diam. 0.26) with yellow glaze and dark green lines around the inside perimeter were collected. All date to the eighteenth or nineteenth century.

PS 47

Date and function: EMod or Mod farmstead (?).
Location: At the western edge of the valley bottom, ca. 500 m to the east of the modern village of Xirolophos and ca. 350 m to the northeast of the roughly contemporaneous PS 9. Alt. 104-106.
Description and geo-archaeological data: Small (15x15 m) concentration of tiles and coarse kitchen pottery in the southwest corner of tract D 64. One soil sample was taken at the site. The phosphorus value was 282 mgP/kg which indicates a clear anomaly.
Finds: Only a grab sample was taken from the site, which seems to be EMod to Mod in date, although there is no glazed pottery.

E 1

Date and function: LC or EHl grave.
References: *ArchDelt* 33 B (1978), 223-224; Choremis 1980, 3-20; *HGAtlas* 2008, 85, figs. 127-128.
Location: At the eastern edge of the valley bottom, just below the modern settlement Kamini and to the north of a small ravine originating at Kamini. Alt. 160-162.
Description: Two cist graves over which an earth tumulus with a diameter of 9.5 m and a height of 0.8 m had been built. Inside the tumulus there was also unearthed a place with traces of burning, some animal bones and potsherds (place of grave pyre or place of libations?). Cist grave A contained a funerary kalpis with burnt bones and pieces of a wreath as well as rich weaponry gifts. Cist grave B contained an inhumation without any grave goods.
Finds: Cist grave A contained, apart from the funerary kalpis, also two iron helmets (one covered with a silver coat), an iron cuirass, an iron sword with its sheath and an iron key. The finds can be dated to ca. 350-325 BC. As the tomb did not seem to belong to a cemetery, Choremi suggested that the tomb belonged to an officer (tomb A), who died in a battle and who was buried together with

his associate slave (tomb B). Since then another grave of roughly the same date has been found nearby (E 2).

E 2. Koutsounikia

Date and function: EHl grave.

References: *ArchDelt* 47B (1992), 349; Riginos 1999, 174-175.

Location: At the eastern edge of the valley bottom, ca. 300 m to the northwest of the modern settlement Kamini and 300 m to the north-northeast of the well-known EHl grave E 1. Alt. 172.

Description: A small grave theke oriented east to west. The sides and cover of the theke are made of Laconian roof tiles. Inside the theke an ash urn was standing supported by small stones.

Fig. 13. EHl lamp (ΘE 02680) found in the grave E 2 (Koutsounikia).

Finds: The theke contained, apart from the ash urn, also a fragmentary oinochoe and an intact lamp. The lamp seems on the basis of the published photograph to date between 340 and 250 BC (Fig. 13). Thereby the theke would be roughly contemporaneous or slightly later than E 1.

PS 45

Date and function: UPal (?) temporary camp site.

Location: At the western edge of the valley bottom, ca. 350 m to the northeast of the Kokytos and 100 m to the northwest of the ravine originating on the slopes of the Paramythia mountain range close to the village of Prodromi. The location does not differ very much from that of PS 43, i.e., although not being situated at a very high altitude it commands a very good view over the surrounding ravine and the Kokytos towards the south and west. Alt. 99-102.

Description and finds: Large and thin scatter of flint, extending ca. 350 m in southwest to northeast direction and 150 m in northwest to southeast direction, covering several fields (tracts D 33-D 35, D 38-D 42 and D 61). No find density was calculated. The collected artefacts consist mostly of large flakes of flint, but also of some 10 blades and a core.

PS 43

Date and function: MPal and Mes/ENeo temporary camp site.

Location: In the middle of the valley bottom, ca. 80 m to the southeast of the ravine originating at the Paramythia mountain range close to Prodromi from where it flows towards the southwest joining the Kokytos at the western edge of the valley. The site is located at a low ridge, orientated along the south side of the ravine in the southwest to northeast direction. The setting of PS 43 commands not only the lower lying ravine towards the northwest but also the gently falling landscape towards the south. Alt. 106-108.

Description: Scatter of lithics covering three fields walked as tracts D 22, D 28 and D 80. The whole site covers an area of ca. 100 x 100 m from which finds were collected as grab samples during several revisits. No find density was calculated.

Finds: The site yielded 618 flint artefacts, but no pottery. The lithic industry consists of two different components, an early and a late one, attributed to the Pleistocene and Holocene respectively. The early component, which dates to the MPal, consists of a total of 108 artefacts, including 2 cores and 18 tools (3 endscrapers, 2 piercers, 2 denticulates, 5 Levallois points, 1 Pseudolevallois point and 5 flakes with parallel or sub-parallel continuous or discontionuous retouch).

The late component is a flake dominated industry consisting of 508 artefacts (33 cores, 187 tools and 288 unretouched blanks). Among the tools becs, burins, notches, denticulates, endscrapers, splintered pieces, as well as a large number of flakes with either linear retouch or with irregular/occasional or very short (nibbling) retouch are encountered. Asymetric transverse points

produced by low-angle bifacial removals and geometric microliths on flakes complete the toolkit. This later lithic component could have been manufactured and used either by Mes hunter-gathereres or by EN agriculturalists with no pottery (NG).

E 8. Plot of Aik. Tsiota and K. Natsi

Date and function: Hl/LR graves.
References: *ArchDelt* 55B (2000), 661.
Location: In the middle of the valley bottom, just to the northwest of PS 43 and ca. 70 m to the south of the ravine originating at the Paramythia mountain range close to Prodromi just before the landscape falls off towards the ravine (Fig. 14).
Description: Two plundered cist graves of the size 2.10x1.00 m orientated northeast to southwest. Large limestone plaques had been used to build the cists, of which the cover blocks were missing.
Finds: Outside the cists a heap of pebble stones was found, mixed with human bones, some pottery including parts of skyphoi and a lamp, as well as 15 bronze coins. On the basis of the pottery the graves were used for the first time in the Hl period while the coins indicate that they were re-used in the early Christian (i.e. the LR period).

PS 33

Date and function: R/LR grave (?).
Location: On the flat valley bottom, to the west of the main road between modern Glyki and Paramythia and in between two ravines originating at the modern villages of Prodromi and Kamini respectively. The site is located ca. 500 m to the west of the LR village PS 27 and only 200 m to the west of PS 16 and 170 m to the northwest of PS 32 (Fig. 14). Alt. 108.
Description: The site consists of a small (ca. 5x5 m), concentration of roof tiles. The find density calculated in a 5 m^2 large circle was 560 finds/100 m^2. The site could perhaps be a single grave connected to PS 32.
Finds: Mostly broken roof tiles, but also a vertical strap-handle and a flask rim of fine table ware. These are R, or possibly LR in date.

PS 32

Date and function: MR to LR small village. Also some Hl and ER finds.
Location: On the flat valley bottom, to the west of the main road between modern Glyki and Paramythia and ca. 460 m to the west-southwest of the LR village PS 27. A ravine leading water from Kamini at the Paramythia mountain range to the Kokytos passes by ca. 170 m to the east of the site. PS 32 is surrounded by a cluster of LR sites; PS 16 is located only 170 m towards the northeast, PS 33 170 m towards the northwest, E 22 only 120 m towards the south, PS 38 200 m towards the south-southeast and PS 39 170 m towards the southeast (Fig. 14). Alt. 106-108.
Description: This site is ca. 180x120 m large stretching over at least two fields, but most probably extending into a third field that could not be surveyed due to bad visibility. Three concentrations of finds were noted, probably indicating the locations of three houses. There may very well be yet a fourth house in the field that could not be surveyed (a local farmer told us that this field was full of stones and tiles as well). The find density of the clearest concentration, house II, is 440 finds/100 m^2, calculated on the basis of a 5 m^2 circle, the find density of the two other houses being only 160 finds/100 m^2, but still standing out quite clearly (Fig. 18). Houses I and II stand out, besides through higher find density, also by a large amount of stones of fist- to head-size. The distance between the houses may be ca. 20-30 m.
Geo-archaeological data: No soil samples were taken from this site.
Finds: Among the cooking pots two have grooved rims typical for the third century AD, whereas one dates to the fourth to fifth century and another three to the LR period. There is also the base of an African red slipped C dish (fourth century), the handle of a LR 1 amphora (fifth century) as well as a LR lid and part of a pithos. Apart from these finds there are two handles that rather seem to date to the Hl or ER period. No clear spatial distinction in the distribution of finds could be noted (PR).

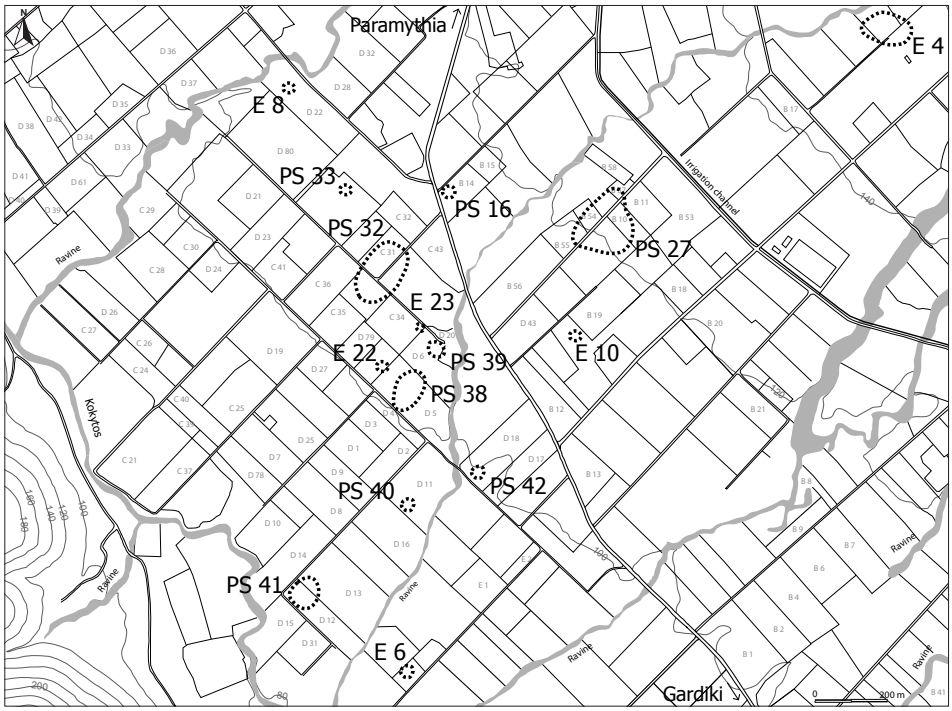


Fig. 14. The location of LR sites in the neighbourhood of the LR village and basilica PS 27 (Paliokklisi of Zervochori). Marked is also the Med (?) church E 10.

PS 16. Balakia

Date and function: MR to LR farmstead with graves.

References: *ArchDelt* 60B (2005), in press; *HGAtlas* 2008, 97, fig. 160.

Location: On the flat valley bottom, next to the main road between modern Glyki and Paramythia and ca. 300 m to the west of the LR village PS 27 (Fig. 14). A ravine leading water from Kamini at the Paramythia mountain range to the Kokytos runs between the two sites. Alt. 115-116.

Description: The site was surveyed by the Thesprotia Expedition in the spring of 2005 using a 10x10 m grid and the density was calculated on the basis of a 5 m^2 circle in the centre of each square. A very high concentration of finds was noted in one of the squares (4060 finds/100 m^2) with a slight spread into the neighbouring three squares (160-280 finds/100 m^2), thus indicating a small site, probably a farmstead. The site was excavated by the Greek Archaeological Service the same year in the summer, revealing two graves and what may be the remains of a house. No foundations of walls were found, but an 8.5x7.5 m large area covered with stones and remains of mortar, mixed with tiles, pottery, metal finds and signs of burning, indicates the location of the house. The two graves were located to the east of the farmstead. The first grave was a 2.08x1.0 m large cist grave with the grave walls built of stones and mortar and the floor of flat stones and roof tiles. Bones most likely belonging to more than one individual were found dispersed next to the grave, indicating that it had been plundered. The other grave, 0.58x0.21 m large, belongs to a small child and was covered by roof tiles. Both graves have an east to west orientation.

Geo-archaeological data: Five soil samples were taken in a south to north orientated line with a distance of 20 m between the samples. Only the first sample, which was taken from the very find concentration has an anomalous phosphorus content (136 mgP/kg; pH 7.85), thus indicating that we are dealing with only a small site or a farmstead.

Finds: In the survey a large amount of tiles and sherds, 2 pieces of glass and 2 pieces of burnt bone were recorded. The majority of the pottery and all glass and bones were found in the square with the

highest find density that marks the spot of the farmstead, and include e.g. several LR cooking pot rims, a possible clibanus lid and some amphora fragments (LR 1 body sherd – fifth to sixth century AD; LR 2 handle attachment – late fifth to sixth century AD). (PR).

Most of the pottery found in the excavation belongs to cooking pots and pithoi. There were also some fragments of glass vessels, 15 bronze coins dating to the fourth through sixth centuries AD, fragments of a bronze balance, iron nails and a grinding stone. The child burial contained one bronze coin.

PS 27 (E 5). Paliokklisi of Zervochori

Date and function: LR village (PS 27) with a basilica (E 5).

References: *ArchDelt* 47B (1992), 349; *ArchDelt* 58B (2003), in press; Drosou 2006, 281-282; *TE* I, 7-10, 18-20; *TE* II, 309.

Location: On the valley bottom, about halfway between the Paramythia mountain range and the series of hills demarcating the valley in the west. A small ravine passes by just to the northwest of the site, bringing water from Kamini at the Paramythia mountain range down to the Kokytos further towards the west (Fig. 14). Alt. 116-124.

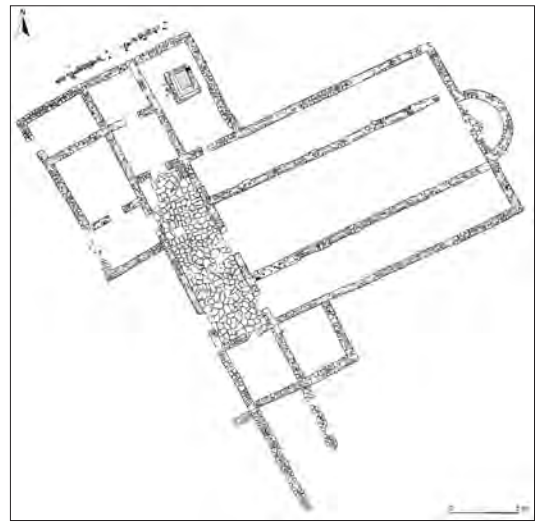


Fig. 15. Ground plan of the LR basilica at PS 27 (Paliokklisi of Zervochori).

Description: A three-aisled basilica of the size 20x14.3 m (Fig. 15) was excavated by the Greek Archaeological Service in 2003 and recorded by us as E 5. The foundations of the walls are 0.55 m wide and constructed of field stones and mortar. The floor of the narthex is covered by stone plaques and in the apses of the central nave remains of wall paintings were collected. On the northwest side of the narthex there are six rooms and on the southwest side another two rooms connected to the narthex. These rooms have a floor consisting of beaten soil and gravel. The baptisterion was located in one of the rooms on the northwest side, in the centre of which there is a 1.70x1.30 m large basin that could be entered with the help of two steps. Outside the baptisterion remains of a terracotta water pipe line were recorded.

Intensive field survey conducted around the basilica revealed a thin scatter of LR pottery (PS 27) extending ca. 140 m to the southwest (B 54, B 55 and PS 27A), 50 m to the northeast (B 57), 20 m to the northwest and 140 m to the southeast (PS 27B or B 10). One of the fields, B 10, was gridded and sampled in 10x10 m squares. The find density was calculated in a 5 m^2 large circle in the centre of each square, producing 320 finds/100 m^2 as the highest density. A magnetometer survey revealed the location of up to six houses to the southeast and northeast of the basilica, some of them currently being destroyed by intensive modern agriculture, whereas the largest one to the south of the basilica still seems to be well preserved. There may be further houses to the southwest of the basilica but this area was not intensively searched by magnetometer nor were any phosphorus anomalies spotted in that direction. Thus, the basilica seems to have been surrounded by a small village, at most ca. 1.5-2.0 ha large, containing around 10 houses.

A pit grave found at Paliokklisi in 1992 most probably also belongs to the LR village. No bones were preserved in the grave, which contained only some sherds of coarse ware, an arrowhead and an iron nail.

Geo-archaeological data: A large number of soil samples were taken in the vicinity of the basilica. The phosphorus values of the samples taken close to the basilica are anomalous and indicate human

influence. Samples taken along a line running towards the southwest from the basilica indicate only low values. Clearly anomalous phosphorus values (the highest one 334 mgP/kg) were on the other hand recorded along a line running towards the southeast of the basilica, on the other side of the small dirt road that intersects the site and in the same area as the largest house detected by magnetometer.

Finds: The excavations of the Greek Archaeological Service uncovered a total of 309 LR bronze coins, fragments of glass window panes and glass vessels, terracotta lamps (Fig. 16), fragments of marble colonettes and revetments as well as an intact stone fountain.

Fig. 16. Two lamps (ΘE 07359 and ΘE 07361), fifth to sixth century AD, found in connection with the LR basilica at PS 27.

While surveying the surroundings of the basilica, another five bronze coins were spotted in the rooms to the northwest of the narthex. The gridded field produced a sixth century cooking pot, a LR 3 amphora sherd, a small LR C dish, form 3 base (late fifth to sixth century), a clibanus flange and handle (fifth to sixth century), a LR body sherd with wavy lines, part of a pithos as well as some fragments of glass vessels. The tracts to the southwest of the basilica produced the following finds. From B 54 a cooking pot with pointed rim (late fifth to sixth century) was found, whereas B 55 produced a Tunisian amphora toe from Nabeul (late K25 type, fifth century) and a small cooing pot with collared rim (sixth century). Even further to the southwest PS 27A produced two cooking pots of the fifth century (one of Nikopolis type) (PR).

E 4. Touri

Date and function: LR farmstead with graves.

References: *ArchDelt* 58B (2003), in press; *ArchDelt* 59B (2004), in press; Drosou 2006, 281.

Location: At the eastern edge of the valley bottom, next to a small ravine originating on the west slopes of the Paramythia range close to the village of Kamini. The farmstead is located ca. 800 m to the northeast of the LR village at PS 27 (Fig. 14). Alt. 152-156.

Description: Part of the farmstead was excavated, revealing two rooms with an inner size of 5x3 m each. Only the foundations of the walls that were constructed of field stones and mud are preserved. In one of the rooms a pithos was sunk into the floor and three graves were found in the centre of the other room, covered by the collapsed roof. One of the graves was for a child (a pithos burial), whereas the two others were for adults (a cist burial and a pit burial). 80 m to the east of the house a fourth grave of an adult (cist burial) was detected, obviously connected to the house itself.

Finds: The three burials inside the house were accompanied by coins as well as by broken terracotta and glass vessels, while the grave outside the house only contained five bronze coins. In the house itself pieces of pithoi and cooking vessels, iron nails, one silver coin and nine bronze coins were collected.

E 22

Date and function: R farmstead.

References: *ArchDelt* 47B (1992), 361, Mavromandili A.

Location: On the very valley bottom, ca. 100 m to the east of PS 44 and less than 100 m to the northwest of PS 38 (Fig. 14). Alt. 102-103.

Description and finds: During the construction of a new irrigation system a concentration of pottery was noted on the northeast side of the new southeast to northwest oriented dirt road in a field that due to vegetation never was surveyed intensively. A later revisit to the place revealed a scatter

of roof tiles and coarse pottery, probably R, or even more precisely LR in date. No sample was collected.

E 23. Chalilia

Date and function: LR (?) grave.
References: *ArchDelt* 56B (2001), in press; *ArchDelt* 58B (2003), in press.
Location: Ca. 1000 m to the east of the building with the channel excavated on the plot of Dem. Demou at Gephyrakia. This means that the grave was found roughly between the LR site PS 32 on the one hand, and PS 38 and PS 39 on the other hand. This is probably the same grave that is described in *ArchDelt* 56B as located in the plot of Nikolaos Antoniou, the location of which was said by local informants to be ca. 50 m to the northwest of PS 39 (Fig. 14), i.e., the grave is possibly connected to that site. Alt. 105.
Description and finds: A robbed cist grave (1.00x2.10 m) orientated east to west, next to which a few fragmentary bones and some nondescript pottery was found. The sides of the grave were built of well-worked plaques of white limestone.

PS 38

Date and function: LR small village. Also some Hl and ER finds.
Location: On the very valley bottom, ca. 100 m to the west of the ravine originating close to Kamini at the Paramythia mountain range and flowing into the Kokytos further towards the southwest. Another small farmstead of the same date, PS 39, possibly being part of the same small village, is located only some 70-80 m further towards the northeast. The LR village PS 27 is located ca. 600 m towards the northeast (Fig. 14). Alt. 102.
Description: The site, which is ca. 110x40 m large, was gridded in 10x10 and some 20x20 m squares with the find density calculated in a 5 m^2 circle in the centre of each square, thus revealing one very clear (no. IV, 840 finds/100 m^2) and three further find concentrations with lower find densities (nos. I-III). These find concentrations most likely represent the locations of four buildings (Fig. 17). The distance between buildings I and II can be estimated as ca. 10-20 m, between II and III as ca. 34-40 m, and between III and IV as ca. 10-20 m.
Geo-archaeological data: Six soil samples were taken from the site, samples 2-4 connected to house II and sample 6 to house IV. The results of the samples were the following: sample 1 - 64 mgP/kg; sample 2 - 113 mgP/kg; sample 3 - 52 mgP/kg; sample 4 - 104 mgP/kg; sample 5 - 36 mgP/kg; sample 6 - 112 mgP/kg. Clear signs of a cultural layer with pottery and tiles were noted while taking samples 3 and 6. Samples 2, 4 and 6 are anomalous, indicating human activity.
Finds: The finds from the site are extremely badly preserved, but include at least a late fifth century cooking pot and an amphora handle of unclear date. The rest of the finds are undiagnostic, although mainly of LR date, except for one or two pieces of Hl or ER date (PR).

PS 39

Date and function: LR farmstead.
Location: The small village, PS 38, to which PS 39 in fact may belong, is located only some 70-80 m towards the southwest (Fig. 14). Further see PS 38. Alt. 103-105.
Description: PS 39 was found because part of an old olive grove had been cut down and the stumps ploughed away, thereby revealing a clear concentration of round field stones mixed with fragments of mortar, tile and pottery (Fig. 17). It thus seems to be pretty well preserved. The site was gridded in 10x10 and some 20x20 m squares with the find density calculated in a 5 m^2 circle in the centre of each square, revealing one very clear find concentration (820 finds/100 m^2), although most of the diagnostic finds came from the adjoining square, which had the second highest find density (140 finds/100 m^2).
Geo-archaeological data: Five soil samples were taken from the site, samples 1-2 being connected to the square with the highest find concentration, sample 5 again with the square with the second highest find concentration. The results of the samples were the following: sample 1 – 92 mgP/kg;

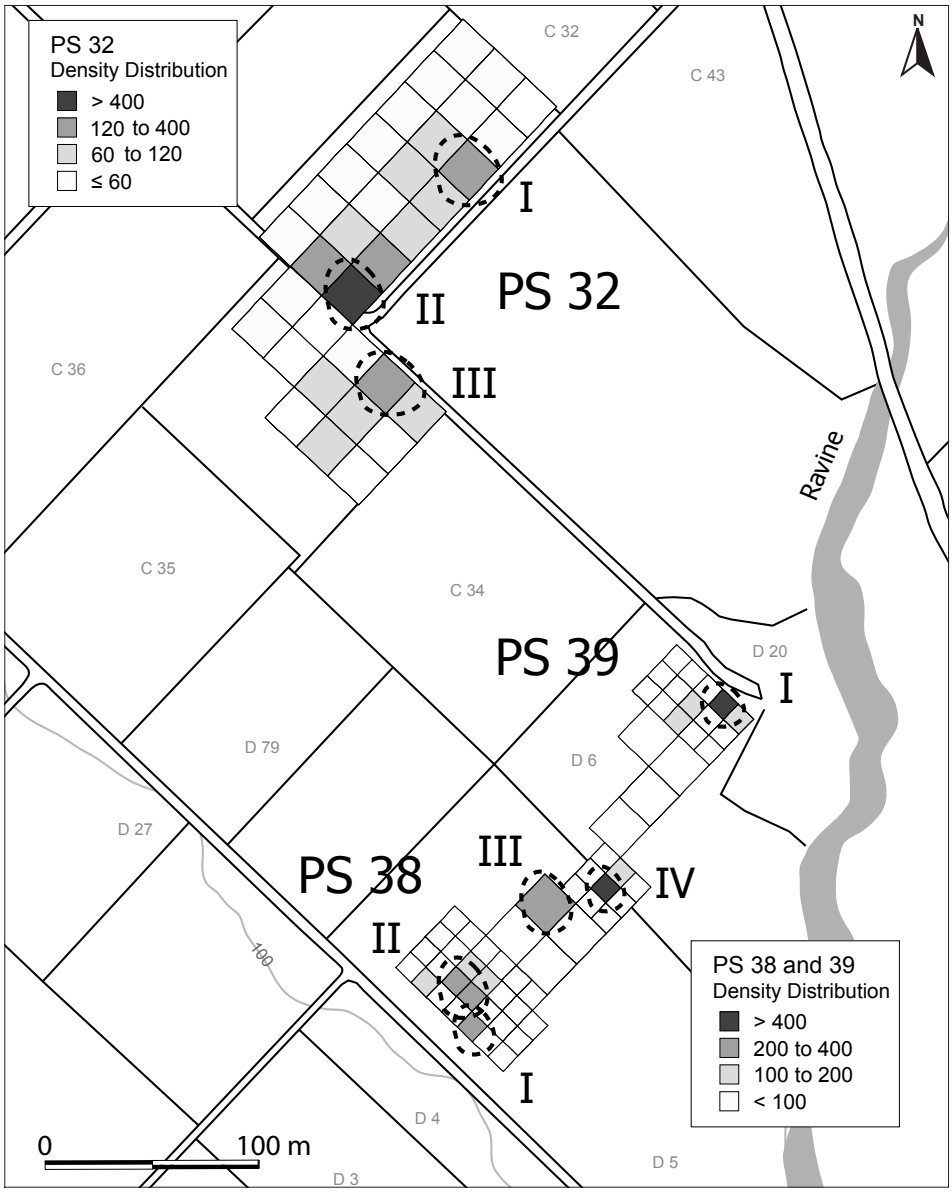


Fig. 17. Find density distribution at the LR sites PS 32, PS 38 and PS 39, revealing the location of eight houses.

sample 2 – 311 mgP/kg; sample 3 – 244 mgp/kg; sample 4 – 282 mgP/kg; sample 5 – 242 mgP/kg. Samples 2-5 are clearly anomalous, indicating human activity.
Finds: One piece of glass and the following pottery were found. Four LR cooking pot rims, one datable to the fifth century and another one to the sixth century AD. Furthermore a pithos fragment, an African amphora toe (fifth to early sixth century AD), a local amphora handle as well as two LR lids (PR).

E 10
Date and function: Med (?) church.

Location: In the middle of the valley bottom, ca. 300 m to the south of the Late Roman basilica PS 27 (Fig. 14), ca. 150 m to the east of the main road between Paramythia and Glyki and ca. 300 m to the southeast of a ravine originating from the Paramythia mountain range close to Kamini. Alt. 112.
Description: The church is known to the locals who have marked the location of it, nowadays an overgrown patch of land, by a cross. However, today no remains of the church itself can be seen. Some ten metres to the northeast of the church there is a field (tract B 19) with some finds, apparently originating from the church itself.
Finds: Along the southwestern edge of B 19 (next to the church) a concentration of roof tiles and 19 fragments of cast window panes were collected.

PS 35. Gephyrakia

Date and function: LC to EHl village. Also some LHl and R finds.
References: *ArchDelt* 55B (2000), 660-661; *ArchDelt* 56B (2001), in press; *ArchDelt* 57B (2002), in press; Riginos and Lazari 2007, 92, 94-95.
Location: At the western edge of the valley bottom, next to the confluence of the Kokytos and a ravine originating on the slopes of the Paramythia mountain range close to the village of Prodromi. The distance from the Kokytos is ca. 70 m and from the ravine ca. 30 m (Figs. 18 and 21). To the southeast the contours fall gently, giving the impression that the site is located on a small ridge. Alt. 94-97.
Description: In the survey the location of four possible houses was identified with the help of a 20x20 m grid, where the find density was calculated in a 5 m^2 circle in the centre of each square. These spots (squares PS 35/2 and 35/3; PS 35/12 and 35/46; PS 35/23 and 35/27; as well as PS 35/34) stand out on the basis of a much larger find density, the finds mainly consisting of tiles and pottery. The distance between the houses is 20-30 m. The Greek Archaeological Service has conducted excavations just to the southwest and northeast of the gridded area, revealing remains of further houses (Fig. 18). The full size of the site is ca. 200x150 m.

To the southwest of the gridded area, in the plot of Dem. Demou, a rectangular (5.00x2.90 m) building with walls built of small limestone blocks and a filling of mud and field stones was excavated. There are two floors, the older one partly made up of beaten soil and pottery sherds, partly of limestone plaques. The younger floor is made of hydraulic plaster (kourasani), into which a terracotta bath tub, restored in antiquity by lead clamps, was placed in the southwest corner of the room. A water channel, 17 m long, 0.45 m wide and 0.25-0.30 m deep, leads to the room from the north and skirts it on its northern and eastern side (Fig. 18, below). Water has at some stage been conducted from the ravine to the north of the house, to be used in the house and thereafter led back into the Kokytos.

Just to the east of the building and the channel the remains of a collapsed roof (8.5x4.5 m) was exposed. Below the roof the remains of a floor as well as part of a wall (Fig. 18, below) and fragments of pithoi and cooking vessels were found. To the east of this second house a dark layer ca. 1 m thick, 90 m^2 large and with clear signs of fire was detected. In the dark layer, large amounts of fine pottery and badly preserved parts of walls and stone heaps were recorded, perhaps the remains of other buildings. None of the features to the east of the building with the channel could stratigraphically be connected to it. The excavation did not uncover any cultural remains to the north and west of the building with the channel.

Some 80 m to the northeast of the building with the channel, at a place called Agioi, an oblong (ca. 13x1.1-1.3 m) heap of stones was excavated, inside which some pottery, roof tiles and small finds were found. It could perhaps constitute the remains of a house destroyed by later agricultural activities. This spot excavated by the Greek Archaeological Service is identical to the house foundation found in the survey in the squares PS 35/23 and 35/27 (Fig. 18).

Just outside and to the northeast of the gridded area, at a place called Aulakia (Fig. 18), a thick layer of a collapsed roof, covering ca. 15 m^2, was found in connection with trial excavations. No architectural remains were revealed, but worked limestone plaques had been collected by the farmer to the corner of the field.

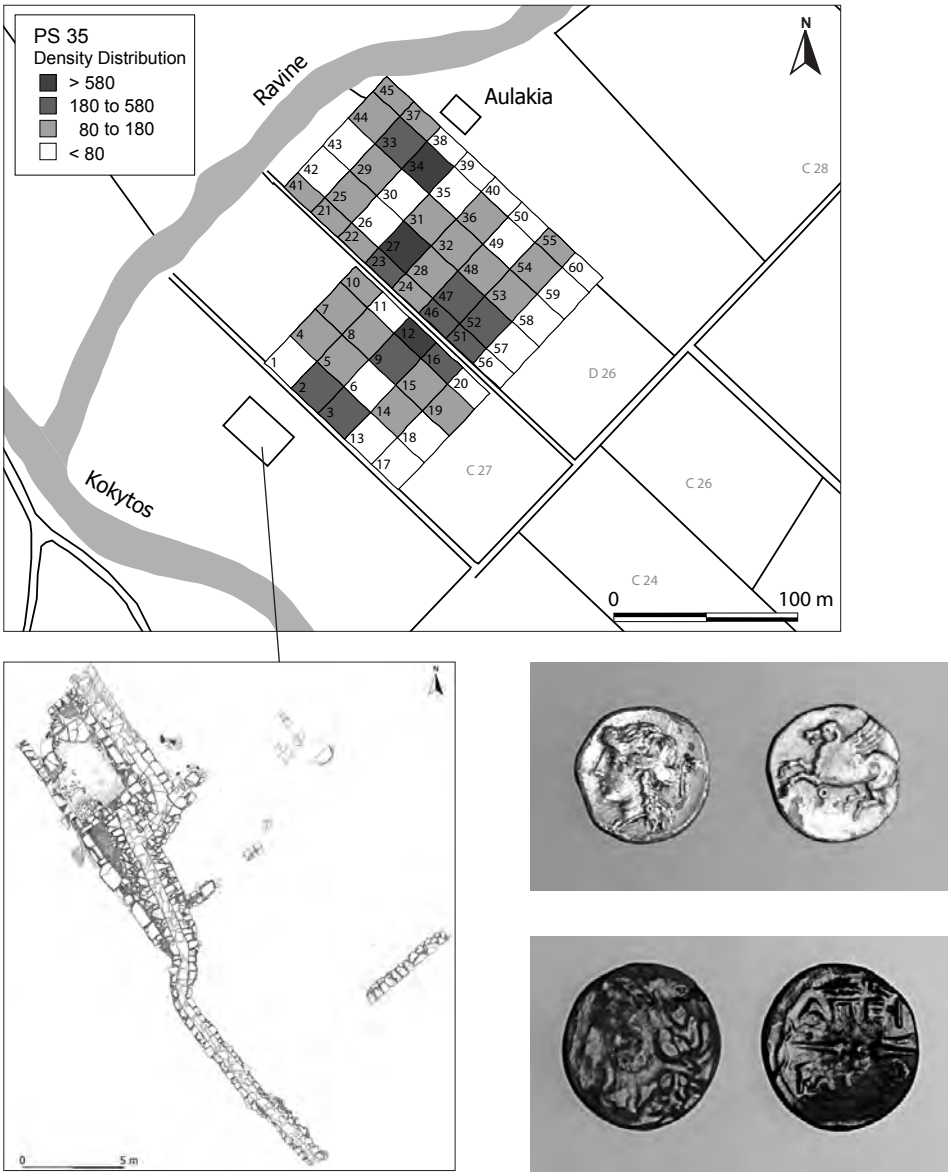


Fig. 18. Find density distribution in PS 35 (Gephyrakia). The square in the left lower corner indicates the location of the plot of Dem. Demou, whereas the square to the northeast of the gridded area indicates the location of Aulakia. Below ground plan for the building with the water channel, a Corinthian silver drachm (NO 2332) from the second half of the fourth century and a bronze coin struck by the Epirotic league (NO 2331) between 148 and the second half of the first century BC.

Finds: Large amounts of iron slag (sideromases) and iron nails were found in the excavation of the building with the channel, partly inside the channel itself. In the excavation of this house as well as to the east of it, large amounts of pyramidal and conical loom-weights are also reported, as well as some black-glazed pottery, plain ware, a fragmentary bronze fibula, two fragmentary terracotta figurines, one of which dates to the second century BC, a fourth-century Corinthian silver drachm, and three Hellenistic bronze coins, one of which is from the Akarnanian Confederacy and dates

between 300 and 167 BC, whereas another one belongs to the series struck by the Epirotic League after 167 BC (Fig. 18, below).

The excavation at the location Agioi, finally, produced abraded pottery (e.g. of pithoi), a metal nail and an un-diagnostic bronze coin. Under the collapsed roof at Aulakia a large amount of pottery was found, including skyphoi and unguentaria, as well as two conical loom-weights, a bronze fibula, a bronze coin, pieces of iron slag and metal nails.

In the survey a total of 22 black glazed and one red glazed fine ware sherds were collected. Nine of the glazed sherds belong to miniatures, the rest to small bowls, cups and skyphoi. Apart from the black glazed sherds the pottery is equally divided between plain fine ware and medium-coarse ware. Among the plain fine ware two hydriae and several jugs were identified. Most medium-coarse pottery represents cooking pots, large jars or lekanai. The majority of the pottery, including the black glazed sherds, dates to the LC through EHl period. Black glazed pottery was found in connection with all of the four houses. Eight of the miniatures were found in a very small area in connection with the house at Agioi (square PS 35/27), whereas the ninth fragment of this type was collected in square PS 35/33 (next to the probable house in PS 35/34). One piece of a basalt grinding stone was found in square PS 35/15, probably connected to the house in squares PS 35/12 and 35/46. A large amount of iron slag was found in several of the squares, seemingly evenly spread all over the site. The only R pottery was collected next to the location of Agioi, in squares PS 35/27, 35/26 and 35/28.

E 24. Varka or Dourou

Date and function: Possible site of unclear date.
References: *ArchDelt* 57B (2002), in press.
Location: Ca. 200 m to the east of Aulakia and 330 m to the northeast of Agioi (Fig. 21). Alt. 98.
Description and finds: An area of 20x15 m was checked through trial trenches. A few pieces of roof tiles, some sherds and one piece of iron slag were recorded. Is this a site at all?

PS 36. Mavromandilia

Date and function: EIA to Hl village.
References: *ArchDelt* 60B (2005), in press; Tzortzatou and Fatsiou 2006; *AR* 53 (2006-2007), 47; Riginos and Lazari 2007, 84-86; *HGAtlas* 2008, 54, figs. 61-63; *TE* I, 39-43, 56-87.
Location: At the western edge of the valley bottom, only 200 m to the east of the Kokytos, on both sides of a dried out small creek leading down to it. There are several springs in the neighbourhood, some of which today are dried out. One spring was probably located in the bottom of the small creek next to the site (Fig. 22). Alt. 88-89.
Description: A ca. 0.5 m thick cultural layer was found at a depth of ca. 1.5 m below surface while digging a ditch in 2005 to the north and northwest of the small creek. The find layer, which stretched for about 50 m along the ditch, contained – apart from large amounts of pottery – also fragments of animal bones, remains of fire and concentrations of small and medium-sized field stones, the largest and most clear concentration continuing along 10 m of the ditch. In the eastern part of the find layer, roof tiles and a human cranium were found, perhaps originating from a destroyed burial covered by tiles.
During the intensive field survey, a 10x10 m large concentration of EIA pottery was noted on the eastern side of the small creek at a distance of ca. 50-60 m from where the Greek Archaeological Service had excavated. A trial excavation at this place revealed a clear cultural layer at a depth of only 20-30 cm below surface, where three oblong dark areas (features I-III), possibly the remains of huts, and two smaller pits (pit 1-2) filled with dark soil mixed with ash and charcoal, possibly cooking pits or some kind of bothroi, were detected. Finally, a ditch filled with fragmentary pottery sherds was found below feature I. Most of the pottery in feature I dates to the eighth century BC. Radiocarbon dates show that pit 1 is roughly contemporaneous with feature I, whereas pit 2 and the ditch both are older, dating to the eleventh to tenth centuries BC. In features II-III we found, apart from some EIA, also C and possibly Hl pottery.

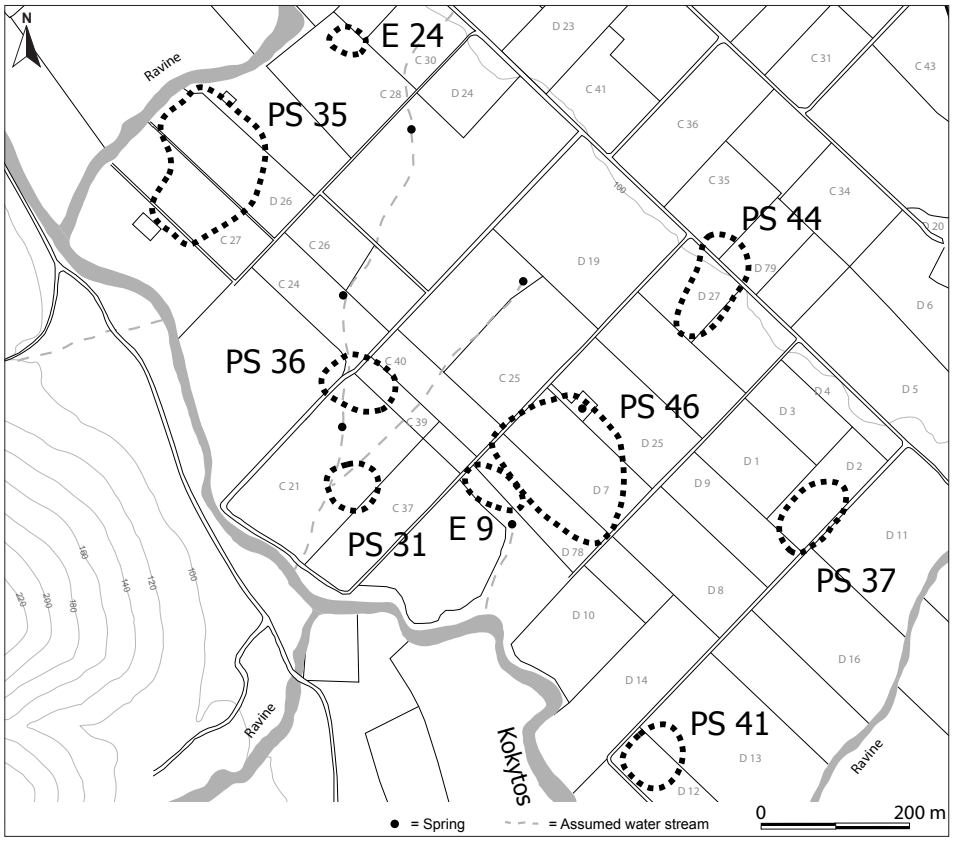


Fig. 21. Sites with finds dating from the EIA through the ER period in the neighbourhood of Mavromandilia.

Coring with a hand auger shows that the find concentration excavated by the Thesprotia Expedition is larger than visible on the surface, the other parts being covered by more sterile soil. Phosphorus samples taken with the auger, in conjunction with the fact that the main find horizon is contemporaneous with that of the spot excavated by the Greek Archaeological Service, indicate that we are dealing with one and the same site covering a total size of ca. 100x60 m.

Geo-archaeological data: A whole series of soil samples were taken in the vicinity of PS 36. For the results, see *TE* I, 73-87.

Finds: There is some pottery dating to the LBA, A, C and Hl period, but the bulk of the pottery belongs to the EIA and more specifically to the eighth century BC. Thapsos ware sherds were found both in the ditch and in the find concentration in the field. Among the finds from the ditch, where the Greek Archaeological Service excavated, one should emphasise three bull-head figurines (a similar one also from the concentration in the field) and a bird figurine. No remains of post holes were found, but numerous pieces of mud-bricks and daub indicate the existence of some construction connected with features I-III. Only very few fragments of roof tiles were found in connection with the possible tile covered grave and in features II-III (including one piece of a Corinthian cover tile). Finally, coarse ware storage vessels with rope decoration and one terracotta spindle whorl are reported from the ditch.

PS 31

Date and function: C farmstead/pottery kiln? Also some EIA, A and Hl finds.

References: *TE* I, 73-83.

Location: At the western edge of the valley bottom, only 100 m to the east of the Kokytos, on the east side of a now dried out small creek leading down to it. There are several springs in the neighbourhood, some of which today are dried out. One spring was probably located in the bottom of the small creek just to the north of PS 31 (Fig. 21). Alt. 86-88.
Description: Concentration of badly rolled tile fragments and pottery, spread out over an area ca. 30x30 m. The concentration was gridded in 10x10 m squares and the find density was calculated in a 5 m^2 circle in the centre of each square. The highest find concentration noted was 680 finds/100 m^2.
Geo-archaeological data: Four soil samples were taken, two of which produced very high anomalous phosphorus content (870 and 906 mgP/kg).
Finds: A few sherds seem to date to the EIA, e.g. an orange-red sherd decorated with a large horn. The majority of the pottery is however later in date, most likely C, although some may be A or Hl as well. A substantial proportion of the pottery consists of fine ware, some with black glaze. Both ring bases and flat bases occur among the fine ware. Coarse and medium coarse ware occurs only occasionally. Pottery wastes and a couple of slag pieces also occur, thus possibly indicating the existence of a pottery kiln at this spot close to the Kokytos and next to the small creek leading down to it, in an area with good clay sources.

E 9. Mavromandilia

Date and function: LHl (?) to ER farmstead.
References: *ArchDelt* 47B (1992), 361, Mavromandili B.
Location: At the western edge of the valley bottom, ca. 200 m to the northeast of the Kokytos and just before the landscape drops steeply towards the river. There are several springs in the neighbourhood, the closest one at a distance of only 150 m from E 9 (Fig. 21). Alt. 90-91.

Fig. 22. The foundations of the LHl (?) to ER farmstead E 9.

Description: A large house with its foundation constructed of worked limestone blocks was found, but not excavated, in connection with the construction of a new irrigation system and new field roads in 1992. The plot was bought by the Greek Archaeological Service and could not be surveyed due to heavy vegetation. The neighbouring ploughed fields were surveyed in 2007, the fields to the northeast (D 78) and southwest (C 31) revealing finds belonging to E 9. In D 78 two spots with darker, burnt soil and more finds were noted, one of them adjacent to the overgrown plot with the house, the other one some 20 m towards the northeast in the ploughed field (these were later surveyed as grids of PS 46 - PS 46/48 as well as PS 46/50 and PS 46/53) (Fig. 23).

Later on in 2007 a magnetometer survey was conducted in field D 78 and on the plot bought by the Greek Archaeological Service. The survey was disturbed by thick vegetation at the core of the site. Still some faint remains of walls and pits filled with magnetic material could be seen, including the two spots with darker, burnt soil visible in the ploughed field.

Finally in 2008 the Greek Archaeological Service conducted an excavation in the overgrown field revealing part of a house some 30x9.5 m large, with at least four rooms (Fig. 22). One of the rooms can be identified as the kitchen on the basis of an oval fireplace and the existence of a large amount of sherds of cooking pots. In a second room, to the south of the first, a rectangular cistern 2x1.5 m large and 0.70 m deep was excavated. The interior of the cistern was lined with hydraulic mortar, while in its bottom there was a ceramic basin. On the basis of the magnetometer map it seems clear that the construction continues towards the northeast outside the excavated area.
Finds: The survey produced a handful of terra sigillata sherds in D 78 and C 31, most probably of

Italian manufacture from the first century AD. D 78 also produced a bronze coin and part of a lamp. Square PS 46/50 (being part of E 9) produced part of a Dragendorff 24 or 25 cup (first century AD), whereas an ER flagon rim as well as a Hl or ER ring base was found in square PS 46/51 (also being part of E 9) (PR). The excavation finds include sherds from cooking vessels and vases of everyday use, as well as terra sigillata sherds and parts of bulbous unguentaria and nine bronze and one silver coin dating between the first century BC and the first century AD.

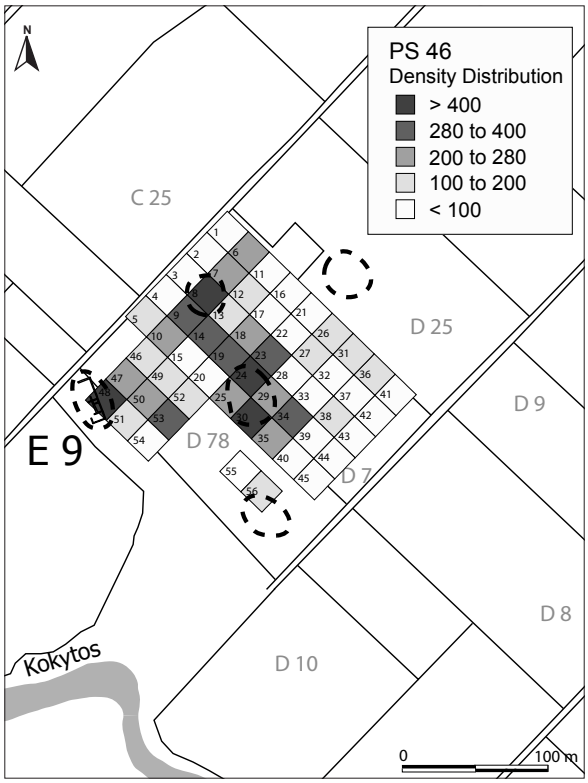


Fig. 23. Find density distribution of the sites PS 46 and E 9 with the location of five houses.

PS 46

Date and function: LC to Hl village. Also some BA and LBA to EIA finds.

Location: At the western edge of the valley bottom, ca. 250 m to the northeast of the Kokytos and just to the northeast of E 9. There are several springs in the neighbourhood, the closest one just to the east of the site (Fig. 22). Alt. 91-94.

Description: Large irregular spread of pottery and tiles adjacent to E 9 (which could be part of PS 46), covering three different tracts; D 7, D 25 and D 78 and a total area of ca. 140x150 m (not including E 9, otherwise ca. 200x150 m). D 7 and part of D 78 were later gridded in 20x20 m squares. Four clear concentrations of finds with a diameter of 20 m and a distance between each other of ca. 30-40 m were noted and interpreted as four buildings. Three of the houses were located in the gridded area; in PS 46/8, PS 46/24 and PS 46/30 (at the border of the squares) and in PS 46/56 (mostly outside the square). The find density as calculated in a 5 m^2 circle in the centre of the squares was in PS 46/8 480 finds/100 m^2, whereas in PS 46/24 and PS 46/30 it was 420-440 finds/m^2. The find density calculated in the centre of the house partly inside PS 46/56 was as high as 1840 finds/100 m^2. No find density was calculated for the find concentration in D 25 (Fig. 23).

The character of PS 46 is rather similar to that of PS 35, although the amount of finds between the buildings is larger here than in PS 35, also including some pottery of BA or LBA-EIA date. A magnetometer survey conducted in D 78 failed to reveal clear remains of the house, probably due to the foundations being destroyed by later agricultural activities.

Geo-archaeological data: A total of six soil samples were taken from the site. Two of them had an anomalous phosphorus content, the highest value being 829 mgP/kg.

Finds: A total of 22 black glazed sherds were collected. Five of these possibly belong to miniature vessels, the remainder representing drinking cups (e.g. skyphoi and kantharoi), small bowls and juglets. 75% of the remaining pottery is fine ware and 25% is medium-coarse and coarse ware. Among the plain fine ware, further drinking cups (skyphoi and kantharoi) were identified. The medium-coarse and coarse pottery represents lekanai, amphorai, hydriae, storage vessels and

pithoi. The majority of the pottery, including the black glazed sherds, dates to the LC through EHl period. Black glazed pottery was found in connection with all of the three houses in the gridded area and miniatures in connection with two of the houses, although spread out somewhat outside the very centre of the houses. Furthermore, the tract finds from D 7 include a conical loom-weight, whereas part of a basalt grinding stone was noted in the find concentration of D 78 when this field was surveyed by a magnetometer. A large amount of iron slag was found spread over most of the gridded area.

Finally, there are six prehistoric sherds, including one flaring rim of coarse ware with a taenia band (BA) and two wishbone handles (LBA or EIA in date). Some chipped stone of flint, including at least two small blades.

PS 44. Mavromandilia

Date and function: LC to EHl farmstead with graves.
References: *ArchDelt* 47B (1992), 361, Mavromandili A.
Location: On the very valley bottom, ca. 650 m to the northeast of the Kokytos. In the area between PS 44 and the river there are several springs, the nearest ones at a distance of ca. 200 m from PS 44 next to PS 46 (Fig. 21). Alt. 100-101.
Description: During the construction of a new irrigation system, limestone plaques, probably originating from graves, and pottery were found at the crossing of a new southeast to northwest oriented dirt road and the old field road, on the northeast side of the new field road. During the survey a scatter of roof tiles and pottery was found at the same crossing, on the southwest side of the new field road in tract D 27, but partly continuing to the northeast side of the road. Due to the vegetation the field could not be gridded, although it clearly would have been worth a closer examination.
Finds: The pottery collected from the surface (D 27) includes several sherds of black glazed table ware: a low ring-foot of a skyphos, the rim of a small bowl, part of a lamp, the neck of a small flask and a high everted ring foot (of a hydria?). Among the medium-coarse ware there are two fragments of Hl cooking pots and part of a mortar, as well as a fragmentary conical loom-weight. The finds are mostly LC to EHl in date.

PS 37

Date and function: LC to EHl farmstead/pottery kiln.
Location: On the very valley bottom, ca. 200 m to the east from PS 46 and 200 m to the southeast from PS 44. A ravine leading water from Kamini at the Paramythia mountain range to the Kokytos further in the west passes by ca. 150 m to the southeast. The closest spring is located at PS 46 (Fig. 21). Alt. 96-97.
Description: The site was detected while walking tract D 2, but due to agricultural activities it could never be gridded and no find density was calculated. The site was clearly visible in the ploughed field as a concentration of tiles, pottery and even some limestone blocks. Some of the blocks were later collected by the farmer along the southeast edge of the field, the biggest one measuring ca. 65x50x25 cm.

Two years later the site was surveyed with a magnetometer, revealing a pottery kiln with a diameter of ca. 3 m and an opening towards the southwest. To the southwest of the pottery kiln there is either one building, measuring some 26x18 m, or two buildings, one measuring ca. 18x18 m and the other one ca. 12x6 m. To the west of these building structures, two deep cisterns, one round (diam. ca. 8 m) and the other one rectangular (ca. 10x5 m), can be seen on the magnetometer map (Fig. 24). The complex would then consist of a pottery kiln, one or two buildings used as living quarters and a workshop and two cisterns for water and clay needed for the pottery workshop (TS).
Geo-arcchaeological data: A total of five soil samples were taken from the site. The highest phosphorus value accounted for was 148 mgP/kg.
Finds: The pottery collected in tract D 2 includes a ring foot of a drinking cup, made of a pink fabric, probably LC or EHl in date.

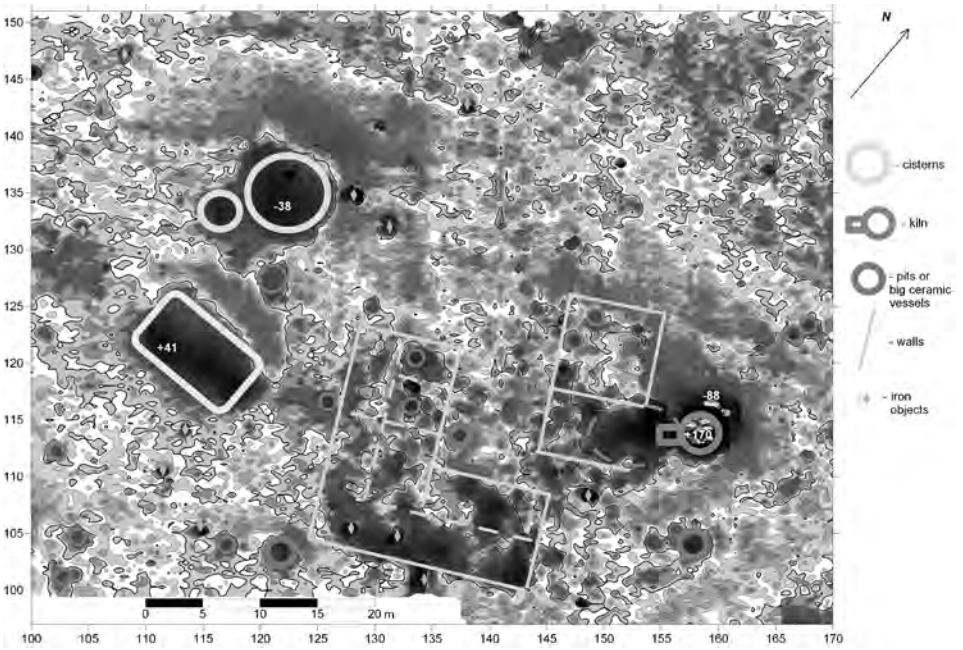


Fig. 24. Magnetometer map of PS 37, showing the location of two buildings, two cisterns (left) and a pottery kiln (right).

PS 40

Date and function: R (?) farmstead.
Location: On the very valley bottom, ca. 80 m to the southeast from PS 37. A ravine leading water from Kamini at the Paramythia mountain range to the Kokytos passes by ca. 70 m to the southeast (Fig. 14). Alt. 97.
Description: Small (ca. 15x15 m) concentration of stones and tiles at a slightly higher point of the field D 11. Only a grab sample was taken because of poor visibility.
Geo-archaeological data: Five soil samples were taken in a line crossing the site from the northwest towards the southeast. The highest anomalies (165 and 271 mgP/kg) were noted next to the visible find concentration.
Finds: The pottery collected includes two possibly Roman strap handles and two body sherds.

PS 41. Mavromandilia

Date and function: MR to LR farmstead with graves. Also some Hl and ER finds.
References: *ArchDelt* 47B (1992), 349; Riginos 1999, 173, fig. 14.
Location: At the western edge of the valley bottom, ca. 150 m to the northeast of the Kokytos and 200 m to the west of a small ravine originating on the west slopes of the Paramythia range close to the village of Kamini (Figs. 14 and 19). Alt. 89-90.
Description: While digging a ditch for the new irrigation system in the early 1990s dry stone walls, an area covered by roof tiles fragments as well as two cist graves were exposed. The same spot was surveyed in 2007 revealing a large scatter of tiles, pottery and lithics, spread over an area some 80x60 m large. The area was gridded in 20x20 m squares, revealing a clear concentration of finds in one square (660 finds/100 m^2 as calculated on the basis of a 5 m^2 circle in the centre of the square). Most of the finds are very worn, indicating that the site probably has been largely destroyed by deep ploughing whereby the finds have been spread over a larger area. The main horizon of the site dates to the MR period although there also is a handful of Hl and LR finds.

Fig. 25. MR-LR cooking pot (ΘE 02900) and unguentarium (ΘE 02901) from a grave at PS 41.

Geo-archaeological data: A total of ten soil samples were taken from the site, six of them having an anomalous phosphorus content. The highest value accounted for was 348 mgP/kg.
Finds: The first grave contained a MR or possibly LR cooking pot, part of another pot and half an unguentarium (Fig. 25) as well as a glass unguentarium (PR). The other grave contained a similar cooking pot as well as parts of another vessel.

The survey finds consist mainly of fragments of cooking pots and a pithos, but only a few table ware sherds, a fragmentary pyramidal loom-weight and one piece of glass. There are four grooved rims of cooking pots dating to the early or mid-third century as well as another three pieces dating to the third century – one to the late second to mid third century, and two to the late fifth to sixth century AD. There is also an ER to MR flagon rim as well as a fragment of an eastern sigillata B dish (first to second century AD). Finally there are two Hl handles and a Hl ring base (PR).

PS 42

Date and function: LR farmstead (?).
Location: On the very valley bottom, ca. 50 m to the east of the ravine originating close to Kamini at the Paramythia mountain range and flowing into the Kokytos further towards the southwest. On the opposite side of the same ravine, all at a distance of some 200 m there are three further farmsteads of the same date, i.e., PS 38, PS 39 and PS 40. The LR village PS 27 is located ca. 700 m towards the northeast (Fig. 14). Alt. 99-100.
Description and finds: Small concentration of tiles, some 15x15 m large, but no clear pottery. One of the tiles is decorated by finger strokes, possibly indicating a LR date. The density calculated in a 5 m^2 circle in the centre of the site corresponds to 720 finds/m^2 (only tile fragments though).

E 25. Asphaka of Zervochori

Date and function: Farmstead of unclear date.
References: *ArchDelt* 47B (1992), 360.
Location: At the eastern edge of the valley bottom, ca. 600 m to the west of the settlement Asphaka and roughly between two small ravines originating from the Paramythia mountain range, one next to Zervochori and the other one next to Asphaka. Alt. ca. 146-148.
Description and finds: While digging a ditch for the irrigation system a layer of roof tiles was noted at a depth of ca. 0.3 m below surface. The finds are most likely part of a farmstead.

E 26. Karamantlia

Date and function: LC to EHl farmstead.
References: *ArchDelt* 59B (2004), in press.

Location: Between the settlement of Asphaka and the village of Zervochori, on the eastern edge of the valley bottom close to the foothills of the Paramythia mountain range and only ca. 50 m to the south of one of the branches of the ravine originating at Zervochori. Alt. 178-179.
Description: A 50x15 m large area was studied with the help of trial trenches. At a depth of 0.2 m below surface a 0.2 m thick layer consisting of a collapsed roof, mixed with pottery and bones was found. Although no architectural remains were detected this site clearly belongs to a small building, probably a farmstead.
Finds: Among the pottery, pithos sherds and black glazed sherds are especially emphasised by the excavator, who also mentions having found some loom-weights and artefacts of iron and bronze as well as three bronze coins.

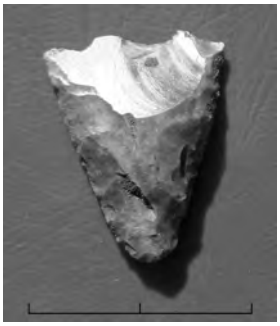


Fig. 26. MN-LN arrowhead from PS 28.

PS 28
Date and function: Neo to BA settlement.
Location: To the north of the settlement of Asphaka, on the eastern edge of the valley bottom close to the foothills of the Paramythia mountain range and roughly in between the ravines originating at Asphaka and Zervochori respectively (Fig. 27). Alt. 160-162.
Description: Freshly ploughed field that was walked as tract B 60. When we returned to grid the lower part of the field with a clear scatter of lithics, the owner had already planted the clover and only a grab sample could therefore finally be collected.
Finds: The lithic assemblage of PS 28 consists of only 12 artefacts, including two cores, blades, flakes and one MN-LN arrowhead (Fig. 26). There are also three "pseudo" Grey Minyan (MBA?) sherds, including one out-turned rim and one strap-handle.

E 14. Ganadia
Date and function: EMod (?) water cistern.
References: *ArchDelt* 59B (2004), in press.
Location: On the lower slopes of the Paramythia mountain range, ca. 500 m to the southeast of the small community Asphaka, next to a ravine with plenty of running water taken from springs higher up on the mountain slope. Alt. 180.
Description and finds: The site is located on the dirt road leading to Agios Donatos of Zervochori from the northwest and was found when the road was improved. The excavation revealed a rectangular cistern, the inner dimensions of which were 5x3.4 m. The walls are ca. 0.7 m wide and built of unworked stone blocks, bricks and mortar. On the inner side the cistern is covered by hydraulic plaster, having a water pipe line for drainage in its centre. Only some coarse pottery was found during the excavation.

PS 21
Date and function: BA (?) settlement.
Location: On the very valley bottom, in between two ravines originating at the slopes of the Paramythia mountain range, at Asphaka and PS 17 respectively. PS 31 is located ca. 650 m to the southwest of PS 18 and 850 m to the southwest of PS 17 (Fig. 27). Alt. 120-121.
Description and finds: Corn field walked as tract B 37 produced a promising scatter of flints, including two arrowheads. The centre of the field was therefore gridded in twelve 10x10 m squares, from which all finds were vacuumed. The number of finds is still very low, measured like this at most 15 finds/100 m^2. The finds include 3 cores, 6 blades, an endscraper as well as a fragment of a possible spindle whorl and 5 sherds, one of which is a red-slipped body sherd of BA date.

PS 18
Date and function: BA settlement. Also some EIA and LC to EHl finds.

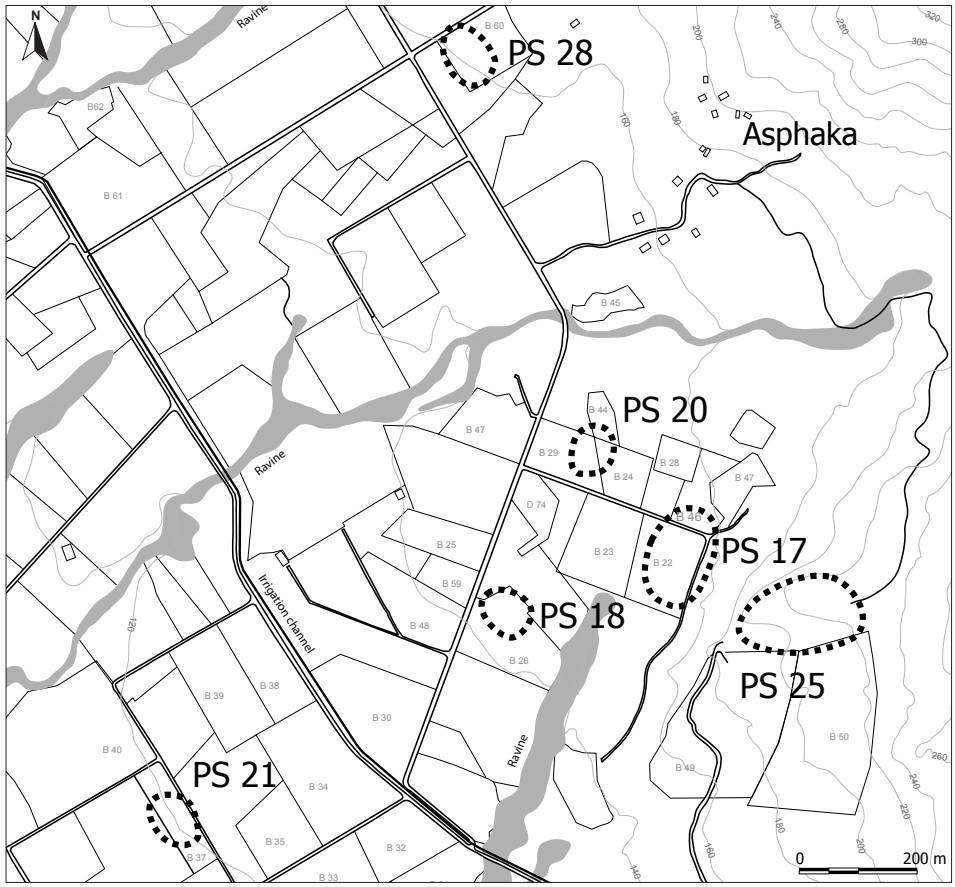


Fig. 27. Prehistoric sites in the neighbourhood of Agios Donatos of Zervochori (PS 25).

Location: To the south of the settlement of Asphaka, on the eastern edge of the valley bottom, close to the first foothills of the Paramythia mountain range. PS 17 is located ca. 200 m to the east-northeast and PS 20 ca. 250 m to the north-northeast. The ravine originating at PS 17 is located ca. 150 m to the southeast (Fig. 27). Alt. 142-143.

Description: Newly ploughed field with some wild grass next to an olive grove. First only a grab sample was taken. Later on the field was divided into seven 10x10 m large squares from which all pottery and chipped stone was sampled. The number of finds was rather low, measured like this between 12 and 41 finds/100 m^2.

Finds: The scant and badly rolled pottery from this site includes e.g. a possible BA body sherd, some possibly EIA sherds and a LC to EHl ring base.

The lithic assemblage from PS 18 consists of 72 artefacts. Most of them are flakes, followed by retouched tools like points, notches, perçoirs and burins. There are also a few blades (some of them sickle elements with silica gloss) and cores. The most diagnostic pieces are a chisel-ended arrowhead with a bifacial retouch and another leaf form point, which could be dated to the EBA to MBA (OP).

PS 20

Date and function: FN to MBA settlement. Also some EIA and LC to EHl finds.

Location: FN to MBA settlement. Also some EIA and LC to EHl finds.

Fig. 28. FN/EBA to MBA/LBA arrow-heads from PS 20.

Location: To the south of the settlement of Asphaka, on the eastern edge of the valley bottom, close to the first foothills of the Paramythia mountain range. PS 25 (Agios Donatos of Zervochori) is located ca. 350 m and PS 17 ca. 100 m towards the southeast (Fig. 27). Alt. 150-152.
Description: Partly overgrown field, sporadic grass being ca. 30-40 cm high, visibility ca. 20-40%. The field was walked as a tract B 29 in April 2005, when a concentration of flints was noted in the centre of the field, next to which an arrowhead was collected. The find concentration was later in May the same year divided into 42 10x10 m squares, from which all finds were vacuumed. The number of finds measured like this was rather low. The highest density recorded in a square thus amounted to 64 finds/100 m^2, whereas another five squares had a density above 40 finds/100 m^2, four above 30 finds/100 m^2 and finally nine above 20 finds/100 m^2.
Finds: The scant and badly rolled pottery from this site includes a handful of prehistoric sherds, including one body sherd with painted lines on the exterior (Matt-painted MBA) and one horizontal handle, a few EIA sherds, as well as a fine ware ring-base and a hydria/jug handle of LC to EHl date.

The lithic assemblage of the site consists of over 300 artefacts representing all stages of flint knapping (cores, knapping residue, flakes, blades, retouched tools, mostly flint, but also some white quartz). There are few blades, but more flakes and tools (perçoirs, notches, burins, points). Generally speaking the artefacts are made in a small scale (< 4 cm). The most diagnostic pieces are points, represented by chisel-ended arrowheads, dated to the EBA-MBA, a hollow-based arrowhead with close parallels in the MBA to LBA and a tanged point dating to the FN-EBA (Fig. 28). There are also some points of more simple techniques which may belong to the FN period or the BA, and a possible sickle element (OP).

PS 17

Date and function: BA to EIA settlement. Also some LC to EHl finds.
References: *TE* I, 55-58.
Location: On the eastern edge of the valley bottom, close to the first foothills of the Paramythia mountain range, less than 100 m to the west of PS 25 (Agios Donatos of Zervochori). A modern ravine originates at the very site (Fig. 27) and flows from here towards the southwest before joining the Kokytos at the western edge of the valley. There may have existed a spring, which now has dried out, at the very beginning of the ravine. Alt. 150-154.
Description: Spread out concentration of badly rolled pottery and lithics in a large field just below the lowermost slope of the Agios Donatos hill, only separated from the hill by a dirt road. The field was gridded into 20x20 m squares, from which the find density was calculated in a 5 m^2 circle at the centre of every square. The highest find concentrations, 580 finds/100 m^2 and 440 finds/100 m^2 were noted in two different areas, the first one ca. 40x20 m, the second one ca. 40x40 m large. However, it should be noted that the find concentrations do not stand out from the rest of the site, which in total covers an area of perhaps ca. 80x160 m, with finds extending into the next field towards the northeast.
Finds: The earliest pottery consists of a medium-coarse body sherd of possible EBA date. However, the amount of pottery increases through the MBA (n=7), the LBA (n=10) and the EIA (n=27). The wares represented are the "Minyan" (MBA, cf. *TE* I, 55, fig. 3, nos. 5-7), the "pink-grey ware" (LBA) and the "orange-red ware" (EIA, cf. *TE* I, 55, fig. 3, nos. 1-4). Some of the "pink-grey ware" with flaring rims have added taenia bands on the exterior. Among the EIA pottery there exist some

sherds with plastic decorations such as added clay knobs and pointed horns. There are also less than a handful of sherds of LC to EHl date (one black glazed).

The lithic assemblage from PS 17 consists of 60 artefacts. The blades and cores are few, whereas there are more flakes (some of them sickle elements) and tools (perçoirs, notches, burins, a fragmentary point). All artefacts are made in a small scale (< 4 cm) and most probably date to the BA (OP).

PS 19

Date and function: R (?) farmstead.
Location: On the western lower foothills of the Paramythia mountain range, ca. 140 m to the north of PS 25 (Agios Donatos of Zervochori) and less than 100 m to the northeast of PS 17. Alt. 166-168.
Description: A clear concentration of tiles and pottery in an olive grove. The site is gridded in 10x10 m squares and the density measured in 5 m^2 circles in the centre of each square. Most finds come from one of the squares (density 640 finds/100 m^2), while the rest of the squares have much fewer finds (300 finds/100 m^2, 180 finds/100 m^2 being the following highest densities). The site thus most likely represents a small farmstead.
Finds: A total of six sherds (one of which is an amphora handle) and a piece of glass were collected, the majority originating from the very centre of the site. The finds are probably R in date.

PS 25. Agios Donatos of Zervochori

Date and function: EHl fortress; later an LHl to ER villa was built inside the walls. Also some prehistoric pottery, possibly an EIA horse and rider figurine, and some MR and LR pottery.
References: Hammond 1967, 71; Dakaris 1972, 138-139; *ArchDelt* 47B (1992), 360; Forsén and Tikkala 2006; *AR* 53 (2006-2007), 47-48; *AR* 54 (2007-2008), 62; Riginos and Lazari 2007, 88-89; *HGAtlas* 2008, 74, fig. 102; *AR* 55 (2008-2009), 55-56; *TE* I, 13-14; 119-165; *TE* II, 203-215, 247-313.
Location: On a low outcrop of the western foothills of the Paramythia mountain range, ca. 1.8 km south of the village of Zervochori. The outcrop is connected to the mountain range by a saddle at its eastern end. Just to the south of the outcrop there is a small spring, which however today dries out in the summer. Another spring has previously been located at PS 17, ca. 200 m to the west of and below Agios Donatos (Fig. 27). Today there is still water all year round in the ravine which originates ca. 500 m to the north of Agios Donatos close to the modern settlement Asphaka. Alt. 198-239.
Description: On the outcrop there is a small seventeenth-century chapel of Agios Donatos as well as clearly visible remains of EHl fortification walls (including one tower and two gates) along the southern and eastern perimeter of the outcrop. No fortifications were needed on the northern side of the outcrop due to the very steep slope. On the overgrown lower slopes to the west of the outcrop of Agios Donatos, ca. 300 m from the fortress, a cist grave cut into natural bedrock was found in the early 1990s. The grave, which was 2.2x0.9 m large and 0.8 m deep, had been plundered at an earlier stage and contained no finds. Probably the cemetery of Agios Donatos was located here at the lower slope, in a similar way to that found in Elea. Ca. 80 m to the north of the grave, in a stone heap at PS 17, part of a half column with cannelures was found and interpreted as having belong to a grave monument (*ArchDelt* 47B (1992), 360). Theoretically the half column could also originate from the construction on top of Agios Donatos, parts of which were re-used in the chapel and which could be interpreted as possible remains of a EHl barrel-vaulted tomb (*TE* I, 133-143).

Most of the outcrop of Agios Donatos was cleared from vegetation and surveyed in 2005, whereafter trial trenches were opened in eight different spots in 2006-2009. During the surface survey the whole outcrop as well as a large part of the gentle southern slopes of the outcrop was divided into 80 squares (40 with a size of 10x10 m and 40 with a size of 20x20 m) in which all finds were vacuumed. The highest find density recorded in this way was 266 finds/100 m^2. A find density above 100 finds/100 m^2 was recorded in a total of 15 squares, most of which were located either on the middle terrace just above and to the east of the chapel, or to the south and below the chapel (Fig.

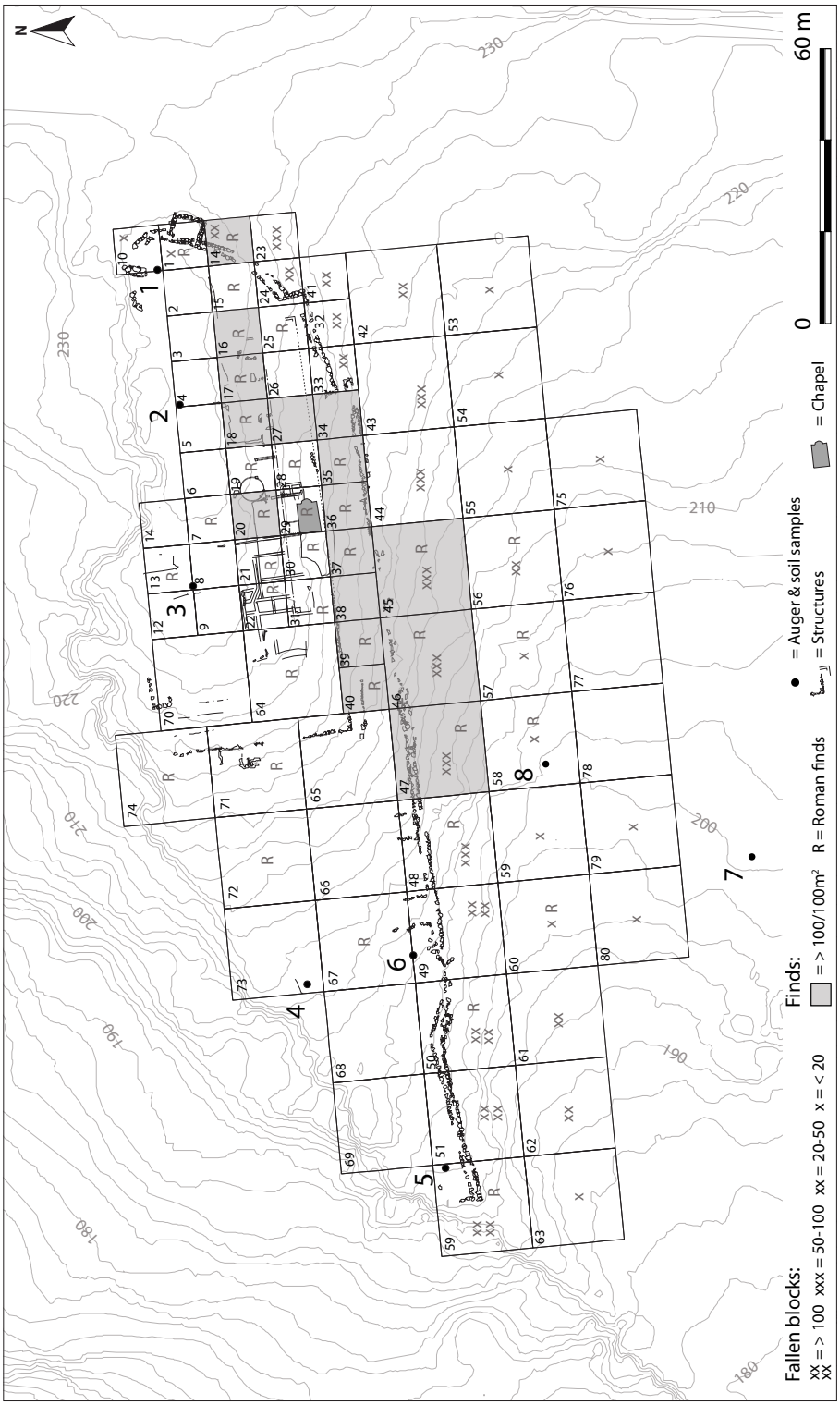


Fig. 29. The results of the intensive surface survey of Agios Donatos (PS 25).

29). The high find density (consisting of pottery, tiles and other small finds) that was recorded in the slope below the chapel has clearly been created by the collapse of the Hl curtain wall, of which close to nothing remains in the stretch just below the chapel. When the wall collapsed, blocks rolled downhill and can be located more than 60 m to the south of the original position of the wall (Fig. 29). The collapse also brought along a strong erosion of soil and smaller finds downhill, and the remains of houses that Dakaris describes to the south of the outcrop are in reality remains that have eroded down from above. The real cultural layers in the small dell south of the outcrop are covered by these thick layers of eroded material.

The surface survey also revealed a large north to south orientated terrace wall built of head-sized or larger stones dividing the acropolis in an upper part and a lower part (Fig. 29). In square 25/65 this terrace wall turns 90 degrees and continues towards the east at least until the chapel and probably even beyond it (although not visible there any more). Above this west to east orientated terrace wall there are at least two west-east orientated terraces, followed by a flat area highest up on the hill in squares 25/8, 25/9, 25/11 and 25/12. Remains of house foundations, partly cut into the rock and partly consisting of the socle of the houses, were documented on these two terraces and the flat area. Parts of the house foundations are built of large stones in a manner which resembles that of the large terrace wall (being Hl in date), but pieces of R *opus incertum* walls were also documented in several of the squares. R small finds were likewise recorded in several of the squares on the two terraces and the flat area, but had also eroded downhill after the collapse of the Hl curtain wall. During the excavations the *opus incertum* walls were cleaned and traced further, revealing that all the *opus incertum* walls belong to one and the same construction, a R villa with a size of at least 90x40 m (Fig. 30).

Three of the trial trenches were opened in connection with the fortifications, one at the southeastern gate (Trench B), one in the tower (Trench A) and a third one at the straight-angle corner (Trench E) between the southeastern gate and the tower (Fig. 30). Trench A in the tower was the deepest (2.6 m) and largest one and produced most finds, mostly of ER date and finally a *cocciopesto* floor at a depth of 1.6-1.7 m below surface, thus proving that the tower had been re-used during ER times by the inhabitants of the villa.

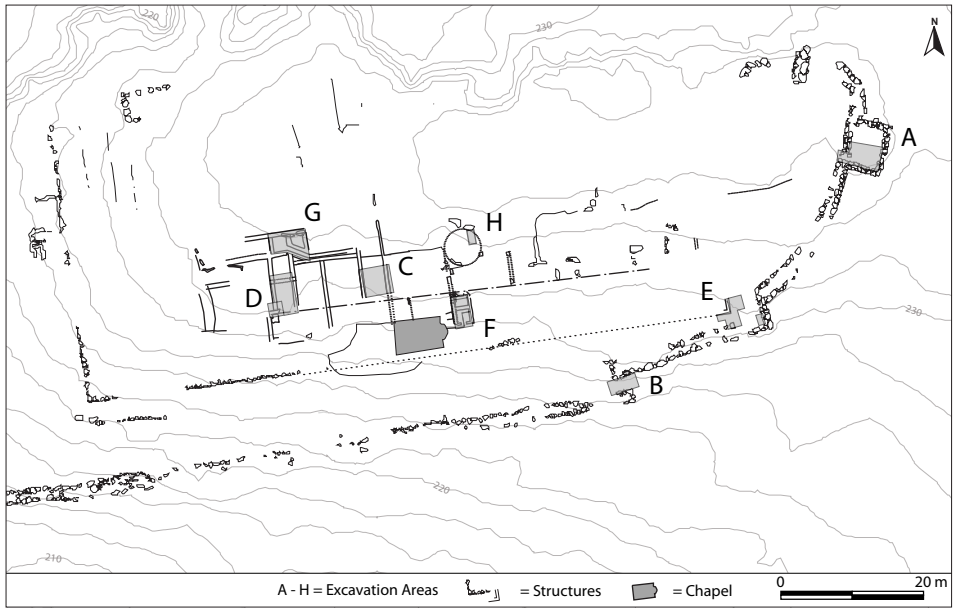


Fig. 30. The location of the trial trenches in comparison to the EHl fortification walls, the remains of the ER villa and other house foundations.

Another five trenches were opened in connection with the R villa (Trenches C, D, F, G and H) (Fig. 30). In Trench C the remains of the villa turned out to be disturbed by a late Med cemetery, apparently belonging to the chapel. One of the graves was excavated and could be dated to 1310-1435 cal. AD. Trench D revealed a ca. 2.4x5 m large bedroom with remains of wall paintings. Trench F again revealed a ca. 1.8x1.8 m large room with the character of a cellar, which could be entered from the south. Trench G in its turn covered two small rooms to the north of Trench D. One of these rooms had its floor and lower parts of the walls covered with hydraulic mortar and had apparently been used for collecting rain water, which had been led downhill from the room through a channel (width 0.6 m), probably towards a cistern. The purpose of Trench H (only 2x1 m) was to clarify the function of what seems to be a round room with a diameter of ca. 5 m. The exact function of the room could not be determined, but the floor and lower walls are covered with hydraulic mortar, thus perhaps indicating that the room was part of the bath of the villa.

Water was also brought in the R period to the site through a terracotta water pipe line, parts of which were found during the excavation in R strata. Coincidentally parts of exactly the same water pipe line were found next to a spring at a ca. 100 m higher altitude, ca 800 m to the southeast of Agios Donatos, thus indicating the source from where water was brought (Fig. 36).

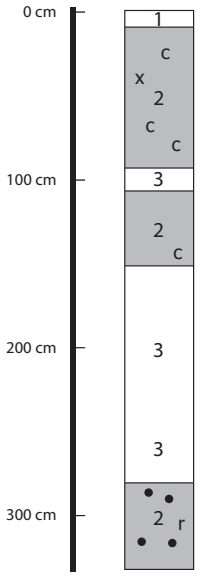


Fig. 31. Drawing of the profile in augering hole 7.

Geo-archaeological data: Six soil samples were taken from inside the fortification (Fig. 29). Four of the samples showed clear anomalous phosphorus values (the highest one being 840 mgP/kg), whereas two produced lower values (only 35 and 47 mgP/kg) due to the fact that the bedrock was very close to the surface (only some 10 cm below). A series of augering holes were also made in the dell to the south of Agios Donatos in order to clarify at which depth cultural layers covered by the erosion caused by the collapse of the Hl curtain wall might be located. In augering hole 8 a cultural layer with anomalous phosphorus content (151 mgP/kg) was recorded at a depth of 1.51 m below surface. In augering hole 7 (Fig. 31) we probably struck the same cultural layer as in hole 8, beginning shortly below surface and continuing until a depth of 1.58 m, however interrupted at one stage by a sterile lens. Tile fragments were noted in the cultural layer at a depth between 88 and 148 cm below surface and a soil sample taken at the depth of 1.58 m below surface had the anomalous content of 158 mgP/kg. In augering hole 7 we managed to get even deeper, taking two soil samples at the depth of 3.0-3.1 m (phosphorus content 253 mgP/kg) and 3.25-3.33 m below surface (phosphorus content 447 mgP/kg). These two last samples probably represent one and the same cultural layer, only visible as a darker hue in soil colour and some red dots. This second cultural layer may continue even deeper, with some red colour visible at the depth of 340 cm possibly indicating its lowermost remains.

Finds: In Trench A in the tower, the uppermost two loci (Loc. 1-2) contain mainly finds from the second and third centuries AD, e.g. cooking pots, but also some Eastern terra sigillata B, as well as a coin from the late second century AD. In Loc. 1 there is also a handful of fifth and sixth century AD cooking pots. Loc. 3 is partly mixed, but below it there seem to follow more or less clear first century AD layers all the way down to the cocciopesto floor, or until Loc. 16 (including this locus). Typical for these layers are a large number of Italian terra sigillata (cf. *TE* I, 155-165 and *TE* II, 269-281), but also some Apulian grey ware sherds, ER fibulae (Fig. 32) and other bronze and bone objects. There are also two coins that clearly date already to the mid-first century BC (Cleopatra and R denarius from 56 BC) (cf. *TE* II, 313, nos. 21-22). Below the *cocciopesto* floor there follow loci 17-18 that seem to date to the late third to the second century BC (PR). Here also a coin dating between 148 and the mid-first century BC was found (cf. *TE* II, 312, no. 17).

From the bedroom in Trench D several thousand fragments of the wall paintings have been recovered. They were made by skilled craftsmen and with high-class material, thus suggesting that the owner was a wealthy man who could afford the best. The decoration consisted of panels

painted in purple, yellow, blue and green as well as illusory marble with cinnabar bands dividing the panels from each other. There are also stucco fragments such as egg-and-dart, Lesbian cymatium and column shafts. The paintings most probably represent the Second Pompeian style and find good parallels e.g. in Casa di Cerere at Pompeii, which is dated to 50-40 BC. The imaginary panel borders with painted berries and leafs that also belong to the repertoire are similar e.g. to those at the House of Augustus on the Palatine, where the wall paintings are dated to around 30 BC (AF).

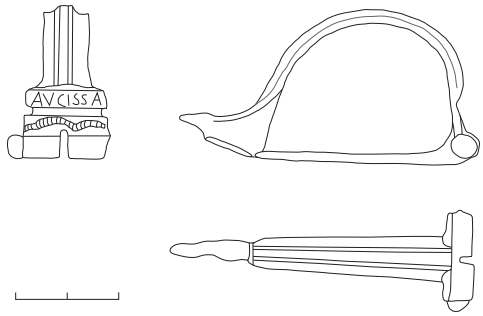


Fig. 32. ER Aucissa fibula. Scale 1:2.

The small room in Trench F contained a closed deposit of LHl pottery, loom-weights and other small finds, all dating to the late second or early first century BC (cf. *TE* II, 247-267). The room in Trench G that originally had been built in order to collect rain water had apparently been re-used later as large amounts of animal bones mixed with fragments of cooking pots of the second to third centuries were found. Near the beginning of the channel leading from the room, seven bronze coins were found. Six of the coins could be identified, originating from Apollonia, Ambracia and Corcyra and all dating to between the third and first century BC. Finally, a series of palmette antefixes (Fig. 33) found in several of the trenches also belong to the R villa.

Fig. 33. Palmette antefix of the ER villa.

Fig. 34. Head of EIA (?) male figurine, found in Trench B.

Apart from these finds, a handful of chipped stone and prehistoric sherds indicate that Agios Donatos was the setting for some kind of Neo-EBA activity. However, the earliest well-dated find consists of a unique terracotta head of a male figurine (Fig. 34), which finds its best parallels among EIA or EA figurines. The body of a quadruped, probably a horse, was found close to the head, which might indicate that we are dealing with a horse and rider, although made of different clays in different fabrics.

PS 26

Date and function: EMod or Mod Vlach seasonal settlement.
Location: Next to a rock outcrop on the lower slopes of the Paramythia mountain range, ca. 200 m to the south of PS 25 (Agios Donatos of Zervochori).
Description: Overgrown terraces with two heaps of stones on a gentle slope towards southwest and the valley bottom. Due to low visibility and the vegetation the borders of the site were difficult to establish. Only a grab sample was taken. A local shepherd told us that there existed a seasonal Vlach settlement somewhere here before the Second World War.
Finds: Five glazed sherds with patches of glaze ranging in colour from black with dark red, over olive green, mustard to light yellow or off white. These include one reddish-yellow fine ware ring base with black spots in the red glaze.

PS 34. Kioteza

Date and function: EHl fortress resettled in the LR period.
References: Dakaris 1972, 138; *AR* 53 (2006-2007), 47; *AR* 55 (2008-2009), 56; *TE* II, 216-223.
Location: Built on a prominent limestone peak on the lower western slope of the Paramythia range, just to the north of the modern village of Agora and ca. 970 m south-southeast of Agios Donatos of Zervochori (Fig. 36). Alt. 350-362.
Description: Some 970 m south-southeast of Agios Donatos a neighbouring fortress, Kioteza, is built on a prominent limestone peak on the same foothills of the Paramythia range as Agios Donatos. The fortified area covers ca. 0.4 ha and has a circumference of 250-300 m. Fortification walls exist only on the northeastern side, whereas very steep cliffs protect all other sides. The walls can be traced for ca. 60 m along the northeastern side. A square tower and a gateway are still discernible although the state of preservation of the walls in general is very bad. The walls probably date to the first quarter of the third century BC.
Finds: Only a handful of very rolled tiles and sherds were found on the surface and in the two small trenches. The only diagnostic ones are a fifth century cooking pot rim and a fourth or early fifth century body sherd of an African red slipped dish, Hayes shape 59 or 67, thus indicating a reuse of the fortress during the LR period (PR).

PS 24. Koutsiates

Date and function: EMod fortified village.
References: *HGAtlas* 2008, 74, fig. 105 (wrongly stated to be the EHl fortress of Agora). The site seems to be marked on Aravantinos map from 1895 (*TE* I, 249, Fig. 1) as the location of Logkates (present village of Agora).
Location: High up on the Paramythia mountain range with a splendid view towards the west. At Velia to the east of the site there is one of the few pathways that lead over the mountains to the east. Alt. 594.
Description: The village is built on top of an easily defendable outcrop that can be reached from the east through a gate. The outcrop is divided into two parts, of which the western one is located at a lower level. The defence has been strengthened by a round tower towards the northwest. Some house foundations also remain. The find density was calculated at six 2x2 m squares, producing a density between 25 and 500 finds/100 m^2 in the upper part and one between 125 and 400 finds/100 m^2 in the lower part of the site.
Geo-archaeological data: One soil sample was taken from the site, producing the phosphorus value of 92 mgP/kg.
Finds: The pottery includes one body sherd with dark green glaze on the exterior and light green glaze on the interior (of a bowl/plate). The rest of the pottery is unidentifiable medium-coarse ware. Also some roof tiles and a piece of slag.

E 6. Kontra or Leuka

Date and function: MR to LR farmstead and graves.
References: *ArchDelt* 56B (2001), in press; *ArchDelt* 57B (2002), in press; Lambrou 2006, 267, fig. 3; Drosou 2006, 281; Riginos and Lazari 2007, 96.
Location: At the western edge of the valley bottom, between two ravines originating on the slopes of the Paramythia mountain range, ca. 500 m to the northeast of the Kokytos (Fig. 14). Alt. 86-88.
Description: Part of the farmstead measuring ca. 9x15 m and consisting of six rooms was excavated. The walls were built of medium-sized blocks and mortar; the floor consists of beaten soil and gravel. The rooms were covered by the collapsed roof, below which some pottery and metal finds were recovered. To the east of the building, two rubbish pits filled with pottery and other finds were investigated. A large tomb built of stones with mortar, which contained at least five skeletons, was found to the east of the building. Four simple cist tombs were excavated inside and around the rooms, probably from after the destruction of the building. These burials contained no grave goods. The finds belong to three different phases: a) remains from the second and third centuries that were

found in the large tomb built of stones and mortar as well as in the rubbish pits, b) the main building phase of the farmstead that dates to the fourth and fifth centuries, c) the probably Christian cist graves that were constructed on top of the ruins of the farmstead.

Finds: The excavation of the farmstead produced a great quantity of cooking and storage vessels, some pottery with relief decoration, loom-weights, lamps, glass vessels, part of a grinding stone, as well as iron nails, slag (sidiromazes), 49 bronze coins (several of which are attributable to Constantine I) and a silver coin of Iulia Domna (the last one from the rubbish pit). The large grave again contained a copper necklace with glass beads, a glass vessel, bronze and iron objects, an ear scoop, pins and needles of bone, five bronze coins, a cooking pot and three lamps (Fig. 35).

Fig. 35. Two lamps (ΘE 07360 and ΘE 07361) from the large grave at E 6 (Kontra or Leuka), dating to the first half of the second century (above) and the late second to early third century AD (below).

E 28. Adelphia

Date and function: Farmstead (?) and graves of unclear date.
References: *ArchDelt* 47B (1992), 361.
Location: At the western edge of the valley bottom, ca. 500 m to the west-northwest of the Marmara heroon (E 11). Alt. ca. 80.
Description and finds: A concentration of roof tiles, pottery and parts of thin limestone plaques probably belonging to cist graves. The finds could be part of a farmstead with some graves, which is a rather common feature documented at many sites in the valley (cf. e.g. E 12 or E 27 nearby).

E 27

Date and function: Farmstead (?) and grave of unclear date.
References: *ArchDelt* 47B (1992), 360-361.
Location: At the western edge of the valley bottom, between the Kokytos and the Marmara heroon (E 11), at a distance of ca. 150 m from the river and ca. 300 m to the northwest of E 12. Alt. 79-80.
Description and finds: Cist grave built of thin limestone plaques, together with which a bronze fibula was found. To the south of the cist grave, roof tiles and pottery together with bones were spotted at a length of 50 m along the newly dug ditch. In the short report this is suggested to represent the remains of a larger grave field with burials covered by tiles. However, the finds could as well be part of a farmstead in combination with a grave, which is a rather common feature documented at many sites in the valley (cf. e.g. E 12 close by).

E 11. Marmara

Date and function: EHl grave heroon.
References: Dakaris 1972, 139, no. 402; *ArchDelt* 47B (1992), 349-354; Riginos 1999, 173-174; *HGAtlas* 2008, 81-82, figs. 122-124; Pietilä-Castrén 2008, 42-47; Tsinas 2008; *TE* I, 13.
Location: On the valley bottom, ca. 2 km southwest of Agios Donatos (PS 25) and ca. 1 km to the northeast of the Kokytos. Alt. 89-90.
Description: Rectangular (15.36x15.47 m) grave heroon with, built of large worked limestone blocks. The façade of the heroon is turned towards Agios Donatos in the northeast. Inside the hypaethral enclosure a large (3x2.1 m) cist grave was found. It contained remains of two burials, the better preserved skeleton belonging to a woman between 35 and 50 in age. Although the grave had been robbed before being excavated, some of the grave goods had been left.
Finds: The grave goods left by the robbers inside the grave consist of fragments of a gold wreath,

two lamps, three small black-glazed pyxides, two miniature vessels inside a plain unpainted jar as well as fragments of additional pyxides. Outside the grave but inside the enclosure, the excavator found pottery sherds, five fragments of two terracotta figurines, as well as some bronze and iron nails and a bronze lock belonging to a wooden coffin. Outside the enclosure an Ambracian coin dating between 238 and 168 BC was found.

Riginos originally suggested a date in the second half of the third century for the burial, but according to Pietilä-Castrén's analysis it dates to the first decades of the third century. It would thus be roughly contemporaneous with the fortification of Agios Donatos (PS 25).

PS 49

Date and function: LC or EHl farmstead.
Location: On the valley bottom ca 1750 m to the south-southwest of PS 25 (Agios Donatos of Zervochori) and only some 100 m to the east of the main Paramythia to Glyki road, on the highest point of a ridge in between two ravines originating at Agios Donatos and close to the village of Agora respectively. PS 29 is located ca. 300 m further towards the northeast (Fig. 36). Alt. 85-86.
Description: Ca. 15x15 m large clear concentration of tiles and pottery in the east corner of the field D 75. Due to time restrictions the corner could not be gridded, and at later revisits the field was cultivated and could therefore not be studied more in detail.
Geo-archaeological data: Two soil samples were taken at the site. The highest phosphorus value accounted for was 145 mgP/kg.
Finds: Only a grab sample collected, consisting of a ring base and a flat base, a cooking pot rim, several handles (including a round handle of a skyphos?) and a couple of body sherds, all probably of LC or EHl date, although none with preserved black glaze.

PS 30 and PS 48

Date and function: C to EHl small village.
Location: On the valley bottom ca. 900 m to the southwest of PS 25 (Agios Donatos of Zervochori), on the highest point of a ridge in between two ravines originating at Agios Donatos and close to the village of Agora respectively (Fig. 36). Alt. 112-114.
Description: This site, which consists of two PS's, is located in two fields. PS 30 (located in tract C 2) was treated as a PS already in 2006, revealing an elusive ca. 40x40 m large concentration of tiles and pottery. The adjoining field, originally walked as tract C 1, producing a large amount of finds, including a pyramidal loom-weight, was revisited in 2007 with a slightly better visibility. Then two new concentrations of finds, each ca. 20x20 m large were detected (PS 48A and 48B). The distance between the three concentrations PS 30 and PS 48A and 48B is ca. 90-100 m. The concentrations probably indicate the locations of three buildings of roughly the same date, perhaps belonging to a small village, the total size of which would be ca. 100x100 m. A magnetometer survey was conducted on PS 30, indicating possible remains of a badly destroyed farmstead. Concentrations PS 48A and 48B also seem to be badly destroyed by modern agricultural activities.
Geo-archaeological data: A total of five soil samples were taken at PS 48. The highest phosphorus value accounted for was 111 mgP/kg.
Finds: The pottery found at PS 30 as well as at PS 48A and PS 48B is badly rolled and difficult to date more precisely. However, PS 48B produced a black glazed ring base and PS 30 two black glazed body sherds. Additionally a pyramidal loom-weight was found next to PS 48B in tract C 1 and a conical loom-weight in tract C 2, associated with PS 30.

PS 29

Date and function: LC to EHl small village with pottery kiln. Also one LA sherd.
References: *AR* 54 (2007-2008), 62; *TE* II, 312, no. 14; *ArchDelt* 62B (2007), in press.
Location: On the valley bottom ca. 1250 m to the south-southwest of PS 25 (Agios Donatos of Zervochori), close to the highest point of a ridge in between two ravines originating at Agios Donatos and close to the village of Agora respectively. PS 48A and PS 49 are located at a distance

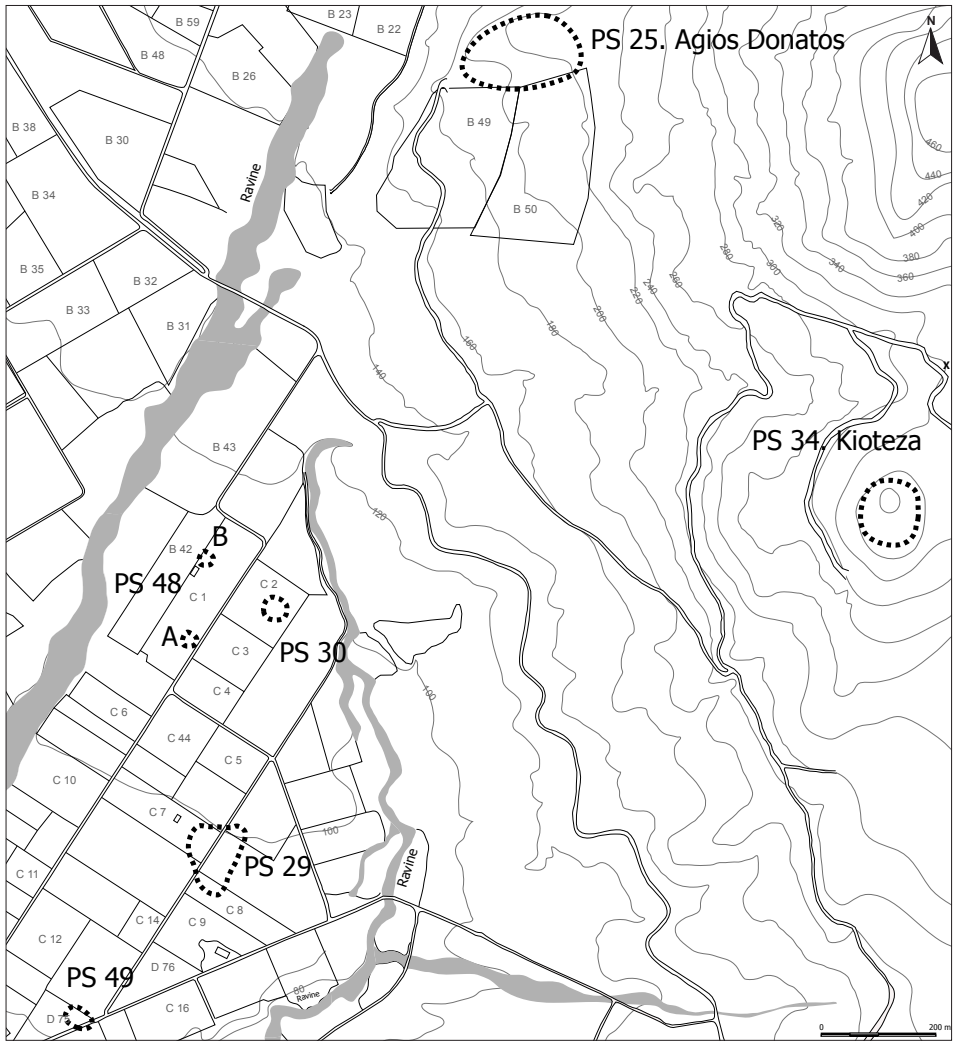


Fig. 36. Cl-EHl settlements to the southwest of Agios Donatos (PS 25) and Kioteza (PS 34). X indicates remains of a Roman (?) water pipe line in connection to a spring.

of only ca. 300 m from PS 29, PS 48A towards the north and PS 49 towards the southwest (Fig. 36). Alt. 98-99.

Description: A clear concentration of tiles and pottery was noted during the survey in 2006 along the southeast edge of the field C 7 (Fig. 37). This part of the field was gridded in 10x10 m squares. Find density calculated in 5 m^2 circles at the centre of all squares narrowed down the location of a building to two squares (with a find density of 840 finds/100 m^2. A magnetometer survey confirmed the existence of a badly preserved, ca. 20x12 m large farmstead, in these squares. Stone foundations of another building were noted at a distance of ca. 40 m towards the east in a badly overgrown olive grove. Further tiles were noted in the northeast part of field C 8 (Fig. 37), apparently indicating that the site continued in this direction with another building as well. However, field C 8 was never gridded. The size of the whole site, which thus consists of three or more buildings, is at least 120x80 m.

The building in field C 7 was partly excavated by us in 2007. The finds were located just below the plough zone and the actual find layer was only some 10 cm thick. No stone walls could be

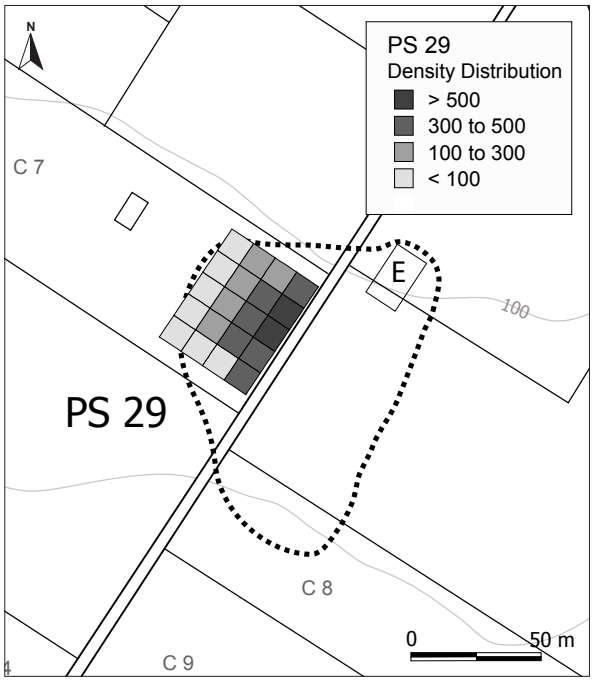


Fig. 37. Find density distribution of PS 29, indicating the location of the building excavated by the Thesprotia Expedition as well as of the building excavated by the Greek Archaeological Service (E).

found, but we located an extensive layer consisting of roof tiles and some remains of mudbrick walls. Trial trenches were furthermore opened in the olive grove, revealing better preserved remains of another house with a collapsed terracotta roof and a 0.5 m wide stone wall that was traced for 3 m. This building was later excavated in its entirety by the Greek Archaeological Service, revealing a 18x14 m large house (Fig. 38), with at least six rooms and walls made of comparatively large limestone blocks and mudbricks. In its northeast part the house was built upon a pottery kiln, 4.50x2.80 m large and 0.50 m high, partially preserved up to the eschara in its northwest corner and otherwise only up to the firing chamber. Around the building and mainly in its west part, 14 probably Christian graves in simple pits were excavated, none of them containing grave goods.

Geo-archaeological data: A total of eight soil samples were taken from the site. The highest phosphorus level accounted for was 80 mgP/kg.

Finds: The badly preserved pottery from the gridded area in C 7 included one black glazed rim and a possible lekane rim. The excavation revealed mainly storage jars such as pithoi, jugs and amphorae, but also a handful of late skyphoi and other drinking cups. Two handles of bronze vessels and a coin dating to between 360 and 330/325 BC were also found. Most of the finds date to the fourth or early third century BC, but there are some earlier anomalies such as the unique find of a Laconian pithos rim, the lip of which is decorated with a bud chain, dating to 550-525 BC (Fig. 39). The find layer below the collapsed roof in the olive grove was only ca. 10 cm thick and consisted of some pottery, including e.g. black glazed sherds and a large piece of a perirrhanterion. In general the few finds in this trench date to the fourth or early third century BC and indicate the existence of at least one other house close to the first one

Fig. 38. The building uncovered by the Greek Archaeological Service which was built upon a pottery kiln.

found by us. In the excavation of the house by the Greek Archaeological Service roof tiles, some pithos fragments and a small amount of pottery of everyday use, such as amphorae and cooking pots sherds, loom-weights, iron nails and slag were found. From the interior of the pottery kiln came a part of a black glazed oil lamp and black glazed sherds from skyphoi, kantharoi and small bowls, all preliminary dated to the LC or EHl periods.

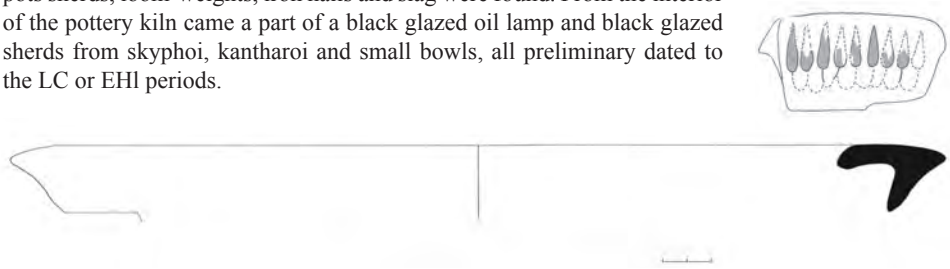


Fig. 39. Laconian pithos rim, decorated with a bud chain, dating to 550-525 BC.

E 12. Darda

Date and function: MR to LR farmstead with a grave.
References: *ArchDelt* 56B (2001), in press; *TE* II, 313-314, 317-329.
Location: At the western edge of the valley bottom, some 150 m from the confluence of the Kokytos and a ravine originating on the slopes of the Paramythia mountain range close to the village of Asphaka. Alt. 77-79.
Description: Part of the farmstead was excavated, revealing the outlines of five rooms and the beginning of a sixth one. The size of the five rooms is altogether 16x10 m, with the larger room located in the middle and flanked by two rooms on the western and eastern side (see *TE* II, 317-319). North of the house a large stone cairn and one pit grave orientated in a southwest to northeast direction were detected.
Finds: The excavation of the house produced mainly sherds of cooking pots and storage vessels, some fragments of glass vessels, some iron nails, an iron key, two bronze fibulae and 17 bronze coins. The only find inside the grave with its well preserved skeleton was an iron fibula (for the finds, see *TE* II, 313-314, 319-328).

E 13. Sternari or Delvitsi

Date and function: MR to LR farmstead with graves, possibly reusing the foundations of an EHl farmstead. Also an EIA kanthariskos.
References: *ArchDelt* 47B (1992), 348-349, 361; *ArchDelt* 53B (1998), 545; *ArchDelt* 60B (2005), in press.
Location: On the lowermost eastern slopes of the hills that demarcate the Kokytos valley towards the west, ca. 150 m southwest of the river. Alt. 90-91.
Description: Large rectangular (ca. 50x40 m) building with an open (?) central yard (30x7 m), the southern end of which is destroyed by ploughing. The walls, ca. 0.60 m wide, are built of large or medium-sized limestone blocks, many in secondary use. Around the open yard there is a series of rooms, two of which are large and of oblong shape (30x3.5 and 23.5x10.0 m), whereas the rest are smaller. The floor in the rooms consists of beaten soil and gravel, except for some of the smaller rooms where it is covered by plaques. Inside the building two cist graves and two graves covered by tiles were found. Another plundered cist grave was excavated in 1992 and two pit graves in 1998, all probably connected to the villa. A scatter of tiles and coarse pottery was reportedly found in another field closer to the Kokytos.

Fig. 40. EIA kanthariskos (ΘE03110).

Finds: There were no finds made in association with the graves. Inside the building part of a grinding stone, small stone sling stones (boloi), a lead nail, an iron arrowhead, a bronze fibula of the fifth century AD, bronze medical instruments, iron nails, conical loom-weights, coarse pottery as well as parts of three small glazed vessels, 38 bronze coins of R date and one bronze coin of LHl date. Most of the coins date to the late third or fourth century AD (Aurelian, Diocletian, Maximianus and Constantine I). But some of the other finds, such as a cyma kantharos, date already to the third century BC, or even earlier such as the small EIA kanthariskos (Fig. 40), and thus indicate that the site has been settled for a long time and has a problematic stratigraphy.

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Mikro Karvounari in Context: The New Lithic Collection and Its Implications for Middle Palaeolithic Hunting Activities

Christina Papoulia

Introduction

This chapter deals with the new lithic collection recovered by the Thesprotia Expedition from PS 23, a *terra rossa*[1] open-air site which was identified and named by Eric Higgs as Mikro Karvounari (Fig. 1).[2] The site is situated west of the Kokytos river basin and is separated from the Karvounari village by a hill named Mavrovouni. At a walking distance from it, towards the southeast, lies its twin yet much larger *terra rossa* open-air site Megalo Karvounari.[3] Mikro Karvounari "is detached from Megalo Karvounari and separated from it by the Simitiri hills and a saddle plateau of agricultural land/fields and cowsheds".[4] Both sites have yielded a large number of Middle Palaeolithic artefacts that have been described in greater or lesser detail by successive researchers over more or less half a century of Palaeolithic research in the region.

The first lithic assemblage was collected in the course of the Higgs palaeolithic survey in western Greece in the early 1960s.[5] The lithics were later studied in detail by Papaconstantinou and Vassilopoulou[6] and Papagianni.[7] This early collection comprised a total of 144 recorded artefacts. As expected, biases regarding the collection and storage of those artefacts have been pointed out by previous researchers.[8] Due to the number of artefacts, the overall smaller size of the red bed and its proximity to the larger site of Megalo Karvounari, Mikro Karvounari has always been regarded as a small site of small importance in the mobility network of Middle Palaeolithic foragers. In Papagianni's terminology it should probably be regarded as a *stop-over point* rather than a *reference* site.[9]

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[1] *Sensu lato*.

[2] The Finnish Institute at Athens and the 32nd Ephorate for Prehistoric and Classical Antiquities kindly allowed me to study the new collection from Mikro Karvounari. I would like to thank Björn Forsén and Jeannette Forsén for their hospitality, profitable discussions and the ideal working conditions they provided, as well as Ourania Palli, Stefanos Ligkovanlis and A.T. for their either practical or psychological support during the summer of 2008, when most of the work took place. Special thanks are extended to Curtis Runnels for useful suggestions, to William Davies for constructive criticism on a much earlier stage of this study and to N.Gk and K.K. for their patience. I wish to acknowledge John McNabb for my familiarization with the analysis and interpretation of lithic collections, but not for any flaws regarding my work, and Nena Galanidou for encouraging me to study the particular material and for the initial inspiration towards Palaeolithic Archaeology. Figs. 1 and 5 were drawn by Esko Tikkala, whereas Fig. 2 was taken by Tiina Piiroinen. All other illustrations are by the author.

[3] In Greek *mikro* = small, and *megalo* = large.

[4] The Thesprotia Expedition 2005 unpublished fieldnotes.

[5] Dakaris *et al.* 1964, Higgs and Vita Finzi 1966.

[6] Papaconstantinou and Vassilopoulou 1997.

[7] Papagianni 2000.

[8] Papagianni 2000, 37, 44, 48.

[9] Papagianni 2000, 82; see also Isaac 1981 for the land use patterns.

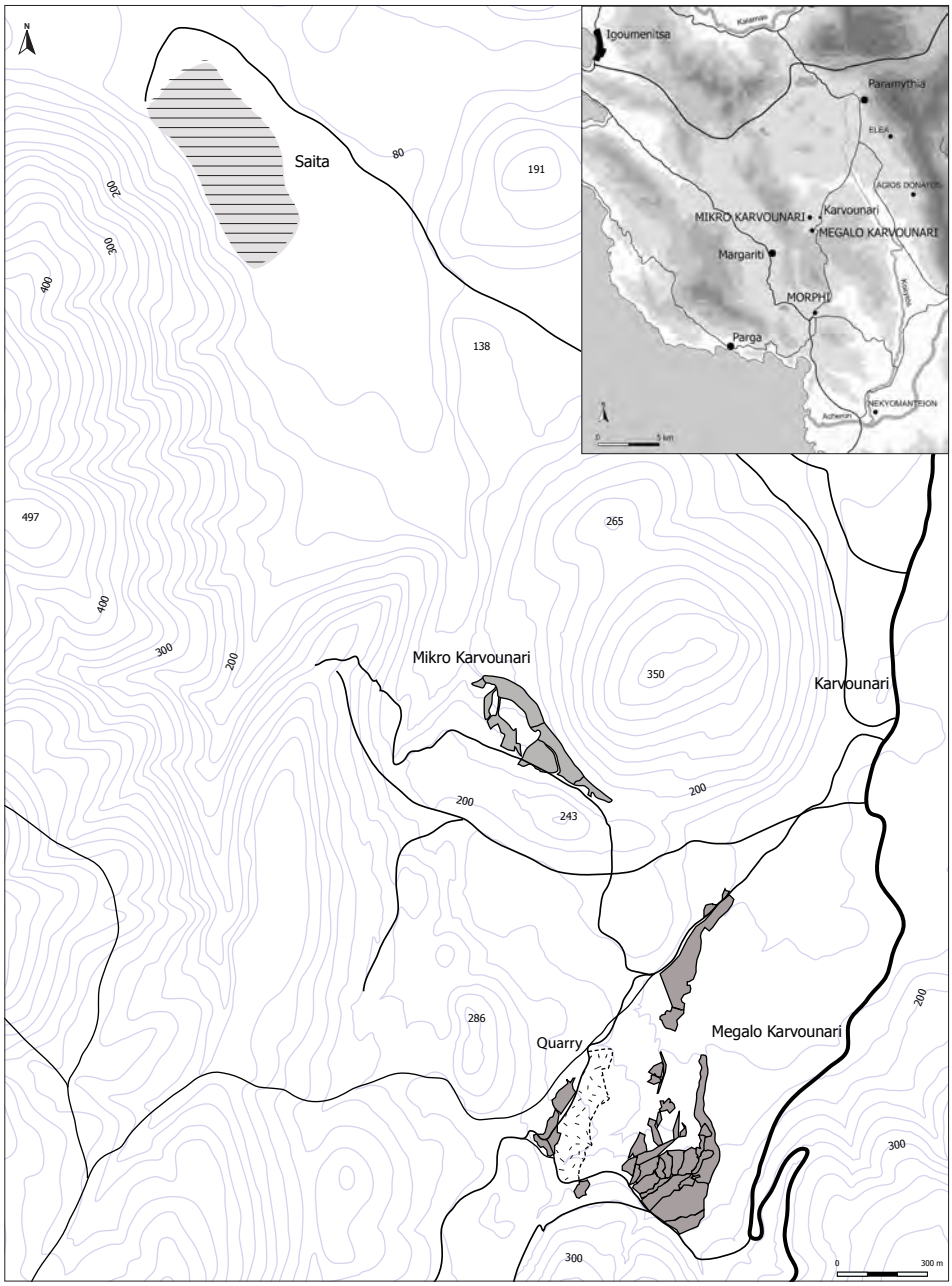

Fig. 1. Location of the Karvounari village and the twin sites of Mikro and Megalo Karvounari.

This paper presents and analyses the lithic artefacts recovered by the Thesprotia Expedition, which total 1175 specimens, and argues that Middle Palaeolithic hominids might have ascribed a more "referential" role to the particular site. It also demonstrates the diachronic exploitation of the site by Late Pleistocene and early Holocene hominids through the analysis of the post-Mousterian artefacts of the lithic collection.

Fig. 2. Panoramic view of Mikro Karvounari.

In particular, the technological, typological and metrical analysis of the new collection clearly points to a Middle Palaeolithic date; nonetheless a later component is also present, a fact not unforeseen for the open-air sites of Epirus. The interpretative attempt focuses on the behaviour and subsistence strategies of the hominid species which passed through, made use of or occupied this particular environmental niche, which today forms a geological badland (Figs. 2-3). A striking element of the assemblage recovered by the Finnish team is the high frequency of Mousterian, Levallois and pseudo-Levallois points (Fig. 4). Such a large amount of points, not often encountered in the Epirotic open-air sites, is being tested as for subsequent implications of hunting activities in the region.

Fig. 3. Inside the redbed of Mikro Karvounari.

Fig. 4. Retouched Levallois point and prepared core [not *in situ*].

Survey Methodology

The Thesprotia Expedition's survey of Mikro Karvounari took place in July 2005 and lasted for five days. A 4.14 ha red soil area was separated in seven units according to landscape and was investigated by "total vacuuming". The aim of the small group of walkers under direction of Jeannette Forsén[10] was to collect all visible knapped pieces,[11] a fact which is attested by the presence of small-size artefacts as well as some conjoining pieces. Overall, visibility was excellent

[10] Participants: Jeannette Forsén, Björn Forsén, Rauno Vaara, Nina Heiska and Tiina Piiroinen.

[11] Jeannette Forsén, pers. comm. 2008.

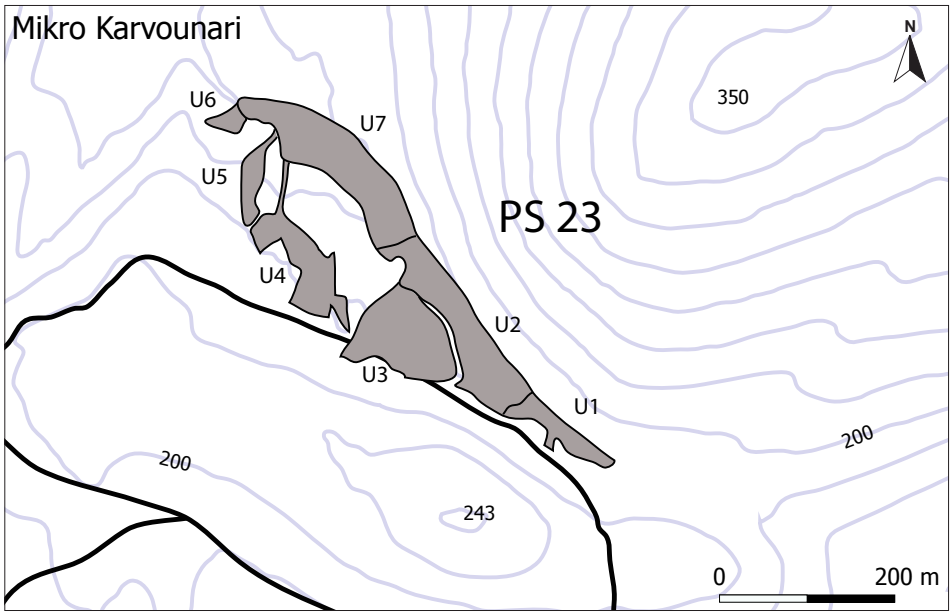

Fig. 5. Map showing the seven units of PS 23 or Mikro Karvounari.

(80%-100%) apart from restricted areas where visibility was reduced up to 5-10% due to heavy fern vegetation (*Pteridium aquilinum*), some hawthorns and oak trees. Additionally, in some parts of units 3 and 4 (Fig. 5.) very steep slopes produced by erosional processes were practically impossible to inspect.

Limitations and problems

As we are dealing with a surface collection from an open-air site, a number of problems could arise depending on the questions we address. To begin with, no stratigraphic data or absolute dates are available. What is more, the geological background of the *terra rossa* sites has been a matter of great debate regarding their history and archaeological interpretation.[12] Such a lack of chronostratigraphic data might be a great obstacle in any intention of understanding patterns of synchronicity between assemblages and sites. However, recent interdisciplinary studies conducted by the *Nikopolis Project* in the Preveza region have provided significant information about the nature and geological formation of a large number of open-air archaeological sites.[13] On the other hand, no faunal remains or palaeoanthropological material have ever been collected from *terra rossa* sites of Epirus.[14] As expected, limited research potential had been ascribed to them[15] while, as Papagianni notices, there has always been an *over-reliance* on the Asprochaliko

[12] Bailey *et al.* 1992; King and Bailey 1985; Pope *et al.* 1984; Higgs and Vita Finzi 1966.

[13] Runnels and van Andel 2003.

[14] It should be noted, however, that the site of Megalo Karvounari was revisited in 2009 when osteologist Vivi Deckwirth pointed out a fossilized animal bone. Even though this is a single specimen, the possibility of encountering organic material in such locales in the future might be considered in a more optimistic way.

[15] Bailey *et al.* 1992

rockshelter, a fact which might have been misleading in many cases. What she has argued, though, is that the study of the open-air sites has a lot to contribute as it can provide "a broader picture of industrial variability and regional adaptations than does the study of isolated rockshelters";[16] especially in Epirus, where surface collections are practically the only available Middle Palaeolithic data sets, apart from the Asprochaliko finds.[17]

The lithic collection

Methodology

"Given a particular classificatory system, it is truly hard to see beyond it."

H. Dibble and S. McPherron 2007

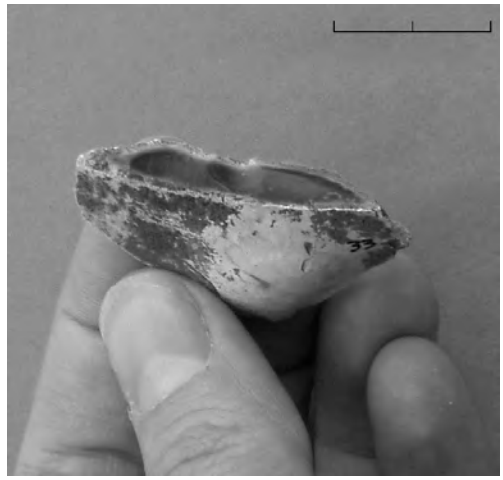

Fig. 6. Thickness of patina.

The new lithic collection recovered from Mikro Karvounari is a demonstration of the palimpsest nature of the site. Mousterian artefacts were found together with artefacts of a later date and will be discussed separately. A few Mesolithic cores and tools were easy to distinguish due to their morphology, technology and minor degrees of patina. However, the separation between some Middle and Upper Palaeolithic artefacts proved to be a much more demanding task. Although the different degrees of patination have been employed as a thumb-rule,[18] they have neither been the first nor the only factor of classification. A few relatively recent broken artefacts reveal the thickness of the patina which can be up to 2-3 mm (Fig.6). The complex patination process depends on various elements such as raw material and depositional context but the exact causes have not yet been fully understood.[19] Therefore, tool typology and technology were the prime factors, whereas the different degrees of patination were an auxiliary aspect to classification. A few burnt artefacts of smaller size and possibly of early Holocene date are also included, though in most of the cases it is impossible to extract significant technological and hence chronological information from them.

The production of blade-like elements has been identified both among blanks and cores' negative scars. During the last decade or more, it has widely been accepted that

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[16] Papagianni 1999, 131.

[17] Papaconstantinou 1988; Gowlet and Carter 1997.

[18] Patination scale: 0=no or very light patina, 1=light patina (minor colour alterations), 2=medium patina (colour still observable), 3=heavy patina (initial colour not easily defined), 4=very heavy patina (artefacts almost white due to patination), 5=extreme patina (surface almost turned into chalk).

[19] Papagianni 2000, 42; Runnels and van Andel 2003.

the presence of "blade technology" does not *a priori* suggest an Upper Palaeolithic date to the industry.[20] Indeed, McBrearty and Brooks have pointed out that for the African data, "Elongated Levallois cores […] can yield blades which are indistinguishable from those produced on the cylindrical or pyramidal cores more typical of the European Upper Palaeolithic".[21]

Thus, blade-like elements are not excluded from the Middle Palaeolithic assemblage unless they demonstrate clear Upper Palaeolithic character. For this purpose, the term *laminar* instead of *blade* has been preferred in order to make a distinction from the fine Upper Palaeolithic blades which in typological and technological terms differ from the ones encountered at Mikro Karvounari. In fact, elongation seems to play an important role in the coastal sites of Epirus as previous researches have indicated.[22] A possible cause for such a preference is the abundance of high-quality raw materials suitable for knapping along the Ionian coast.[23]

Classification of retouched artefacts inevitably follows Bordes' typology with the occasional modification by recent researchers.[24] The standardization offered by typology manuals is never sufficient to account for the variation observed in lithic collections. Consequently, although certain specimens were quite challenging in respect of their classification, the separation in too many "atypical" categories would only introduce "noise" to our discussion and make the interpretation process more problematic; thus it has been avoided. On a technological basis, Boëda's[25] principles of classification were consulted as adjusted to the Greek data.[26] The non-characteristic knapping debris has been recorded as either "flake fragment" or "core fragment". Broken unmodified flakes of less than 20x20 mm have been counted (n=62) but not further studied. There is only one whole flake (18x14x3 mm) with centripetal scars, a dihedral butt and very high degree of patination which can be securely attributed to the Middle Palaeolithic industry (Fig. 14n) and has thus been included in the analysis. The majority of the rest exhibit lower degrees of patination and might be part of the knapping debris of the later component of the site.

Raw material

Almost all artefacts are made of fine-grained flint with few inclusions. Regardless of the degree of patination, dorsal patterns and negative scars are in most cases easily defined. Although detailed analysis of the raw material is not viable due to the heavy patination present, some observations can still be made. Both core and flake analyses indicate that small flint pebbles must have been the most common raw material type, though not the only one. Such pebbles of a light blue/grey colour are still encountered in the Kokytos river basin today. At the same time, larger flint nodules and tablets have been spotted out in the vicinity, mainly of reddish/pink colour. During the 2005 field work, flint cobbles of dark grey, red and green colour were also collected by the Finnish team and a few grey tablets of less good quality flint were spotted around Megalo and Mikro Karvounari.

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[20] Bar-Yosef and Kuhn 1999; Mellars 1996.
[21] McBrearty and Brooks 2000, 492-493.
[22] Papagianni 2000.
[23] Papagianni 2000; Papaconstantinou and Vassilopoulou 1997.
[24] Bordes 1961; Debénath and Dibble 1994.
[25] Boëda 1994.
[26] Papaconstantinou 1988; Papagianni 2000.

What is interesting, though, and at the same time needs further investigation is the source of high-quality fine-grained white flint. Amongst the collected artefacts there are quite a few examples (usually of end products) of this sort; but during a fleeting examination in the area around the site, no raw material of such colour could be located. There is a possibility that by the present day no more flint of this type is deposited in the region. However, small white flint pebbles have been collected by Adam from the vicinity of Asprochaliko in the Louros Valley.[27] Thus, a possible secondary source of such kind of flint could be located in the river banks of Louros, but a primary source is yet to be identified. A suggestion that this kind of flint was brought from the Louros valley is not far-fetched, since Middle Palaeolithic foragers would travel much longer distances during a life span and so would their tools. Recent studies both of lithics[28] and palaeoanthropological material[29] suggest that such hypotheses are confirmed by the Greek data as well.

The Mousterian industry

The new lithic collection consists mainly of Middle Palaeolithic artefacts (n=978, 83.23%, Fig. 7) with high degrees of patination (grades 3, 4 and 5). Specimens of the most characteristic Mousterian types usually exhibit very high degrees of patination (grade 4 or 5) and oxidized stains due to long-term contact with the red sediments (Fig. 4). Butt types on unmodified flakes and laminar flakes are predominantly plain (31.69%), followed by facetted (23.24%), dihedral (12.67%) and marginal/linear butts (12.67%). There are also punctiform (7.05%) and cortical ones (5.6%). Only one specimen exhibits the characteristic lip of a soft hammer percussion (0.75%). A number of butts on whole flakes are absent, broken or unidentifiable (6.33%).

MP	Cores	Flakes	Lam. flakes	Tools[30]	Other[31]	Total
n	43	634	82	128	91	978
%	4.4	64.83	8.38	13.09	9.3	100

Fig. 7. The Middle Palaeolithic inventory from PS 23.

During the lithic analysis the artefacts were separated into the following technological categories according to reduction patterns.

i.Radial / centripetal group
The largest category of cores is the radial/centripetal group with a total of 16 specimens (37.2%). The majority of radial cores are lineal or recurrent centripetal Levallois

[27] Adam 1997, 483.
[28] Panagopoulou 2000, 140.
[29] Richards *et al.* 2008.
[30] Retouched artefacts, unretouched points and naturally backed knives.
[31] Unidentifiable debris and core fragments.

Fig. 8. Centripetal cores (upper row: lineal Levallois, middle row: recurrent Levallois, lineal Levallois, discoid) and Mousterian discs (lower row).

and discoids (Fig. 8). Levallois technology, mainly manifested on flakes (n=83), has been employed as in most coastal sites. Most of the radial / centripetal ones are heavily worn out into very small Levallois (Fig. 10b,e,g) or disc cores (Fig. 10c) with mean dimensions: 48.3x44.3x21.3 mm. The presence of a single lineal Levallois core with larger dimensions alters the mean measurements (Figs. 9, 11c). At roughly the same size, a large Levallois flake with facetted butt probably demonstrates a failure in the production of the preconceived form of Levallois flakes since its distal end is heavily plunged (Fig. 11d). Pseudo-Levallois points (Fig. 24j, 25d) and pointy flakes (Fig. 14f-k) have probably been produced from discoid cores. In particular, one discoid core with larger dimensions (71x62x48 mm) and a more than 50% fixed perimeter with alternate knapping sequences bears negative scars of such thin and pointy flakes (Fig.10a).

In Mellars' study[32] of the Kokkinopilos material there is a suggestion of the presence of inter-mediate cores between classic Levallois and discoids, as has been proposed by Boëda[33] as well. It has been suggested, though, that the difference between discoid and Levallois reduction methods is a difference in degree of preparation and not in concept.[34] In this study, textbook examples are rare, and in the debitage most commonly encountered are sub-centripetal scar patterns which can be produced from either recurrent centripetal Levallois or discoid cores. What is more, reconstruction of the *chaîne opératoire* by extensive refitting is practically impossible for surface collections such as the one coming from Mikro Karvounari. Hence, for comparative reasons − since studies of the Greek industries have focused on the centripetal *vs.* parallel reduction

Dimensions	Length	Width	Thickness
min.	42	35	11
mean	57	53	29.5
max.	72	71	48

Fig. 9. Metric data for the radial/centripetal cores (measurements in mm).

[32] Dakaris *et al.* 1964.
[33] Boëda 1986.
[34] Lenoir and Turq 1995. Mellars 1996, 73; see also Chazan 1997.

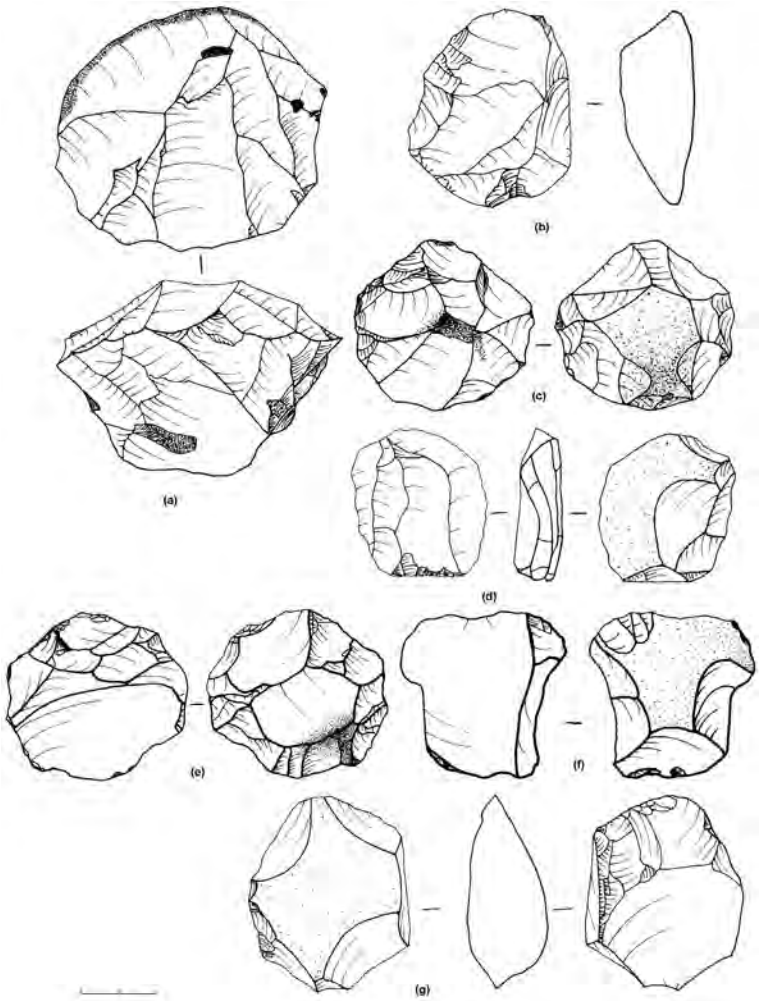

Fig. 10. Prepared cores: discoid (a, c), recurrent Levallois (b), parallel (d), lineal Levallois (e-g). Scale 1:2.

sequence[35] – it was decided to take into account the knapper's intention more than the strict morphological rules of classification. In any case, what was perhaps most important for the knapper was the production of thin yet wide flakes which could allow repeated and intense resharpening. According to Kuhn's study of the Pontinian Mousterian from Italy, such a preference is indicative of highly mobile groups of foragers, in contrast to the elongated flakes produced by the parallel reduction method.[36] Interestingly, 83 out of 633 flakes have been recorded as Levallois flakes due to their centripetal or subcentripetal dorsal scars and thickness (Fig. 15). At the same time, though, laminar flakes with parallel scars amount to a total of 82 specimens.

[35] Papagianni 2000, 40; Papaconstantinou 1988; Papaconstantinou and Vassilopoulou 1997; Gowlett and Carter 1997; Panagopoulou 2000.
[36] Kuhn 1995.

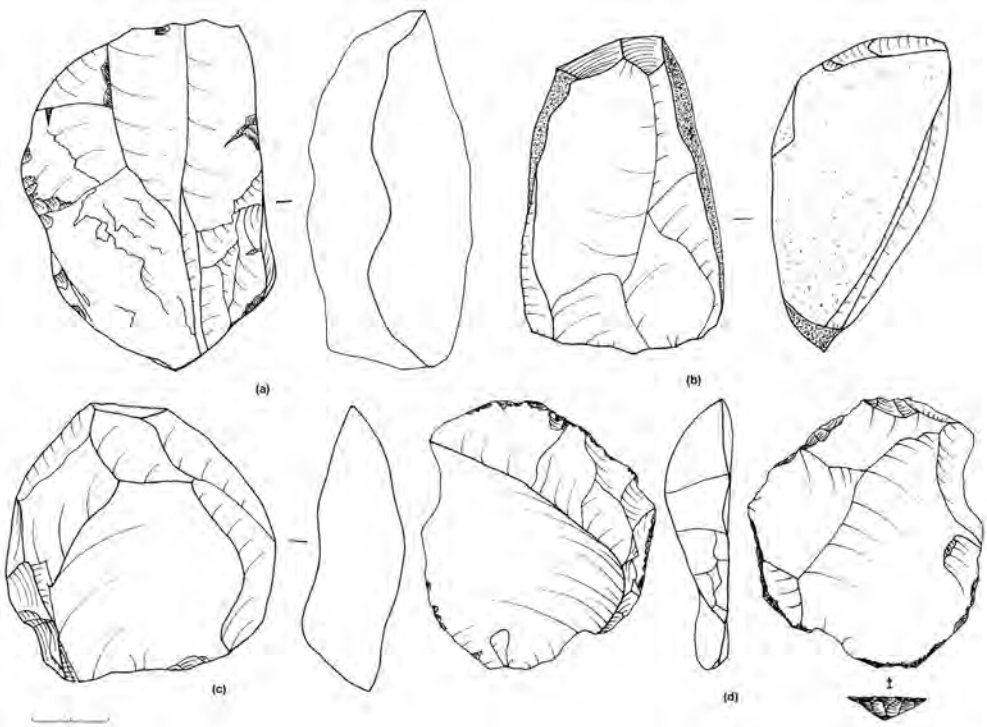

Fig. 11. Bipolar parallel cores (a,b), lineal Levallois core (c), plunging Levallois flake with facetted butt (d). Scale 1:2.

ii. Parallel / convergent group

A number of cores displaying parallel negative scars (n=9, 21%) have either one striking platform, suggesting unipolar reduction sequence, or two striking platforms, suggesting bipolar reduction sequence. Their size range is wider than the radial/centripetal cores (Fig. 12). Elongated flakes are usually the by-products of the parallel recurrent Levallois method (Fig. 16). A couple of parallel cores (Fig. 11a,b) from Mikro Karvounari resemble the technique described by Bordes and Boëda;[37] however, these seem cruder than the classic or specialized Levallois cores from Western France. Cores characterized by a prismatic cross-section are also present (Fig. 13). The kind of platform preparation and the irregular width of negative scars point to a less standardized production than the one expected from an Upper Palaeolithic context.

Laminar flakes with parallel scars on their dorsal faces often exhibit cortical or plunging distal ends (Fig. 14b,m); plunging negative scars are also observable on parallel cores (Fig. 13). A few hinge fractures are also present. These kinds of terminations are frequently interpreted as knapping accidents. However, evidence from other Middle Palaeolithic sites in Epirus supports a different approach. *Outrepassé* (=plunging) terminations are thought to be "technical pieces" created on purpose as a solution to inefficient cores.[38]

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[37] Bordes 1961; Boëda 1988.

[38] Papagianni 2000, 45: "most if not all of them would have been produced intentionally, as a way to remove

Levallois points are usually thought to be the by-products of Levallois convergent cores. However, convergent cores were encountered neither in the old nor in the new lithic collection from Mikro Karvounari. It could be assumed that such cores have perhaps been further reduced, or that points were brought to Mikro Karvounari but manufactured at a different site. Taking into account the number of Levallois points present in Epirus, and the fact that only a few convergent cores have generally been found in open-air sites,[39] the first assumption seems more plausible.

Dimensions	Length	Width	Thickness
min.	39	35	11
mean	67.5	50	28.5
max.	96	65	46

Fig. 12. Metric data for parallel cores (measurements in mm).

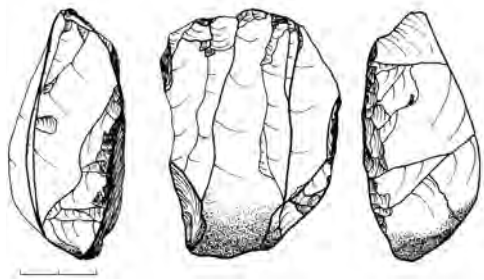

Fig. 13. Prismatic core. Scale 1:2.

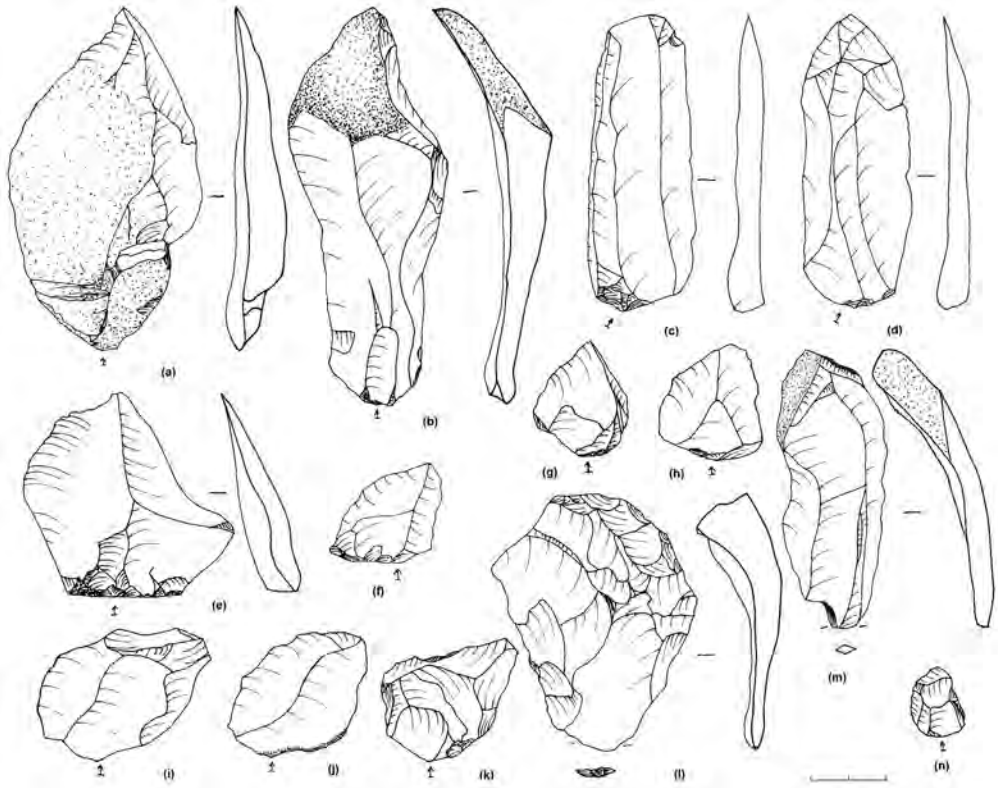

Fig. 14. Flakes (a,e,f,g,h,i,j,k), laminar flakes (c,d), plunging terminations on laminar (b,m) and centripetal (l) flakes, centripetal flake of less than 20x20 mm (n). Scale 1:2.

cortex or hinges from the distal end of the core, maintain the distal convexity of the core or even renew the striking platform".

[39] Papagianni 2000.

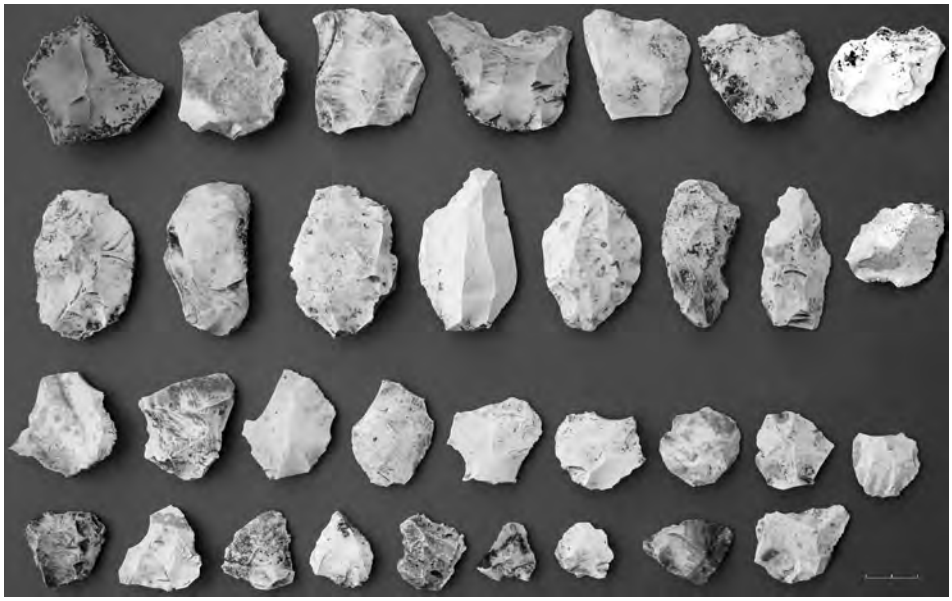

Fig. 15. Centripetal Levallois, discoid and laminar flakes.

Fig. 16. Laminar flakes.

iii. Random / opportunistic group

There is also a group of cores (n=15, 34.9%) which are characterized by a random reduction sequence. These cores can vary in size and shape (Fig. 17). The smaller ones are approximately the same size as the exhausted centripetal cores (Fig. 22f). They are

usually globular, polyhedral or shapeless and lack any kind of platform preparation. Most of them retain cortex in less than 50% of their entire periphery, while two examples do not retain any cortex at all.

Dimensions	Length	Width	Thickness
min.	33	28	18
mean	59.7	46.6	33.5
max.	99	82	60

Fig. 17. Metric data for random/opportunistic cores (measurements in mm).

Tool repertoire

A total of 128 retouched artefacts, naturally backed knives and unretouched points comprises the Middle Palaeolithic tool kit at Mikro Karvounari (Fig. 18). Scrapers are the dominant group (27.34%) and can be of various types (Fig. 19). The second most frequent group is marginally retouched flakes and laminars (21.09%) followed by denticulates (17.97%). Blanks with plain butt types are the most frequently represented among retouched artefacts (22.6%). Facetted (17.3%) and dihedral butts (15.03%) are also common. Punctiform (2.1%), cortical (1.7%) and marginal/linear (2.1%) butts are not so frequently found as in unmodified flakes. 39.8% of the butts are not present or broken.

Type	n	%
Scrapers	35	27.34
Denticulates	23	17.97
Notches	5	3.91
Retouched pieces	27	21.09
Levallois points	7	5.47
Pseudo-Levallois points	4	3.13
Mousterian points	3	2.34
Mousterian discs	6	4.69
Inverse retouch	3	2.34
Perforators/piercers/becs	3	2.34
Naturally backed knives	8	6.25
Endscrapers	2	1.56
Burins	1	0.78
Crested blades	1	0.78
Total	128	99.99

Fig. 18. Mousterian tool-kit.

Scrapers All scrapers are made on flakes of roughly the same size (mean: 45x22.5x8.5 mm), but two examples portray quite distinctive proportions. A large radial blank (63x55x15 mm) with facetted platform was selected and further modified to a scraper in the first case (fig. 22a). The second example is a laminar flake with a unipolar sub-parallel dorsal scar pattern of 86x41x15 mm size (Fig. 22e). Both examples do not retain any cortex. Such large blanks derive from larger flint nodules rather than the small pebbles discussed above. Lateral scrapers of such length, although not a common feature, have been encountered in two more sites in the greater vicinity of the Kokytos river basin. Approximately 6% of the lateral scrapers from Megalo Karvounari are 100 mm long, whereas at Morphi there is a higher relative frequency of elongated lateral scrapers.[40] One more example belongs to this category and forms a natural back. The proximal end

Scrapers	n	Straight	Convex	Concave	Straight-convex	Convex-concave
Single	18	*	*			
Double	7	*	*		*	*
Déjeté	4		*		*	
Transverse	6	*				

Fig. 19. Middle Palaeolithic scraper types.

[40] Papagianni 2000, 132, fig. 6.28.

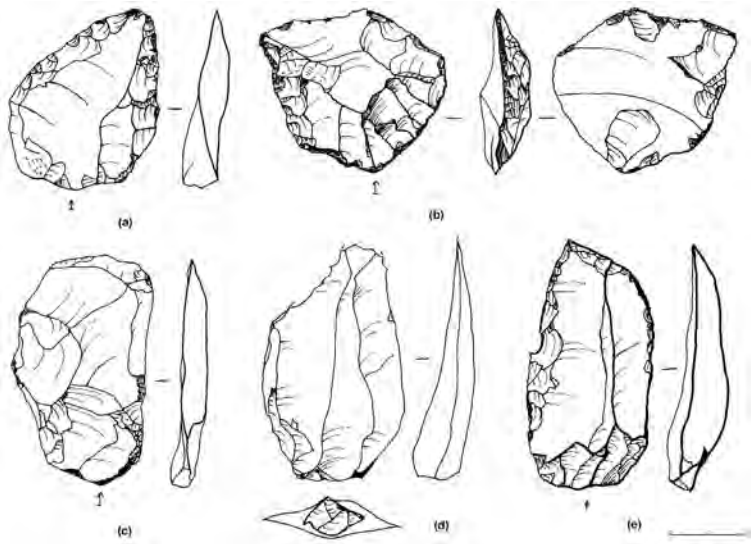

Fig. 20. Retouched tools and flakes: déjeté scrapers (a,e), inversely retouched flake [truncated facetted piece] (b), centripetal (c) and unipolar parallel (d) flakes. Scale 1:2.

is broken, a fact which potentially extends the initial length of the flake (58x52x8 mm, Fig. 22b). A few lateral scrapers are made on parallel, partially cortical blanks that form a natural back (Fig. 21a,b, 24f). This comes as no surprise since natural backs are a common feature among coastal sites, especially the ones near the Kokytos river basin (e.g. Megalo Karvounari, Morphi).[41]

Denticulates and notches Artefacts belonging to this group are frequently produced in a very opportunistic way. Denticulates average 36x30.5x9 mm in size and notches average 39x26.5x7.5 mm. No particular pattern between reduction sequences and selection of blanks for further retouch is observed; both radial/centripetal and parallel/convergent technological categories are represented. In some instances, denticulation might as well be a result of heavy utilization. There is also one flake with Clactonian notch. This category of tools probably served as general, multifunctional tools (Figs. 21e,f, 23a,c, 24e).

Points The lithic collection from Mikro Karvounari includes a large amount of points (n=14). There are a number of Levallois (n=3) and pseudo-Levallois points (n=4) some of which have been further retouched. There is also a refined example of a tanged Mousterian point and two elongated ones. Some broken proximal ends of Levallois points or tips of points have also been recorded (n=4). Besides, there are some "atypical" points or perforators, with proximal modification, whose sharp tips might have facilitated penetrating the animal hide (Fig. 24b).

A number of points exhibit proximal retouch, impact fractures or bulbar thinning (Fig. 25). In all probability these specimens served as hafted tools. European, African and Near Eastern archaeological data suggest the use of spears since at least the early Middle Palaeolithic or Middle Stone Age, if not earlier. Archaeological evidence from northwestern Europe imply that *Homo heidelbergensis* was capable of hunting large

[41] Papagianni 2000, 132.

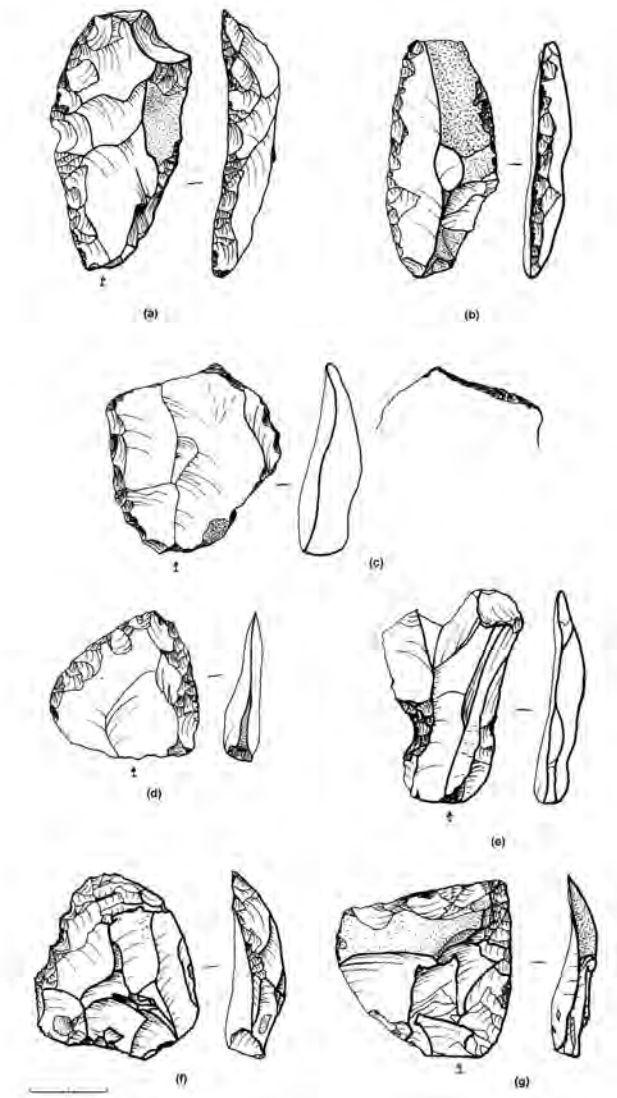

Fig. 21. Retouched tools: single scraper and notch (a), single scraper(b), bec (c), déjeté scrapers (d, g), notch (e), denticulate (f). Scale 1:2.

mammals – such as horses and elephants – from a distance using wooden spears. According to radiocarbon dates several spears date back to 400,000 BP.[42] There is a possibility for some of the points discussed here to have been manufactured by Middle Palaeolithic foragers, most probably *Homo neanderthalensis*, with the intention to arm either thrusting or throwing spears.[43]

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[42] For the wooden spears from Schöningen and Lehringen in Germany, see Thieme and Veil 1985, Veil and Plisson 1990, Thieme 1997, Thieme 2005 and Thieme 2000 as cited in Villa and Lenoir 2009. For the Clacton spear point from the UK, see Oakley *at al.* 1977.

[43] See Sisk and Shea 2009 for experimental study on Levallois points.

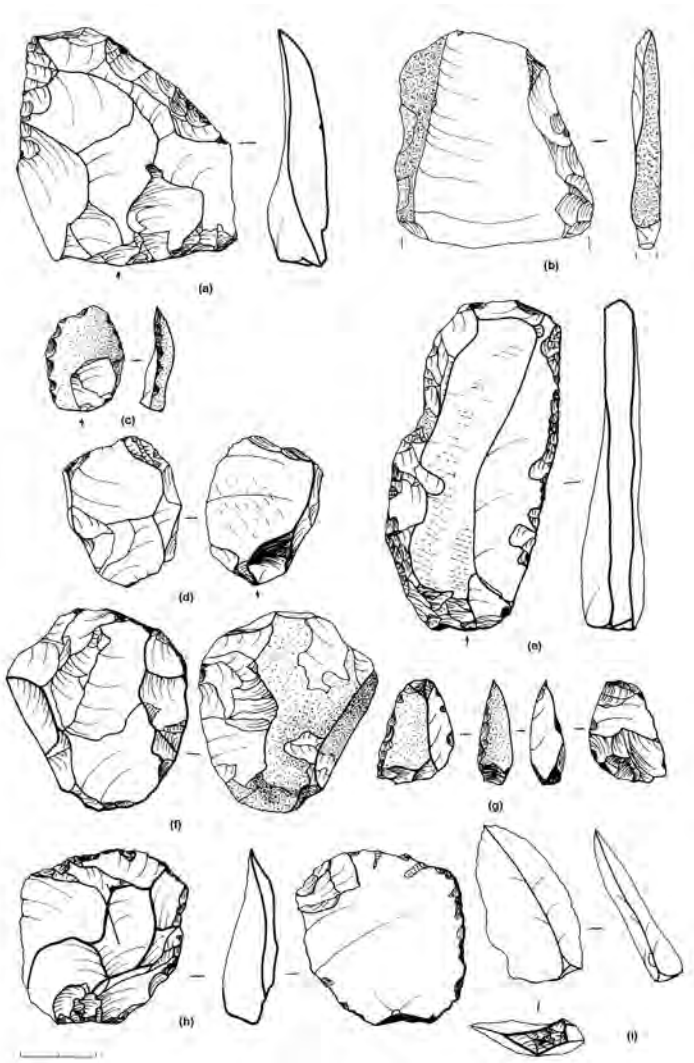

Fig. 22. Lateral scrapers (a,b,e), retouched cortical flake / raclette(c), core on a flake (d), globular core (f), inverse retouch (g,h)[truncated facetted pieces], flake with facetted butt (l). Scale 1:2.

Miscellaneous There are three typical examples of *Mousterian discs* (Fig. 26a-c) with mean dimensions 42x39.7x11 mm. Two more specimens could perhaps be classified as such, though their asymmetrical perimeter and the irregular cortex coverage would probably make them "atypical". These two specimens (Fig. 26e,f) are a bit smaller but thicker in size (mean: 37x34.5x14 mm). There is also a bifacially worked specimen which retains no cortex, and resembles the retouch encountered at leafpoints, but due to its shape and form it should probably be regarded as a bifacially worked Mousterian disc (37x38x12 mm). Such specimens should most likely be interpreted as exhausted centripetal cores which at their final stages had produced extremely small flakes. A few specimens exhibit *inverse retouch* (Fig. 24e, 22g,h, 20b), certain of which could be

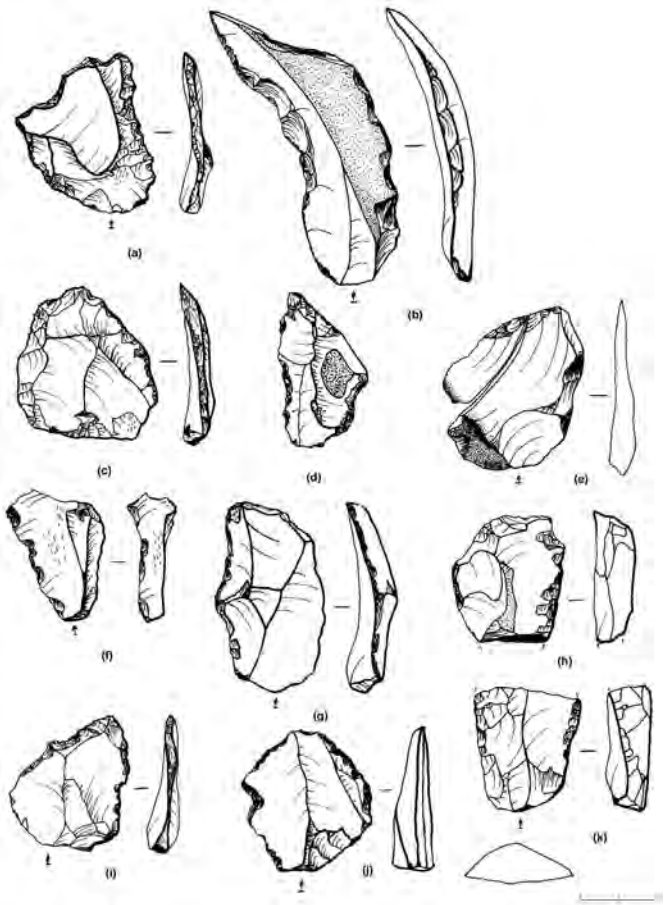

Fig. 23. Retouched tools: denticulates (a,c), piercers and denticulates (b,d), retouched pseudo-Levallois points (e,i), retouched flakes (f,g,j), single scraper (h), double scraper (k). Scale 1:2.

also classified, according to Dibble and McPherron, as *truncated-faceted pieces*.[44] Both Mousterian discs and perhaps truncated-facetted pieces as well, served as cores whose by-products were flakes of small dimensions. Thus it should be accepted that Mousterian industries included small-scale flakes not as unwanted debris but as intentionally knapped pieces.

Upper Palaeolithic types The Upper Palaeolithic tool types[45] are represented by two perforators or *piercers* (Figs. 23b,24b), one *bec* (Fig. 21c) and four more specimens; two *endscrapers*, one double *burin* and a *crested blade* (Fig. 27). The double burin has been produced on a large blank of 81x29x20 mm size. The distal end of a snapped laminar flake has been turned into an endscraper by means of invasive, stepped retouch. The only crested blade present is an indication of a particular type of core preparation rather than

[44] Dibble and McPherron 2007.
[45] Sensu Bordes 1961; Debénath and Dibble 1994.

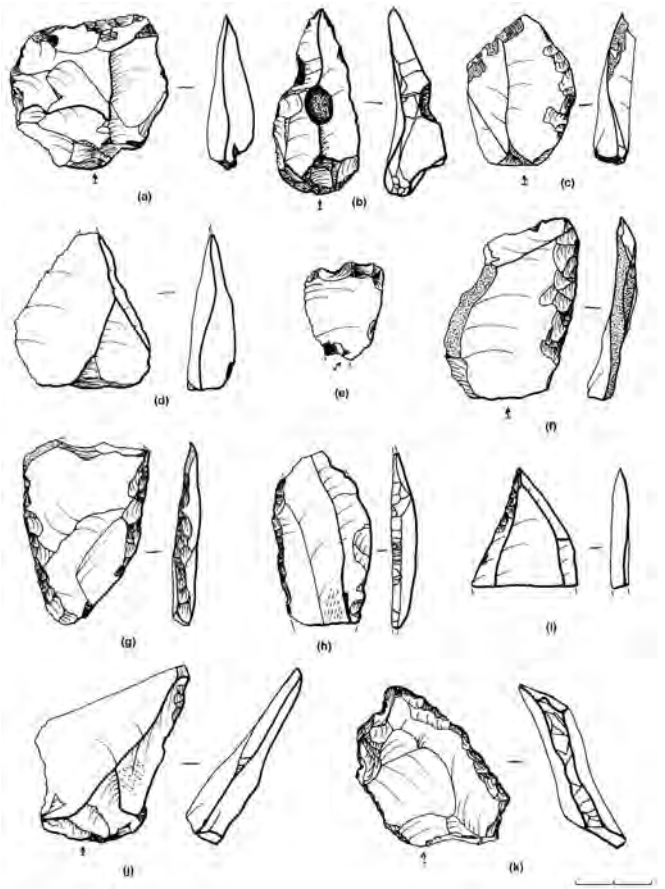

Fig. 24. Retouched tools: retouched flake (a), notched point/piercer (b), single scraper (c, h), broken point (d), inversely notched piece (e), scraper with natural back (f), double scraper (g), retouched tip of a point (i), retouched pseudo-Levallois point (j), transverse scraper and denticulate (k). Scale 1:2.

a tool by itself. Crested blades are characteristic of later periods when prismatic core preparation becomes more standardized with the objective of producing thin, elongated blades. Burins, on the other hand, are tools made by the removal of burin spalls. Burin spalls are the debris whereas the sharp angle created by their removal was probably used for the preparation of organic material such as bone and antler. Such activities have traditionally been associated with the Upper Palaeolithic and the emergence of modern humans; however, a number of recent studies have proved that this is not the case.[46] Finally, the high frequency of *naturally backed knives* (n=8) is a common feature among the coastal sites of Epirus and is probably related to the use of small pebbles as raw material.[47]

[46] See for example McBrearty and Brooks 2000.
[47] Papagianni 2000.

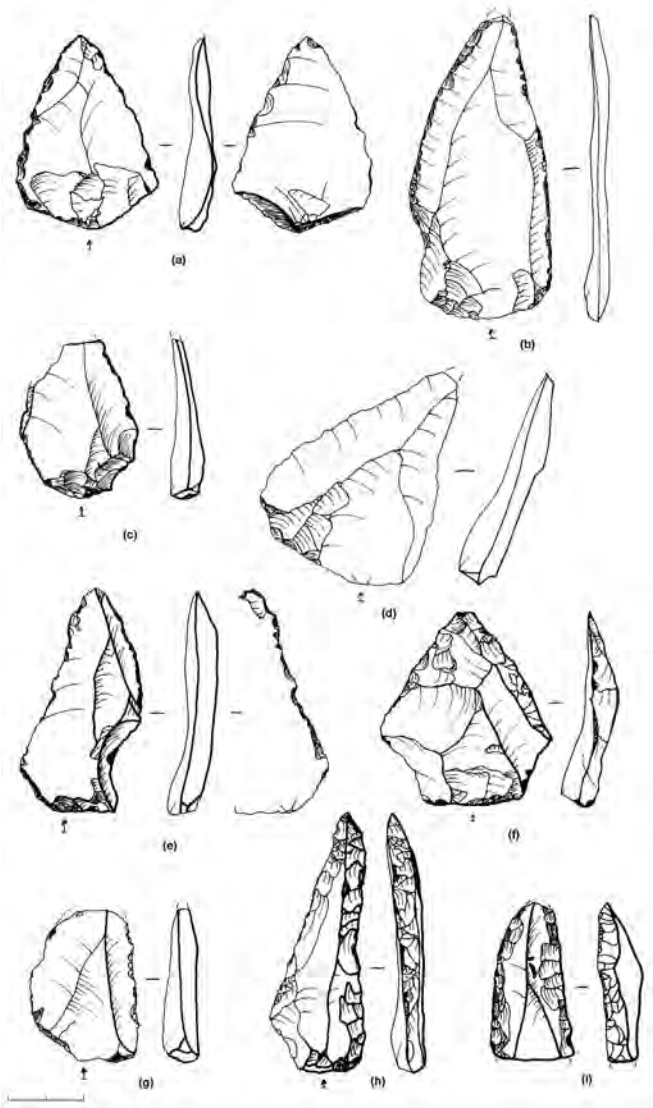

Fig. 25. Points: retouched Levallois points (a,b,e), broken Levallois points (c,g), pseudo-Levallois point (d), tanged Mousterian point (f), elongated Mousterian points (h,i). Scale 1:2.

Chronological patterns

"'Contemporaneity' is an arbitrary concept with no absolute measure"

Bailey 2007

In 1966, Higgs and Vita Finzi proposed a model of chronological division for the surface lithic collections of Epirus in relation to the altitude of the sites.[48] The site of "Karvounari"[49] was included in the *low level industries* as was Morphi and Kokkinopilos. On the other

[48] Higgs and Vita Finzi 1966.

[49] They were probably referring to Megalo Karvounari.

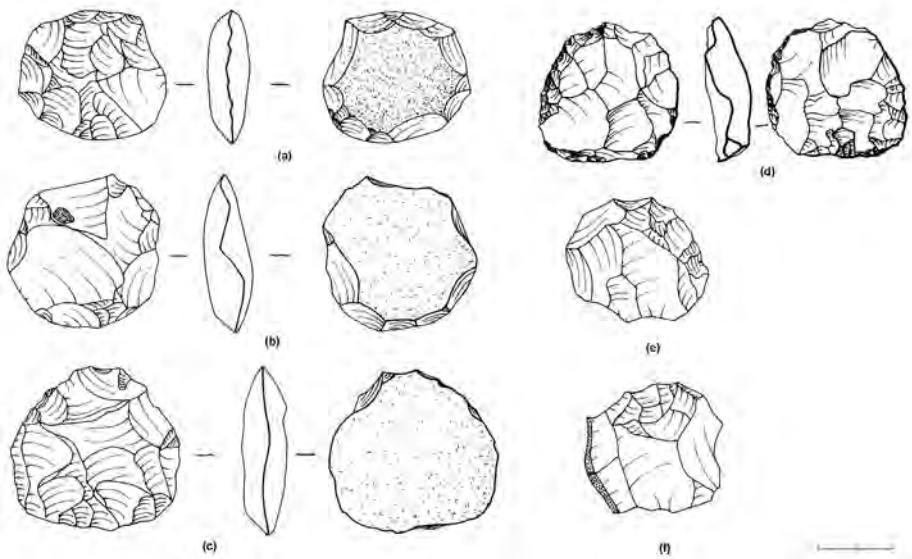

Fig. 26. Mousterian discs (a,b,c), small centripetal cores classified as Mousterian discs (e,f), bifacially retouched Mousterian disc (d). Scale 1:2.

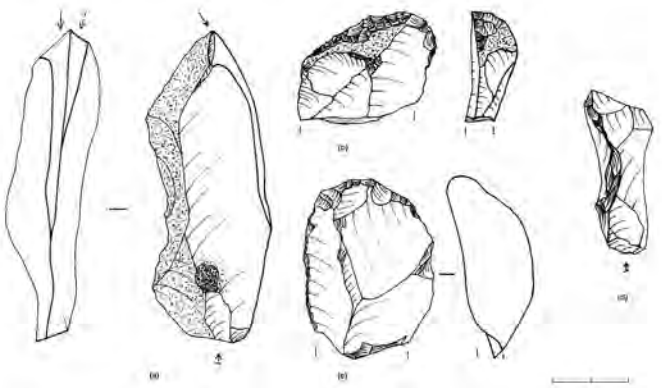

Fig. 27. Upper Palaeolithic types: burin (a), endscrapers (b,c), crested blade (d). Scale 1:2.

hand, *high level* industries were identified "in patches high up on the hillsides".[50] Artefact size and typology were the factors for the division, which was later challenged by a new pattern. Instead of altitude, proximity to the sea was the new aspect for division.[51] Mikro Karvounari was included in the coastal sites, together with Megalo Karvounari, Morphi and a few more sites near the Ionian coast. Coastal sites, in contrast to the Louros Valley sites, are dominated by the regular use of the Levallois technique and the production of thin, elongated flakes and blades. As expected, both patterns were in accordance with

[50] Higgs and Vita Finzi 1966, 5.
[51] Papaconstantinou and Vassilopoulou 1997; see also Bailey *et al.* 1992.

the Asprochaliko division between *basal Mousterian* and *upper Mousterian*.[52] Affinities between the basal Mousterian of Asprochaliko and Mikro Karvounari, as part of the coastal sites, were proposed.[53]

Indeed, in the new collection from Mikro Karvounari, the "big blade element"[54] of the basal Mousterian is present, as is the use of Levallois technology with the aim of producing elongated flakes (Fig. 16). At the same time, an aim of producing small, pointy flakes (Fig. 15) is present and probably related to the discoid cores. At the basal Mousterian levels of Asprochaliko such an aim was also detected.[55] However, pseudo-Levallois points are usually associated with the upper Mousterian and the "Asprochaliko flakes".[56] Nonetheless, 25 pseudo-Levallois points were found at the basal Mousterian levels as well. These might have either been produced by the same method or not, and it is not yet clear if they are intrusive.[57] Although a couple of small cores on flakes (Fig. 22) are present in the lithic collection from Mikro Karvounari, an association with the characteristic "Asprochaliko method" cannot be proposed. Furthermore, a large amount of Mousterian points and lateral scrapers were found in the upper Mousterian levels of the rockshelter.

It is evident that the Asprochaliko stratigraphic context cannot provide a clear-cut pattern for the chronological subdivision of the Mousterian industry from Mikro Karvounari. Both phases are probably represented but impossible to separate. What is totally lacking from Mikro Karvounari is the bifacial element in means of bifaces and bifacial leafpoints. The only open-air site with the whole range of technological and typological variability is Kokkinopilos, a major red bed deposit at the Louros Valley.

In the natural borders between Epirus and Thessalia, at the foot of the Chasia mountains, lies a recently excavated cave with Middle Palaeolithic deposits, Theopetra. Three chronological subdivisions of the Middle Palaeolithic industry have been proposed.[58] Affinities with Mikro Karvounari can be observed in the middle Mousterian layers due to the presence of a number of Levallois points and the extensive use of recurrent Levallois cores. At the same time, the upper Mousterian levels contain bipolar cores, also present at Mikro Karvounari, though at lower frequencies. Mousterian points are present both in the middle and upper Mousterian levels of the cave dated to between 46 to 35 ka BP.[59] The absence of Quina scrapers from Mikro Karvounari does not allow any association with the lower levels of the cave, since, according to Panagopoulou, "Quina" is the characteristic element of these earlier deposits.[60]

On the other hand, Mousterian technology, especially when compared to the Upper Palaeolithic industries, seems to be unaltered through time. Many researchers have focused on the "static" nature of Middle Palaeolithic industries and their significance as far as mental abilities and adaptation skills of Middle Palaeolithic foragers are

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[52] Gowlet and Carter 1997; Papaconstantinou 1988.
[53] Papaconstantinou and Vassilopoulou 1997, 479.
[54] Gowlett and Carter 1997, 448-449.
[55] Gowlett and Carter 1997, 448.
[56] Papaconstantinou and Vassilopoulou 1997, 463, fig. 47.
[57] Gowlett and Carter 1997, 450; Papagianni 2000, 28.
[58] Panagopoulou 2000.
[59] Panagopoulou 2000; Valladas *et al.* 2007.
[60] Panagopoulou 2000.

concerned.[61] In the open-air sites of the Preveza region, chronologically separated sites have typologically and technologically similar tools.[62] Consequently, although it is useful to observe affinities in different assemblages, it would be extremely speculative to propose a detailed chronological scheme for the surface collection from Mikro Karvounari based on the excavated data sets. What will be attempted, though, is the appreciation of the behaviour and subsistence strategies of Middle Palaeolithic foragers to the degree which the lithics at hand permit. Although limited palaeoanthropological information comes from the Greek sites, it has widely been accepted that the species who manufactured and utilized Mousterian assemblages in the Balkans and Greece was *Homo neanderthalensis*.[63]

Neanderthal subsistence patterns in the Kokytos river basin

> "In this world of few rivers and fewer floodplains, poljes and loutses were the principal source of water for aquatic life, birds, and mammals including large herbivores and vegetation that could also supply many human subsistence needs throughout the year or in the long dry seasons of the last pleniglacial"
>
> *van Andel 1998*

Rapid climatic oscillations were the norm for Middle Palaeolithic foragers. Thus, *Homo neanderthalensis* needed to be able to adapt in a constantly altering environment. Mikro Karvounari is today one of the many featureless, infertile areas of Epirus which are regarded as badlands and occasionally used only as grazing territory. However, during the Palaeolithic, these landscapes were very attractive for the groups of foragers.[64] The water resources with their rich vegetation would attract both animals and hominids, especially in periods when climatic and environmental pressures were higher. Although in warmer episodes both faunal and floral resources would be available, in the multiple colder episodes the exploitation of animal resources would be the only means of subsistence.[65] Hunting as well as scavenging have been proposed as the main subsistence strategies employed by Neanderthal groups.[66] Various studies have put emphasis on one of the two strategies; however, what seems more probable is the combination of the two methods depending on environmental stress.[67]

Although no faunal remains are available from the study area, an examination of the European Middle Palaeolithic record and the evidence coming from excavated caves in Greece can give us a picture of the faunal preferences of Middle Palaeolithic hominids. In particular, medium and large herbivores such as cervids, equids and bovids were their prime prey species.[68] European data associate Neanderthals with smaller prey such as reptiles or shellfish, a fact which shows little differentiation from the Upper

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[61] See Dibble and Mellars 1992.
[62] Runnels and van Andel 2003; Papagianni 2000; Papagianni 2008.
[63] Harvati *et al.* 2009; Galanidou 2004; Gowlett 1999.
[64] Runnels 1995, 712; van Andel 1998, Runnels and van Andel 2003.
[65] See Winder 1997.
[66] See Villa and Renoir 2009, 60 for discussion on this issue; Kuhn and Stiner 2006, 956.
[67] Villa and Renoir 2009.
[68] Mellars 1996, 193-244.

	LP	MP and RLP	P-LP
Megalo Karvounari	2	0	4
Mikro Karvounari[75]	(1+3) 4	(0+7) 7	(0+4) 4
Agia	0	0	3
Morphi	4	1	0
Kokkinopilos	7	13	16
Stephani	0	0	1
Gortses[76]	0	2	0
Iliovouni	1	0	0
Alonaki SS92-2	1	0	0
Melission new gorge	1	0	0
Tsepelovon fan	1	0	0
Ormos Odysseos	1	0	0
Sampsous	1	0	0
Skepasto	2	0	0
Argyrades	2	0	5
Strogia	1	0	0

Fig. 28. Frequencies of points in the Epirotic open-air sites. LP = Levallois point, MP = Mousterian point, RLP = Retouched LP, P-LP = pseudo-Levallois point

Palaeolithic preferences.[69] In Epirus, the Mousterian levels of Asprochaliko were associated with extinct megafauna such as rhinoceros, aurochs, bison, buffalo, antelope and wild horse together with chamois, deer and small vertebrates.[70]

How important was Mikro Karvounari in the Neanderthal subsistence map of northwestern Greece? What has already been mentioned about the new lithic collection is the presence of an unusual amount of points. According to Villa and Renoir, "the impression of low frequency of points in the Mousterian assemblages is at least in part due to different ways of counting artefacts".[71] However, excluding the pseudo-Levallois and "atypical" points, still, a large number of Levallois and Mousterian points – which are presented in Fig. 25 – cannot but imply hunting activity. What is more, points are also present at the neighbouring sites of Megalo Karvounari and Morphi. Such a concentration of hunting tools towards the Kokytos river basin supports a hypothesis of intensive or repeated episodes of hunting activities in the region. Both sites of Megalo Karvounari and Morphi are situated on the road connecting the Kokytos valley with *Lake Kalodiki*, a large lake in the Preveza region which is still today rich in faunal and floral resources. It is probable that these sites were attractive to herds of mammals since Palaeolithic times.

Kokkinopilos, situated at the Louros Valley, is the only open-air site with such a high concentration of points. Fig. 28 presents the frequencies of points in open-air sites of Epirus and Kerkyra (Corfu) collected by four different archaeological survey projects.[72] During most of the Middle Palaeolithic period, Kerkyra was connented to mainland Epirus due to sea level changes.[73] Apart from the data included in Fig. 28, it should be noted that Levallois points were found in a few more sites, although the exact number is unknown. These sites are Anavatis quarry, Loutsa SS94-12, Agios Thomas and Chilia Spitia.[74] Mousterian points were also found at Loutsa SS94-12, Eli, at several places on

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[69] Stiner 1993 and Zilhao 2006 as cited in Villa and Lenoir 2009.
[70] Higgs and Vita Finzi 1966.
[71] Villa and Lenoir 2009, 71.
[72] Dakaris *et al.* 1964; Bailey *et al.* 1997; Runnels and van Andel 2003; Papagianni 2000; Elefanti *et al.* 2009.
[73] Runnels and van Andel 2003; Papagianni 2000, 22.
[74] Elefanti *et al.* 2009.
[75] Old + new collection total.
[76] The exact location of Gortses site is unknown, but it should be located in the Louros Valley within the area of Asprochaliko. See Papagianni 2000, 64.

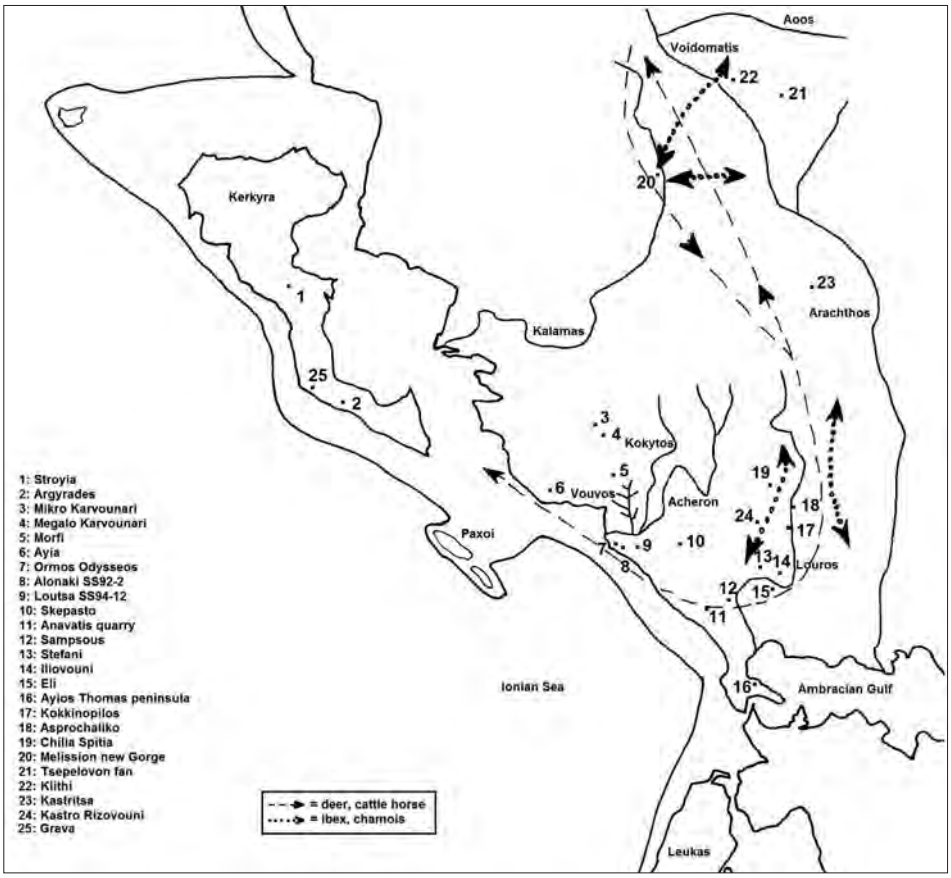

Fig. 29. Locations of open-air sites with Levallois and Mousterian points. Rock shelters and caves of the region as well as migration animal routes are also marked. (After Sturdy *et al.* 1997; Papagianni 1999; Runnels and van Andel 2003.)

the Agios Thomas peninsula (up to five points recorded), on the Ambracian Gulf and at Kastro Rizovouni. These stray finds were interpreted by Runnels and van Andel as "clear evidence of off-site human activity, probably representing hunting losses".[77]

In respect of the mobility patterns of the modern Sarakatsani groups, Higgs' team proposed a palaeoenvironmental model according to which Upper Palaeolithic foragers would follow the herds of the migrating megafauna.[78] This model was further developed by Bailey's team. A logistic residential mobility pattern was proposed in this case.[79] Fig. 29 indicates the sites of northwestern Greece where Middle Palaeolithic points have been found, while the migration routes of large herbivores have been drawn according to this later model.[80] It is not unfeasible to imagine a similar pattern for Middle Palaeolithic

[77] Runnels and van Andel 2003, 113
[78] Higgs and Vita Finzi 1966.
[79] Bailey *et al.* 1993.
[80] Sturdy *et al.* 1997, 610, fig. 30.25.

foragers as well.[81] Since a detailed palaeoenvironmental and faunal record is required but absent, the previous assumption is rather a future working hypothesis than a proper theory. Besides, it has been argued that: "Even though our knowledge about hunting in pre-Upper Palaeolithic contexts is very limited, it is beginning to be apparent that there are more similarities than dissimilarities in the faunal record, reflecting hominid subsistence patterns during the Middle and Upper Palaeolithic".[82]

In short, what can be assumed is that different groups of Middle Palaeolithic foragers were attracted to Mikro Karvounari. Roebroeks has pointed out that the most important tool for Middle Palaeolithic foragers was the "extensive knowledge of a wide range of animal behaviour".[83] The site of Mikro Karvounari is located on the route leading to the polje of Saita which is also today a small seasonal lake (Fig. 1). Thus, it seems possible for animal herds to have moved from the area of the Kokytos river valley, and perhaps its seasonal lake *Nerotopos*, towards Saita through the red bed of Mikro Karvounari. In a logistic pattern, Middle Palaeolithic foragers would move through the landscape 'knowing' their prey's migration routes. Additionally, as far as hunting is concerned, perhaps the site's terrain composed natural traps for the herds of small, medium or even large-size mammals. Interestingly, most of the Levallois and retouched Levallois points (n=4) have been collected from Unit 1, where at the same time is the entrance to the red bed through a relatively narrow path between two hills (Figs. 1, 5).

Did the site of Mikro Karvounari serve only as a hunting stand, then? It seems unlikely, as a large amount of knapping debris, cores and flakes has also been found, together with a large number of scrapers and a variety of other multipurpose tools. Several activities such as stone tool manufacture or resharpening, cutting and scraping of meat and hides, consumption of herbivore meat and marrow, in addition to preparation of wood and antler probably took place at the site. As stated by Runnels and van Andel, Middle Palaeolithic camps of the Preveza region were situated "along the margins of the poljes partly to be on well-drained ground and partly to avoid scaring off the game".[84] In accordance with the lithics, it might be equally possible for Mikro Karvounari to have served as a temporary camp site and a hunting stand too.

Later Component

A later component is also present at Mikro Karvounari. In particular, a concentration towards the northwest end of the red bed (Unit 5) has yielded a number of artefacts which represent groups of individual knapping episodes. Similarities in raw material and proximity of artefacts allow the following assumptions.

Refit group A

The raw material for these artefacts is a medium / good-quality grey flint with few inclusions. Artefacts display medium degree of patination (grade 2) which is present mainly through spots on the whole surface. A number of 15 artefacts are included in this

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[81] See also Sturdy *et al.* 1997, 602.
[82] Gaudzinski 2000, 404; see also Villa and Lenoir 2009.
[83] Roebroeks 2003, 107.
[84] Runnels and van Andel 2003, 107.

Fig. 30. “Refit Group A” artefacts from Unit 5.

group: three whole flakes, ten broken flakes or laminar flakes and two flakes of less than 20x20 mm (Fig. 30). Two out of four butts are linear; there is also one dihedral and one facetted butt on a laminar fragment. No cores of this category have been collected. At the same time no cortex is retained on flakes and fragments.

What can be suggested is that these specimens were produced in the course of a single knapping episode from which only unwanted or utilized specimens were left on site; whereas end-products, which could possibly be laminar or flake blanks further retouched, were carried away by their knapper. Possibly the only core exploited in this episode followed the knapper’s route as well, since an exhausted core of no further use would have most probably been discarded at site. Though it is difficult to specify a

Fig. 31 “Refit Group B” artefacts from Unit 5.

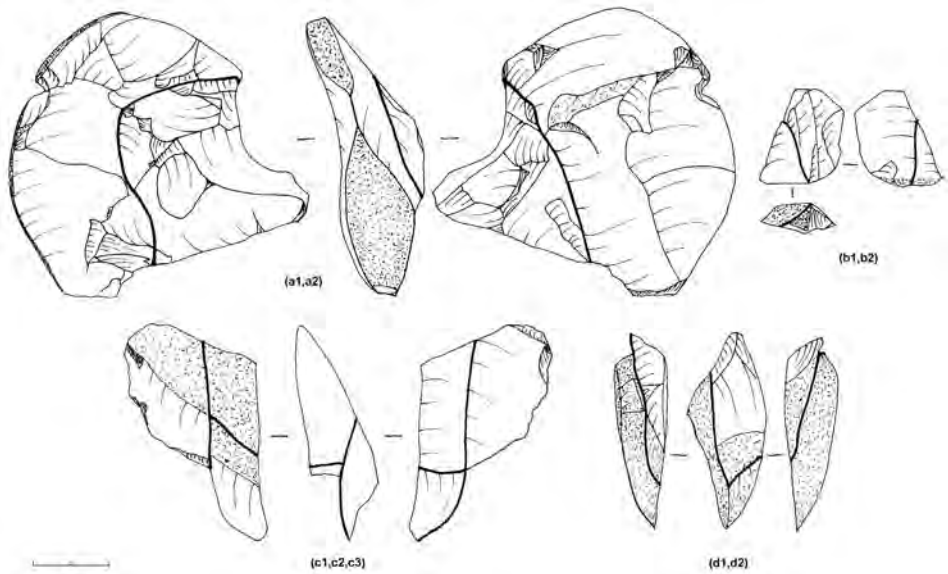

Fig. 32. "Refit Group B": four refits of nine conjoining artefacts. Scale 1:2.

chronological threshold, the absence of diagnostic Mousterian artefacts, in addition to the limited degree of patination, increases the possibility of a post-Mousterian date for the manufacture of this group of artefacts.

Refit group B

A second and most intriguing group of artefacts, coming from Unit 5 as well, consists of 33 specimens: one bipolar core, 14 flakes, nine fragments and four conjoins (Figs. 31-34). This group of artefacts was made out of dark red / brown good-quality flint of the type usually encountered in the area. The same kind of flint was employed during the Middle Palaeolithic as has already been discussed. The patination process has begun, yet it is at an early stage. The majority of butts are either flat (54.5%) or linear (18.2%); there are also two cortical and one winged. No facetted butts are present in this group. The only core present was made on a flint pebble with minor preparation and demonstrates sub-parallel negative scars of opposite directions. The by-products of this core, perhaps laminar blanks, have been removed from the site. There are also quite a few fragments, nine of which are complementary (Fig. 32). A rounded nodule (cobble?) is indicated as raw material in this case as well. Unfortunately, none of these are diagnostic or indicative of the reduction sequence which took place at the time. All conjoins retain cortex and seem to be debris from the initial phases of core reduction.

What can be deciphered from this second group of conjoining artefacts is the assumption that a single episode of knapping took place, perhaps not far from the exact spot of discovery, if not *in situ*. The great debate regarding the geological history of the Epirotic red beds has shown that it is difficult to identify *in situ* archaeological evidence, although not impossible.[85] The mint condition of the specimens and their edges enhances

[85] For the different views see Dakaris *et al.* 1964; Higgs and Vita Finzi 1966; van Andel 1998; Runnels and van Andel 2003; Pope 1984; Bailey *et al.* 1992; see also Tourloukis 2009.

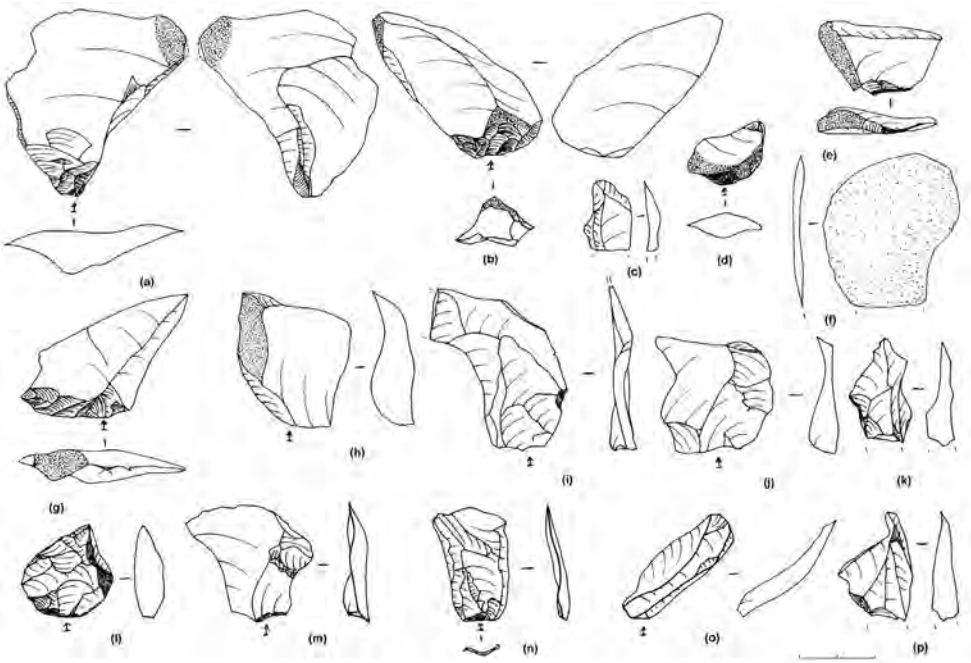

Fig. 33. “Refit Group B”: flakes. Scale 1:2.

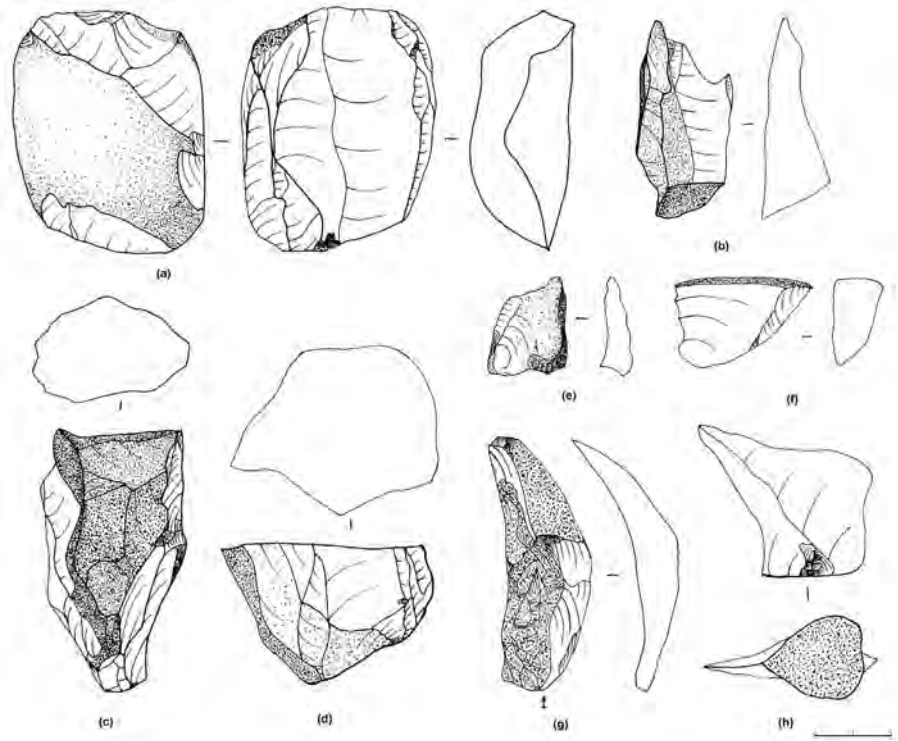

Fig. 34. “Refit Group B”: bipolar parallel core (a), flake (g) and knapping debris (b-h). Scale 1:2.

the hypothesis that they must not have travelled far due to geological or environmental conditions. At the same time, the limited degree of patination somewhat reduces our hopes of an early date for this assemblage. A geological analysis of this part of the site might shed light on its geological history and subsequently on archaeological interpretations.

Late Upper Palaeolithic/Mesolithic assemblage

A few diagnostic tools suggest continuity in the use of Mikro Karvounari by Late Upper Palaeolithic or Mesolithic groups of *Homo sapiens*. It has been argued that Mesolithic foragers favoured coastal sites, in contrast to Upper Palaeolithic foragers whose preference was for the hinterland.[86] In view of the fact that Mesolithic sites have been recently discovered by the Thesprotia Expedition, it has become clear that early Holocene foragers had occupied parts of the Kokytos river basin as well.[87] However, the assemblage from Mikro Karvounari lacks the number of diagnostic artefacts (e.g. microliths) which would securely attribute it to the Mesolithic period. The presence of a few characteristic tools, though (e.g. "thumbnail" endscraper etc.), allows us to assume that Mesolithic foragers were aware of the site and had perhaps exploited it for a short period of time.

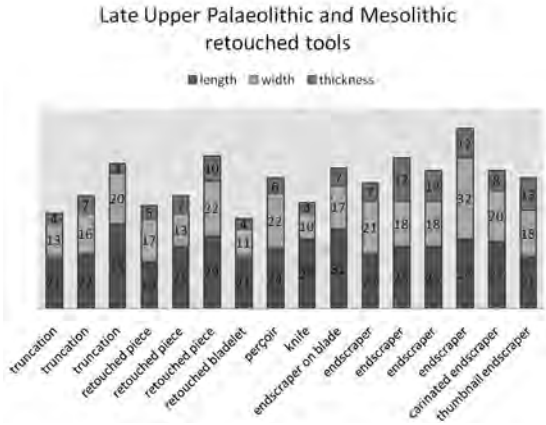

Fig. 35. LUP and ML metric data for retouched tools (measurements in mm).

The raw materials used for the artefacts of this assemblage seem to be local, from the greater vicinity of the Kokytos river basin. Mauve and green coloured flints, although impossible to identify in the Middle Palaeolithic industry, have also been used at the early Holocene sites of PS 3 and PS 43 respectively.[88] 24.1% of these artefacts are plain flakes; flake and bladelet cores are represented by 16%, and 43.8% consist of small blades, bladelets and retouched tools (Fig. 35-38).

Occasional proximal retouch in blades and retouched tools might imply hafting practices. Composite tools are a common feature by this era, thus it is not unlikely for certain of the specimens discussed in this section to have been parts of such tools. A snapped tip of an elongated bladelet with nibbling retouch could have served as a hunting tool (Fig. 38v). Hunting activities have been proposed for Mesolithic sites of the Preveza region as well.[89] There are also a *perçoir* (Fig. 38x) and a number of different endscrapers (Fig. 38z-d',i') which imply several activities such as resharpening or manufacture of

[86] Bailey *et al.* 1997.
[87] Tourloukis and Palli 2009; Galanidou, forthcoming in Thesprotia Expedition III.
[88] Tourloukis and Palli 2009; Galanidou, forthcoming in Thesprotia Expedition III.
[89] Galanidou, forthcoming in Thesprotia Expedition III. Runnels and van Andel 2003.

LUP/ML	Cores	Flakes	Blades	Ret. tools	Other[90]	Total[91]
n	14	21	20	18	14	87
%	16	24.1	23.1	20.7	16	100

Fig. 36. Late Upper Palaeolithic and Mesolithic assemblage structure.

tools, procession of hides or even food consumption. These later specimens are scattered through the whole site with an emphasis at the narrowest part of it (Units 1 and 2) which at the same time is the southeast entrance to the red bed, from the Kokytos valley direction. All the cores come from this part as well. However, the *perçoir* and the endscrapers seem to be concentrated a bit further up the hill (Unit 3).

A few earlier artefacts have been retouched and reused. For example, an exhausted flake core was turned into an endscraper at a later date, as different degrees of patination indicate (grade 3 for the blank, grade 2 for the retouch, Fig. 38i'). Furthermore, a heavily patinated (grade 4) Middle Palaeolithic scraper has got a notch of a later date on the distal end (Fig. 21a). For the groups of foragers who revisited the site during the Late Pleistocene and the early Holocene, the abundance of fine-grained flint nodules and tools, practically speaking, was an extra source of raw material. Several other aspects regarding identity, memory and perception of the past could be raised by the association with material remains of past societies. As Bradley points out, "the results of ancient activity would have been visible to people in prehistory as they can still be identified today".[92] Different approaches would be applied by different groups of hominids. How would Mesolithic foragers interpret the lithic specimens which were deposited at earlier periods? Were they curious about the people who manufactured these tools and exploited the same area before them? Did they recognize technological traits and were they aware of the presence of different groups of hominids? It is hard to say, judging only by the lithics discussed in this paper. What is certain, though, is that the artefacts were not ignored. On the contrary, they served as raw material and were further utilized.

Such landscapes, today recorded as "places of special interest" (PS), comprise a patchwork of prehistoric activities which in temporal terms is rather demanding if not impossible to set apart. These *actively created* palimpsests,[93] although often regarded as problematic for archaeological interpretations, had been the source of rich benefits for many generations of two different forager species, *Homo neanderthalensis* and *Homo sapiens*.

Overview/Concluding remarks

The analysis of the new lithic collection from Mikro Karvounari agrees with the existing patterns according to which coastal sites exhibit a high frequency of the Levallois technique and a tendency towards the production of elongated blanks. As in most of the

[90] Unidentifiable debris/fragments.
[91] It should be noted that some of the unidentifiable debris of less than 20x20 mm which has been excluded from detailed analysis (total of 62 specimens) might be attributed to this assemblage; thus the total could potentially be higher.
[92] Bradley 2002, 156.
[93] Bailey and Galanidou 2009, 218.

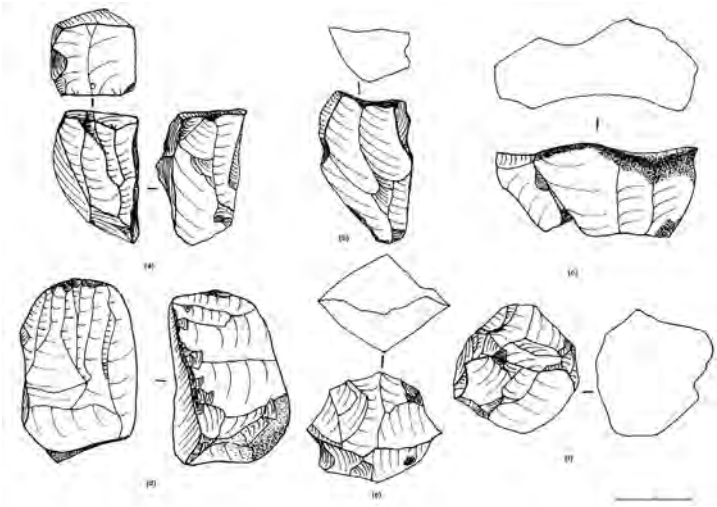

Fig. 37. LUP / ML cores: unipolar parallel cores (a,b), bipolar core (c), unipolar parallel core with two prepared platforms (d), discoid core (e), globular core (f). Scale 1:2.

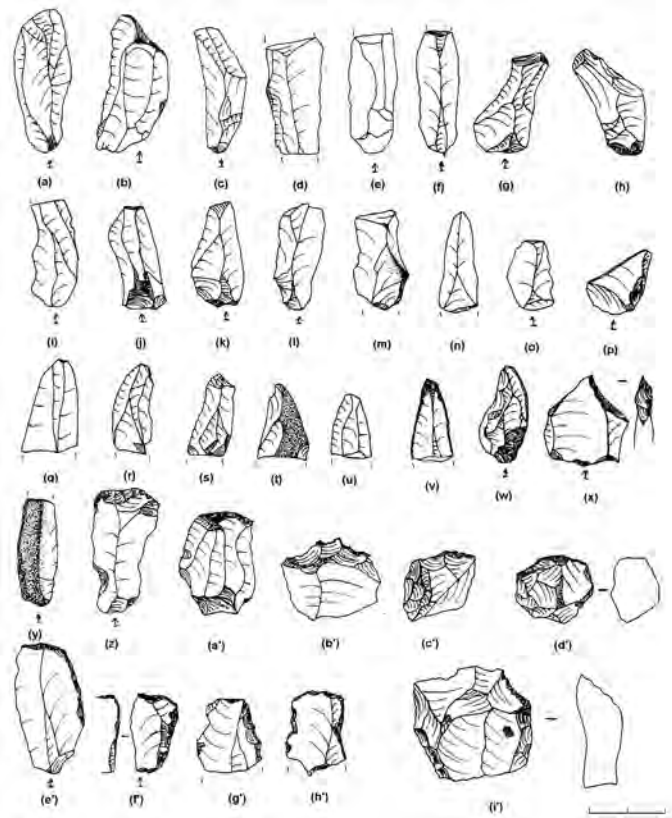

Fig. 38. LUP/ML tools: blades and bladelets (a-n, q-u), flake (o), retouched flake (p), nibbling retouch (v,w), piercer (x), [naturally] backed knife (y), endscrapers (z-c', i'), thumbnail endscraper (d'), truncations (e'-h'). Scale 1:2.

coastal sites, the lateral scraper is the predominant type of retouched tools. However, an additional feature differentiates the site from the other open-air sites of Epirus and opens up new aspects regarding the subsistence strategies of Middle Palaeolithic foragers. In particular, the large amount of Levallois and Mousterian points almost certainly implies hunting activities. Still, the site of Mikro Karvounari should not be interpreted as a hunting stand exclusively. Different activities such as tool manufacture, hides procession, food preparation and consumption together with hunting activities must have taken place at the area. The quantity and quality of artefacts collected from PS 23, and the affinities with Megalo Karvounari and Morphi, prove that the basin along the Kokytos river offered to the groups of early hominids the exact opposite of what Pausanias called *ὕδωρ ἀτερπέστατον* (a most unpleasing stream).[94] The faunal and floral resources provided by the waters of Kokytos had been very attractive for both animals and hominids of the Palaeolithic. Its natural terrain was an important element for the exploitation of animal prey as it probably formed a natural trap for the herds of smaller or larger mammals moving through the water resources of the basin.

Furthermore, a couple of conjoining artefact groups is another interesting feature of the new collection. Due to the lack of characteristic Mousterian artefacts and their limited degree of patination, these specimens have been classified as post-Mousterian. Although a chronological threshold for these groups of artefacts is difficult to assess, questions regarding the *in situ* theory might potentially be raised in accordance to the geo-chronological patterns proposed for sites such as Kokkinopilos.[95] Diagnostic artefacts of the Aurignacian tradition are absent or impossible to detect, though present at a part of the adjacent open-air site of Megalo Karvounari[96] and further south at the early Upper Palaeolithic Spilaion.[97] However, small blades, bladelets and characteristic retouched tools point to a late Upper Palaeolithic or Mesolithic date. Such a mixture of Mousterian and early Holocene assemblages is not unusual for the Kokytos river basin. Specifically, PS 3, a Mesolithic site situated not far from Mikro Karvounari, has yielded a total of 534 artefacts, 39 of which are of earlier date, perhaps Middle Palaeolithic.[98] There is a similar picture at the early Holocene site PS 43, where a small number of artefacts seem to be Middle Palaeolithic as well.[99] Mikro Karvounari is on the other hand predominantly a Middle Palaeolithic site with a post-Mousterian component.

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[94] Paus. 1.17.5, referring to the Kokytos river and explaining why Homer connected Hades with the Acheron and Kokytos rivers.
[95] Runnels and van Andel 2003.
[96] Ligkovanlis, this volume.
[97] Runnels *et al.* 2003.
[98] Tourloukis and Palli 2009.
[99] Galanidou, this volume.

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Megalo Karvounari Revisited

Stefanos Ligkovanlis

Introduction and background

When the Thesprotia Expedition, investigating the diachronic occupation of the Kokytos valley in Thesprotia, revisited the Palaeolithic open-air site Megalo Karvounari (PS 22), this resulted in the recovery (through an intensive surface collection of archaeological material) of a large quantity of stone artefacts. Of particular interest is the surface survey carried out in a clearly delimited part of the site, U(nit) 24. With the help of a grid system, a total of 1,601 Palaeolithic stone artefacts were brought to light. In this chapter I present the results of the technological and typological study of the U 24 finds, and examine their contribution to the discussion of the Palaeolithic occupation of Megalo Karvounari and the region of northwest Greece in general.

Megalo Karvounari is located 3 km south of the homonymous village in the Paramythia district, 22 km southeast of Igoumenitsa and 11 km from the nearest present-day coastline (Figs. 1-2). It is a large drainage basin measuring approximately 33,000 m², surrounded by low hills and full of characteristic terra rossa deposits. The site has been known since the 1960s. It was identified by E. Higgs and his team in the context of the first Cambridge University surface survey in Epirus, when it was described as 'a large but circumscribed area of red earth'.[1] More recently it has been realised that Megalo Karvounari is an ancient polje consisting of terra rossa deposits, 'deeply dissected by recent erosional gullies'.[2] The Cambridge team collected approximately 1,200 stone artefacts from Megalo Karvounari without reporting their exact findspots. Although the original publication of these finds was lacking in detail,[3] two relatively recent technological and typological studies of these finds describe a stone industry with characteristics of the Middle Palaeolithic period, including a low percentage (3.6%) of unpatinated or lightly patinated artefacts of later date.[4] The large number of finds from Megalo Karvounari, and the way they were scattered extensively across the landscape, show that this was an important open-air site for the human communities of the Middle Palaeolithic.

Spatial and temporal context of U 24

In the summer of 2005, a Thesprotia Expedition team, under the direction of Jeannette Forsén, undertook a surface collection of archaeological material at Megalo Karvounari,

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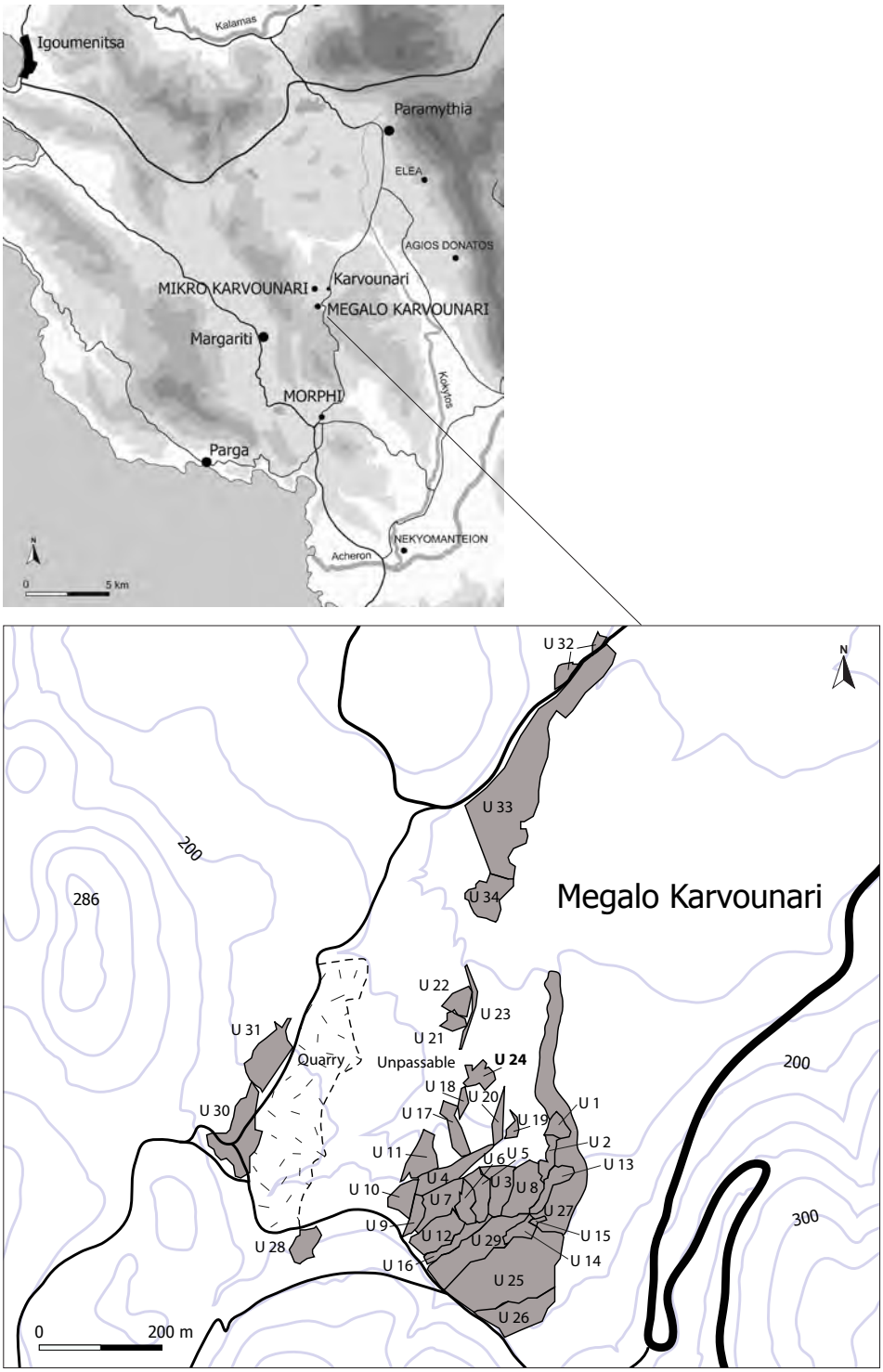
[1] Higgs 1965, 364. I would like to thank Björn Forsén and Jeannette Forsén for the invitation to study the finds from Megalo Karvounari. It could not have been realised without the contribution and assistance of the staff of the 32nd Ephorate of Antiquities and the program "Heraklitus II". I am also grateful to Nena Galanidou for the help she has offered. Figs. 1-2 are by Esko Tikkala and Fig. 3 by Sarianna Silvonen. The drawings of the lithics were made by the author and inked by Nikoletta Dolia. All other illustrations are by the author.

[2] Papagianni 2000, 47.

[3] Higgs and Vita Finzi 1966.

[4] Papaconstantinou and Vasilopoulou 1997, 465; Papagianni 2000, 48.



Figs. 1-2. Megalo Karvounari in its regional setting.

50 years after the first archaeological investigation of the area. Of particular interest is the surface collection carried out in U 24. An up-to-date methodology differentiates it from the other surveyed parts of the site, rendering its finds a contextualized study sample.

U 24 is located at the north part of Megalo Karvounari. It comprises an almost rectangular area of approximately 1,400 m^2, enclosed by clumps of trees, essentially a clearing. In its present form, the site is inclined on the east-west axis, while the terra rossa deposits are constantly eroded by seasonal streams produced by rainfall (Figs. 2-4). This results in hillocks of terra rossa, a landscape also seen in many similar parts of Epirus (e.g. Morphi, Kokkinopilos).

For the requirements of the surface survey, U 24 was divided into 14 squares measuring 10x10 m and the finds on the surface of the ground were collected (Fig. 3). The 1,601 flint artefacts collected from U 24, together with three pieces of limonite, are the only types of find on this site. The finds were bagged and labeled by square, while any large, spatially distinct concentrations within the squares were noted. This detailed recording of the find contexts could potentially help us to identify spatial patterns of site use, if any preserved in primary archaeological deposition.[5]

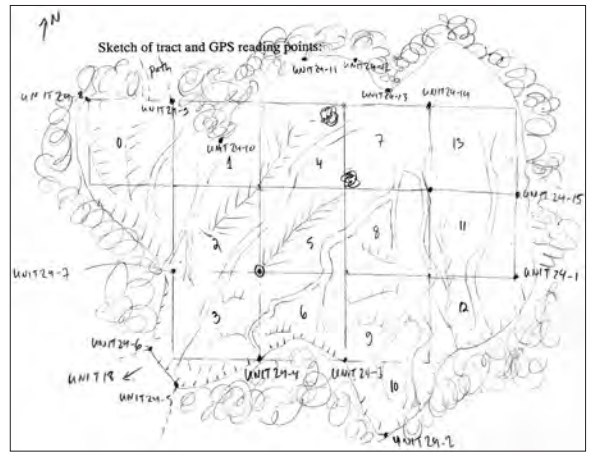


Fig. 3. Drawing of Unit 24 Squares, vegetation and routes of erosional gullies.

Fig. 4. Eroded terra rossa hillock slope in U 24.

In the summer of 2009 we revisited the U 24 area and observed that, due to the constant erosion of the terra rossa deposits, a larger number of stone artefacts could be collected by using the same recovery methodology. The course of the seasonal streams formed by rainfall was visible. These streams, combined with the wind, erode the deposits,

[5] For further discussion of the possibility of recovering archaeological material in primary contexts on terra rossa sites see Dakaris *et al.* 1964; Bailey *et al.* 1992; Papagianni 2000; Runnels and van Andel 2003, van Andel and Runnels 2005.

Square and square concentration	0	1	2	3	4	4 c1	5	6	7	8	8 c1	9	9 c1	9 c2	9 c3	9 c4	10	11	11 c1	12	13	13 c1	Total
Unpatinated or lightly patinated degrees 0, 1, 2	10	11	1	2	15	69	27	1	5	135	70	19	83	21	15	11	24	5	8	17	3	36	588
Heavily patinated degrees 3, 4	56	0	35	11	45	172	84	15	14	129	34	26	97	32	12	15	40	9	21	9	0	60	916
Multiple patina degrees 0+3, 1+3, 2+3	0	7	0	0	5	4	5	1	1	18	13	3	15	2	5	1	6	3	1	3	0	4	97
Total	66	18	36	13	65	245	116	17	20	282	117	48	195	55	32	27	70	17	30	29	3	100	1601

Fig. 5. Distribution of stone artifacts in squares and square concentrations by patina.

Square and square concentration	0	1	2	3	4	4 c1	5	6	7	8	8 c1	9	9 c1	9 c2	9 c3	9 c4	10	11	11 c1	12	13	13 c1	Total
IND	29	14	17	7	38	118	60	2	18	164	59	30	112	29	19	17	35	12	23	18	3	63	887
c	0	0	0	0	1	0	0	0	0	1	6	1	1	1	0	0	1	1	0	0	0	0	13
t	0	0	0	0	0	2	1	1	1	2	0	0	2	0	0	1	2	0	1	0	0	1	14
pf	29	14	17	7	37	116	59	1	17	161	53	29	109	28	19	16	32	11	22	18	3	62	860
UP	3	1	6	2	11	75	28	5	1	61	45	12	38	14	7	5	15	2	2	9	0	19	361
c	0	0	1	1	0	7	3	0	0	12	11	2	5	1	2	0	1	0	0	1	0	2	49
t	3	1	3	1	7	23	8	5	0	17	9	7	20	7	1	2	13	1	2	5	0	9	144
pf	0	0	2	0	4	45	17	0	1	32	25	3	13	6	4	3	1	1	0	3	0	8	168
MP	34	3	13	4	16	52	28	10	1	57	13	6	45	12	6	5	20	3	5	2	0	18	353
c	4	0	2	0	1	0	3	1	0	3	3	0	11	0	2	0	2	0	0	0	0	0	31
t	16	1	5	1	5	17	14	4	1	25	7	3	19	5	1	2	7	3	3	0	0	8	147
pf	14	2	6	3	11	35	11	5	0	29	3	3	15	7	3	3	11	0	2	2	0	10	175

Fig. 6. The distribution of stone artifacts in squares and square concentrations by date (assessed on the basis of typological and technological features). IND = Indeterminate, UP = Upper Palaeolithic, MP = Middle Palaeolithic, c = cores, t = tools, pf = plain flakes.

constantly revealing artefacts on the surface of the soil and on the slopes of the terra rossa hillocks (Figs. 3-4). Many of these objects are then washed down from the upper to the lower levels of the site, forming larger concentrations of stone artefacts there. Our observations made on site during the 2009 visit to U 24 were fully confirmed during the first stages of studying the stone artefacts. A high percentage of artefacts bore distinct traces of rolling (mainly flakings due to natural causes), while only 30% of the artefacts were intact. The largest distinct concentrations of artefacts within the squares, recorded in the project day-books during their collection, came from the lower levels of the site (Figs. 3, 5-6), due to the mechanism of erosion and their transportation there from higher up, while attempts to refit artefacts originating from a single square or concentration proved fruitless.

Apart from the traces of rolling, the surfaces of the artefacts also showed other forms of weathering and patination,[6] while on 7% there was a type of lichen present. Although the heavily patinated artefacts formed the majority and presented clear Middle Palaeolithic technological and typological features (e.g. Levallois cores, sidescrapers on Levallois flakes), there was also a significant number of lightly patinated and unpatinated artefacts, while many objects bore two or even three different degrees of patination on their surface (Fig. 5). Generally speaking, the lightly patinated and unpatinated artefacts were technologically and typologically different (e.g. bladelet cores, scrapers on blades) from the heavily patinated artefacts. However, the recognition of Upper Palaeolithic features on heavily patinated artefacts discouraged the 'automatic' temporal classification of units based on the degree of patination. In any case, it is generally accepted that patina is not a reliable indication of age.

All the above observations led us to the conclusion that the lithic collection from U 24 came from a secondary archaeological context, essentially forming a palimpsest which might, at first glance, be placed in the Middle and Upper Palaeolithic. Given the palimpsest character and mixed nature of the recovered assemblage, I focused on those technological and typological elements which might shed more light on the character and date of occupation at U 24 (Fig. 6).

Of the assemblage recovered, 887 artefacts were not possible to be dated with any certainly diagnostic elements which would help us place them in a cultural unit, or being items which might form part of either the Upper or the Middle Palaeolithic industry. The vast majority of this group consists of flake and blade fragments (mostly with a maximum diameter under 3 cm), knapping debris, many primary flakes, and a few cores or core fragments of uncertain technology and date. This category also included a few borers, burins and truncations which could belong to either an Upper or a Middle Palaeolithic toolkit.

The Middle Palaeolithic component of U 24 (n=353)

The 31 cores and 322 pieces of debitage comprising the Middle Palaeolithic component form a sample that reflects trends during Mousterian at U 24. Good-quality fine-grained flint was used for the stone industry; the exact type is hard to determine due to the high

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[6] The patina on the artefacts was recorded on a scale of 0-5 based on the degree of surface discoloration: 0 = unpatinated, 1, 2 = lightly patinated, 3, 4 = heavily patinated artefacts.

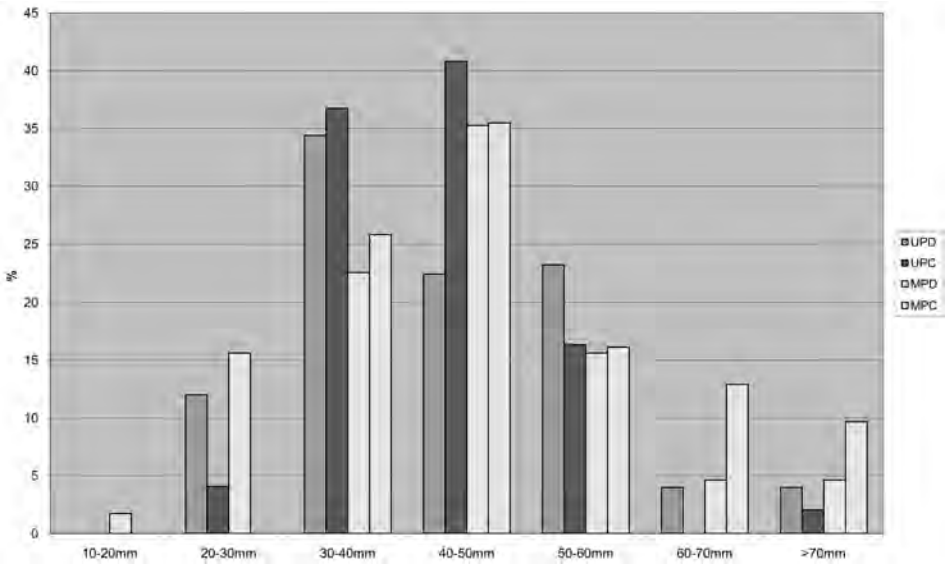

Fig. 7. Size distribution of intact artefacts in Upper and Middle Palaeolithic component debitage (UPD=125; MPD=173) and cores (UPC=49; MPC=31).

degree of patination covering most of the surfaces of the artefacts in this group. However, the study of recently broken surfaces of artefacts which had not yet been fully discoloured by patina allowed us to identify a variety of flint types, mainly grey, red and reddish-brown.

The length distribution of the intact artefacts (debitage and cores) of the Middle Palaeolithic component (Fig. 7) shows an assemblage of relatively large objects, with a clear tendency to elongation of the final products (54 [31%] pieces of debitage with a length-width ratio of over 1.5) (Fig. 8). The Levallois technique is the dominant core reduction method, chiefly through its centripetal variations, linear and recurrent,[7] producing mostly oval flakes (Figs. 9: i-ii; 10: vi; 11: i). However, there are also examples of parallel reduction Levallois method, intended to produce elongated artefacts (Fig. 9: iv). There are also examples of large, rectangular cores indicating the use of non-Levallois flaking methods, which bear traces of parallel bipolar flaking and prepared striking platforms (Fig. 10: i). This type of core also produces elongated artefacts, which are difficult to

Debitage (intact artifacts)	Upper Palaeolithic component	Middle Palaeolithic component
Flakes	15 (12%)	119 (68.79%)
Laminar flakes	15 (12%)	42 (24.28%)
Blades	70 (56%)	12 (6.94%)
Bladelets	25 (20%)	0
Total	125	173

Fig. 8. Relative frequency of debitage type in Upper and Middle Palaeolithic component.

[7] Böeda 1993.

distinguish from those produced by parallel Levallois reduction methods (Figs. 10: iii-iv; 11: vi). Three typical discoid cores (Fig. 9: iii) were also found.

The same reduction method characteristics were identified during the study of the dorsal scars of the pieces of debitage. The only difference in this category consists of artefacts with convergent dorsal scars (Fig. 11: ii,vii-viii) (many of these are Levallois points produced by either centripetal or parallel Levallois cores), while no corresponding cores were found in our sample. As has been proposed,[8] it is very likely that this kind of debitage is produced during parallel reduction.

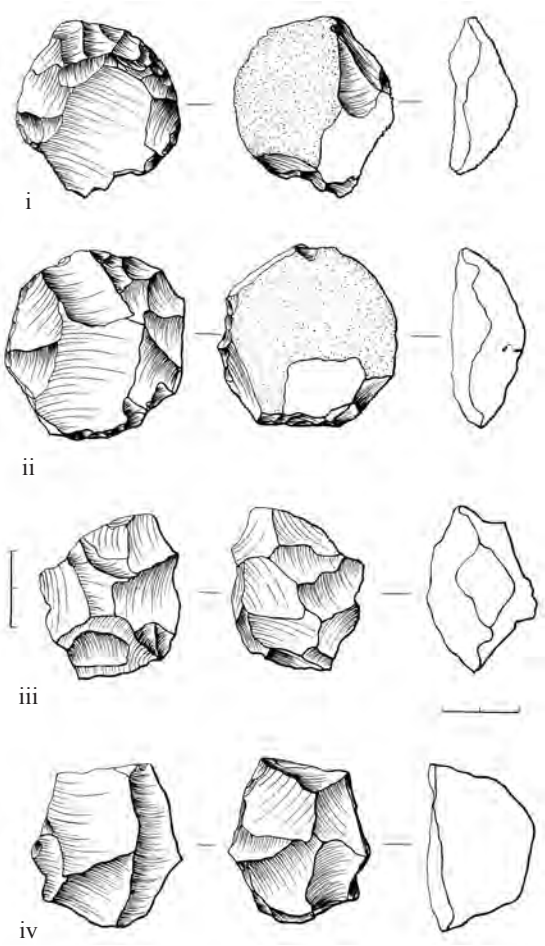

Fig. 9. Middle Palaeolithic component. i, ii, iv) Levallois cores, iii) disc core. Scale 1:2.

Debitage produced by means of the use of parallel reduction generally has a greater mean length (46.2 mm) than that produced by centripetal reduction methods (40.4 mm). The centripetal cores appear to result in more effective exploitation of the raw material than the parallel cores, if we examine the mean length of the scars of the last detached products and the debitage betraying the corresponding reduction method. Moreover, it cannot be excluded that primary flaking methods could change during the reduction of cores (mainly from parallel to centripetal reduction), according to the percentages of cores and the corresponding debitage in the sample. Debitage indicating parallel flaking is more numerous than the corresponding cores, whereas debitage indicating centripetal flaking is less numerous than the corresponding cores. However, these observations are not absolutely safe due to the limitations of the palimpsest.

In typological terms, apart from the abundant technologically defined tools sensu Debeneath and Dibble (i.e. unretouched Levallois points, unretouched pseudo-Levallois points, naturally backed knives)[9] (Figs. 11: iii-vii, 16), the stone industry from U 24 seems

[8] Papagianni 2000, 45.
[9] Debeneath and Dibble 1994, 43-55 (typical and atypical Levallois flakes are not included).

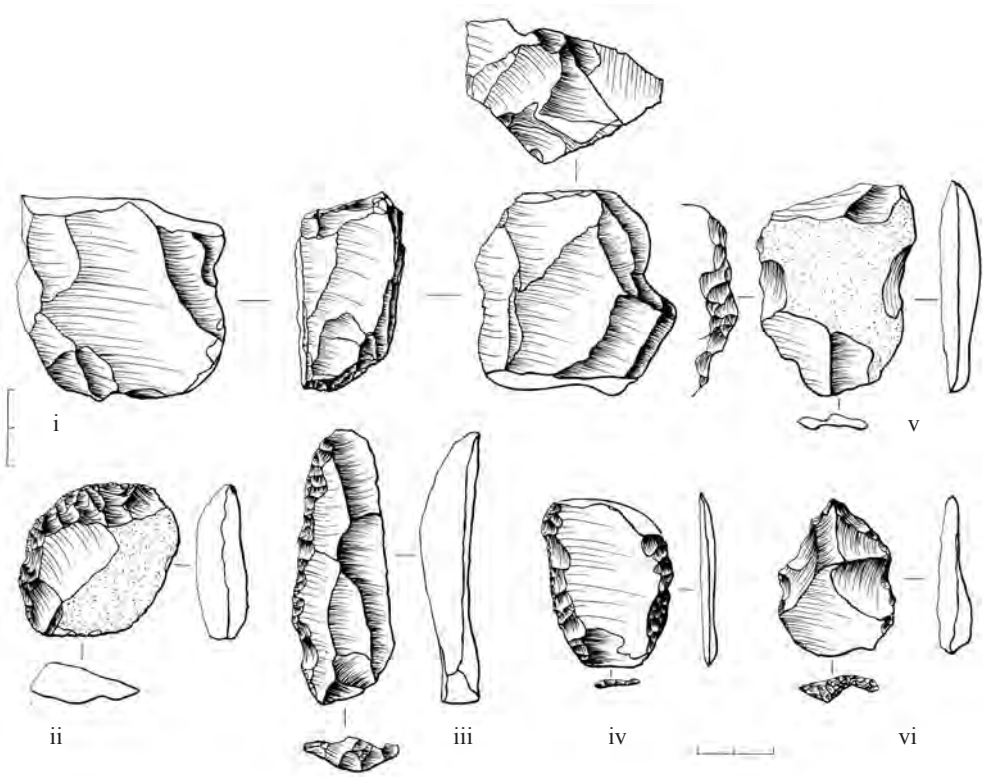

Fig. 10. Middle Palaeolithic componenet. i) «prismatic» core, ii, iii, iv, v) sidescrapers, vi) Mousterian point. Scale 1:2.

fairly 'typical', with various types of sidescraper predominating in the tools category (Fig. 10: ii-v). Retouching is mainly scaled and of reasonably good quality, although there are also three examples of stepped retouch of the Quina and demi-Quina type. The resharpening of sidescrapers, measured following Kuhn's Geometric Index,[10] is not very intensive (Fig. 17). Of particular interest from a typological point of view are two rabots on thick blanks (Fig. 11: iv) and a group of small objects with invasive bifacially flat retouch, referred to in the bibliography by many different names (Mousterian discs, Tata scrapers, etc.)[11] (Fig. 11: ix). Tools usually referred to in the bibliography as 'Upper Palaeolithic types'[12] were also classified in the Middle Palaeolithic component (e.g. 9 borers, 3 endscrapers, 2 truncations). I considered these objects to be Mousterian products based on their type of blank (e.g. Levallois flakes, pseudo-Levallois points) and the atypical character of their retouch (e.g. borers with very small pointed tips) (Fig. 15). As regards technology, artefacts produced by a specific reduction method do not appear to have been used as blanks to make a specific type of tool. The tool butts do not differ significantly from those of the unretouched flakes (Fig. 14).

[10] Kuhn 1990; Hiscock and Clarkson 2005.
[11] Debeneath and Dibble 1994, 88, 124.
[12] Debeneath and Dibble 1994, 93-102.

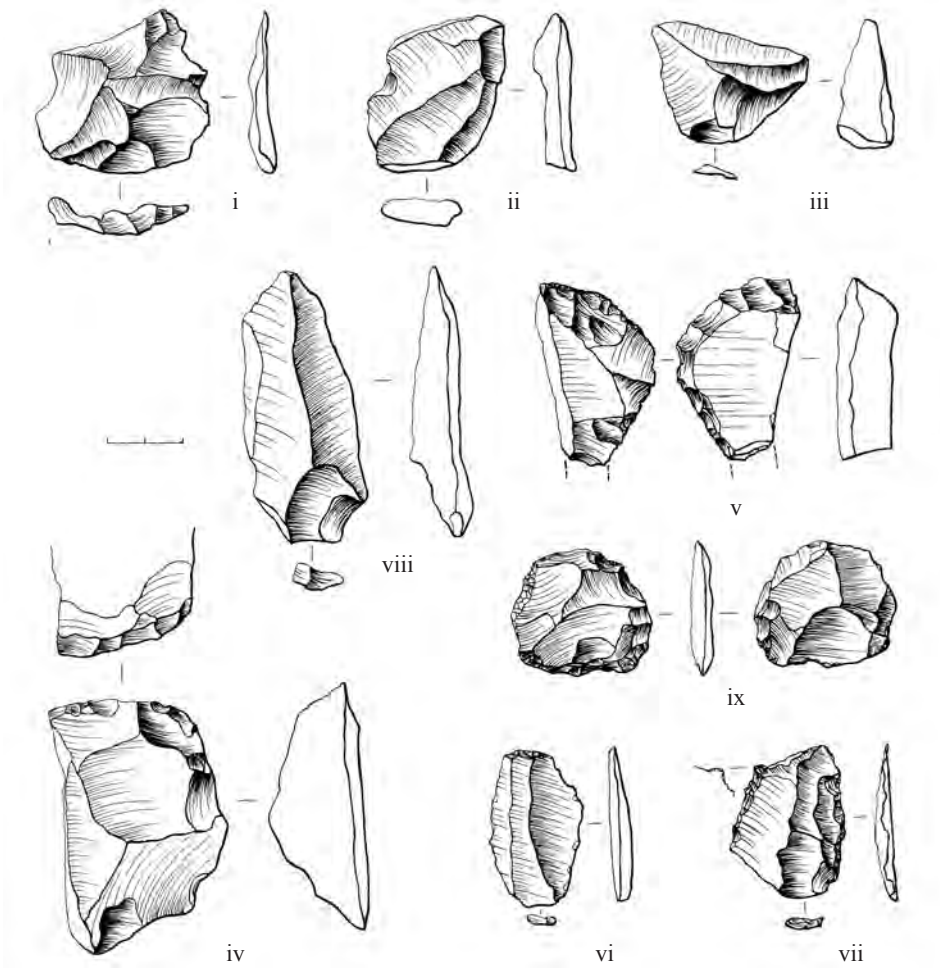

Fig. 11. Middle Palaeolithic component. i) denticulate, ii) notch, iii) Pseudolevallois point, iv) rabot, v) hachoir, vi) truncation, vii) sidescraper and borer, viii) elongated Levallois point, ix) bifacially retouched piece. Scale 1:2.

Compared to the published Mousterian assemblage from Megalo Karvounari,[13] the Middle Palaeolithic component of U 24 does not appear significantly different. The main features observed previously, such as the tendency towards elongation of debitage, the predominance of centripetal reduction methods, and the predominance of sidescrapers in the tools category, are confirmed by our study, the only difference being that the bipolar parallel reduction method is more common than the unipolar. I believe, however, that this is only to be expected at sites representing palimpsests of multiple depositions of lithic material.

In conclusion, therefore, the Middle Palaeolithic assemblage from U 24 is a 'typical' example of Mousterian industry, with abundant use of the Levallois method, and presenting common features with the assemblages identified at other Palaeolithic open-air sites in

[13] Papaconstantinou and Vasilopoulou 1997, 465-466; Papagianni 2000, 48-50.

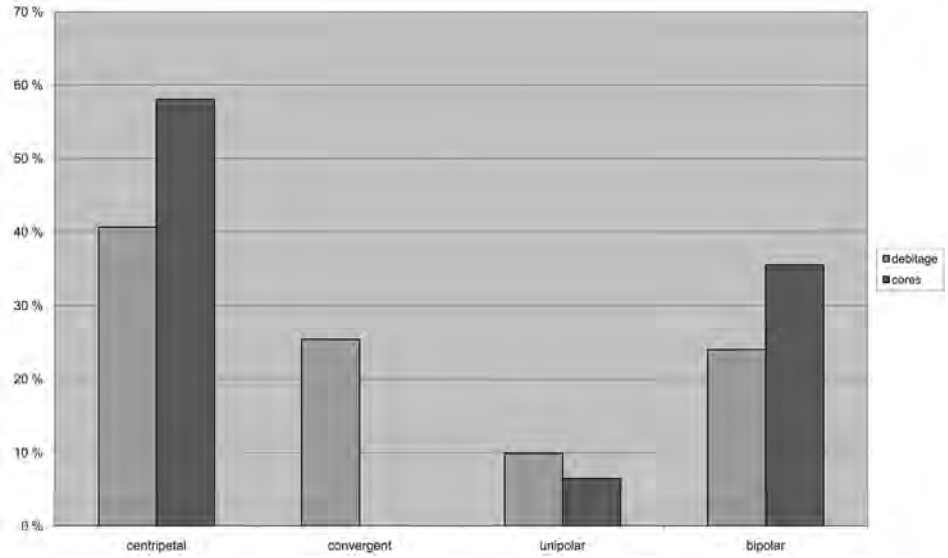

Fig. 12. Middle Palaeolithic component: relative frequencies of reduction methods on debitage and cores.

Reduction method	Cores	Last detached blank	Corresponding Debitage
Centripetal mean length (mm)	45.4	29.9	40.4
Deviation	11	8.5	13.8
Parallel mean length (mm)	54.1	46.2	46.2
Deviation	19	15.9	11.8

Fig. 13. Middle Palaeolithic component: mean length of cores, their last detached blank, and corresponding debitage on the basis of reduction methods.

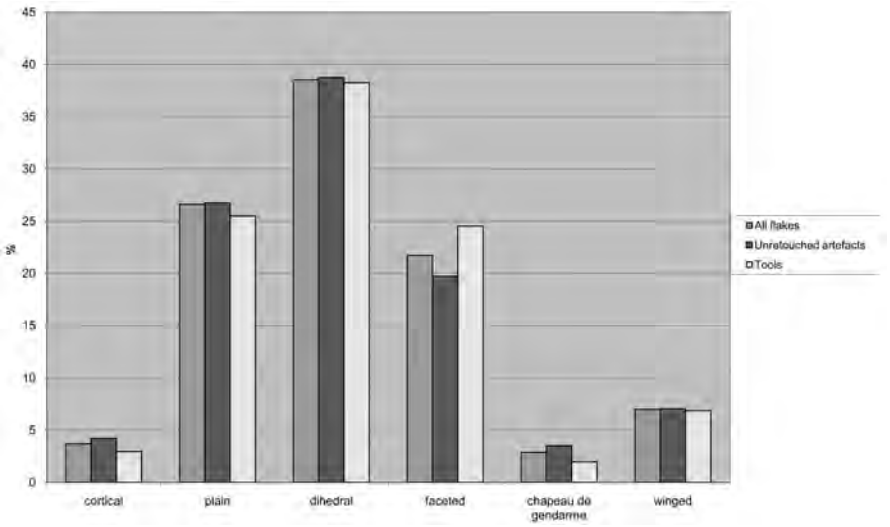

Fig. 14. Middle Palaeolithic component: relative frequencies of butts on all flakes, unretouched artefacts and tools.

the so-called coastal zone of Epirus (e.g. Morphi, Alonaki).[14] This type of stone industry, as noted elsewhere,[15] resembles the basal Mousterian of the Asprochaliko Rockshelter, which is dated to around 102 Kyr BP,[16] as well as stone industries of the same period from the Theopetra Cave in Thessaly.[16]

The high degree of technological and typological variability identified in the Mousterian industry of U 24 is similar to that found at other Palaeolithic open-air sites of Epirus.[18] It is certainly a limiting factor in providing any interpretation of the diachronic use of the area. At Megalo Karvounari, however, as at the majority of similar large open-air sites in Epirus, the data provided by the lithic assemblages confirm a multidimensional use of the area. All types of stone flaking product are present in the Mousterian component of U 24 (cores, primary flakes, unretouched flakes, tools), demonstrating that flakes and tools were produced there, while it is very probable that many of the retouched artefacts were discarded on the spot after being worked and used on the same site. However, we cannot say whether Megalo Karvounari was a base camp during the Middle Palaeolithic, or whether the use of the area changed according to the needs of the hominids who visited it during the Mousterian period. What

Sidescrapers	57	(38.09%)
straight	8	(5.44%)
convex	26	(17.68%)
concave	3	(2.04%)
transverse	1	(0.68%)
double straight- convex	3	(2.04%)
double straight-concave	1	(0.68%)
double convex-convex	1	(0.68%)
on interior surface	9	(13.23%)
bifacial retouched	3	(2.04%)
denticulate	2	(1.36%)
Mousterian points	2	(1.36%)
Notches	39	(26.53%)
Denticulates	19	(13.61%)
Tayac points	1	(0.68%)
Endscrapers	3	(2.04%)
Borers	9	(6.12%)
Truncations	2	(1.36%)
Hachoirs	1	(0.68%)
Rabots	2	(1.36%)
Stemmed point	1	(0.68%)
Composite tools	3	(2.04%)
sidescraper + borer	3	(2.04%)
Pieces with bifacial retouch	8	(5.44%)
Total	147	

Fig. 15. Typology of tools identified in the Middle Palaeolithic component.

Unretouched Levallois points	20
Unretouched Pseudolevallois points	13
Naturally-backed knives	6

Fig. 16. Middle Palaeolithic component technologically defined tools.

Sidescraper type	Single	Double	On interior surface	Denticulate	
Index of resharpening	0.52	0.56	0.3	0.51	Total 0.47

Fig. 17. Middle Palaeolithic sidescraper Kuhn's reduction index (t/T).

[14] Papaconstantinou and Vasilopoulou 1997; Papagianni 2000.
[15] Papagianni 2000, 80.
[16] Huxtable *et al.* 1992.
[17] Panagopoulou 2000; Valladas *et al.* 2007.
[18] Papaconstantinou and Vasilopoulou 1997; Papagianni 2000. (However, there are also some differences such as the low percentages of prepared butts in the basal Mousterian of Asprochaliko.)

is certain, though, is that the site must be seen within the context of the wider network of occupation of the Epirus area during the Middle Palaeolithic, in which the ancient wetlands now delimited by the terra rossa deposits seem to have played a very important part.[19]

The Upper Palaeolithic component of U 24 (n=361)

Very little information on the Upper Palaeolithic period at open-air sites in Epirus has so far come to light. Although some post-Mousterian artefacts are mentioned at certain sites (e.g. blades, bladelet cores), they are too few for us to draw a safe conclusion regarding the character of site use during the Upper Palaeolithic period. The exception (of the

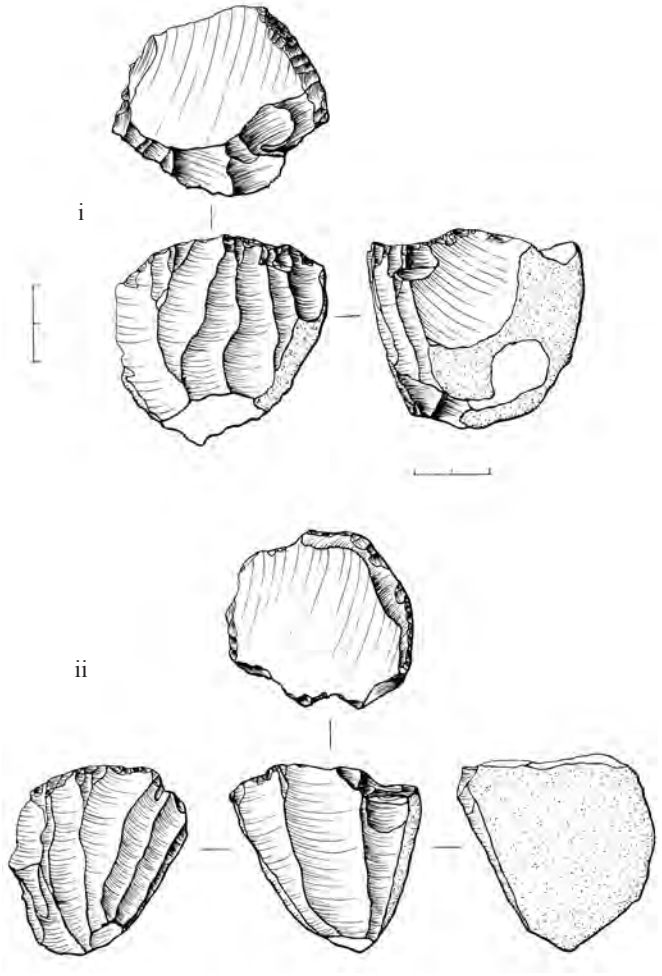

Fig. 18. Upper Palaeolithic component. i, ii) blade cores. Scale 1:2.

[19] Runnels and van Andel 2003.

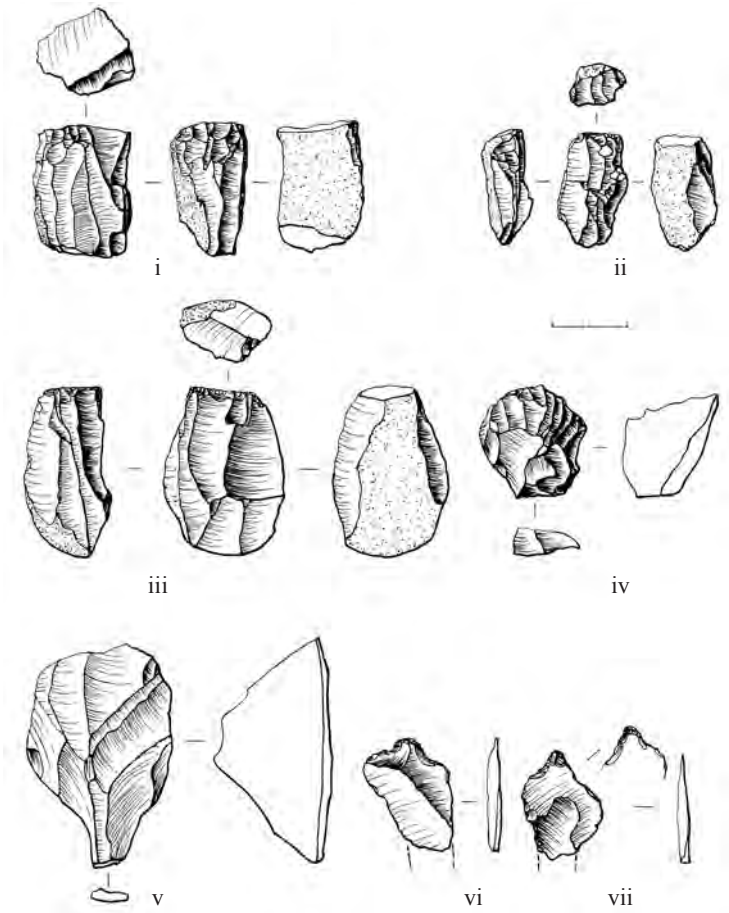

Fig. 19. Upper Palaeolithic component. i, ii) bladelet cores, iii) blade and bladelet core, iv, v) carinated endscrapers, vi, vii) nosed endscrapers (flat). Scale 1:2.

published sites) is Kokkinopilos, where an Upper Palaeolithic stone industry was reported to have been recovered in situ in the test trench dug by E. Higgs at Site a.[20] It was later realised, however, that this material was mixed with Mousterian artefacts and recovered from a secondary archaeological context, while certain characteristic Upper Palaeolithic artefacts (backed bladelets, burins, bladelet cores) were dated to the Gravettian.[21]

The Upper Palaeolithic component of U 24 numbers 49 cores and 312 pieces of debitage, forming an assemblage of equal size to the Middle Palaeolithic one (Fig. 6). Generally speaking, the artefacts of this group are lightly patinated or unpatinated, although there are also several heavily patinated examples. The types of flint used for this group of artefacts are similar to those observed in the Mousterian component, the only difference being that there are also very small quantities of white and honey-coloured flint.

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[20] Dakaris *et al.* 1964.
[21] Bailey *et al.* 1992; Papagianni 2000, 75.

Reduction method	Cores	Last detached blank	Corresponding Debitage
Centripetal mean length (mm)	43.9	45.1	48.9
Deviation	15.6	10.6	12.7
Parallel mean length (mm)	40.1	26.9	27.4
Deviation	7.3	7.3	5.9

Fig. 20. Upper Palaeolithic component: mean length dimension of cores, their last detached blank, and corresponding debitage on the basis of reduction methods.

The stone industry has a length distribution similar to that of the Middle Palaeolithic (Fig. 7). Stone flaking is mainly intended to produce artefacts the size of blades and bladelets, from prismatic and cylindrical cores bearing traces of unipolar and bipolar flaking and mostly prepared striking platforms (Figs. 18: i-ii; 19: i-iii). There are abundant products of these cores in U 24, with blades being the most numerous, followed by bladelets (Fig. 8). The mean length of the scars of the last flakings of the blade and bladelet cores is not significantly different from the mean length of the corresponding debitage (Fig. 20). However, bladelet cores (n=27) are more numerous than blade cores (n=20), which may indicate that blade cores are turned into bladelet cores during the reduction sequence; there are also two examples of cores which seem to have produced both blades and bladelets (Fig. 19: iii). A fairly large percentage of bulbs of percussion indicate use of a soft hammer. Butts are mainly flat and linear, although there are also some punctiform and dihedral examples (Fig. 21).

Endscrapers of various types predominate in the retouched artefacts. Nosed endscrapers (thick, and mostly flat types), carinated scrapers and scrapers on blades are the most numerous (Figs. 22: iv-vii; 11: i-iii). The many burins are mainly simple or dihedral on blades or on blade-like flakes (Fig. 22: v-vi). Although most of the bladelets are unretouched, two backed bladelets and a few truncated and denticulate bladelets

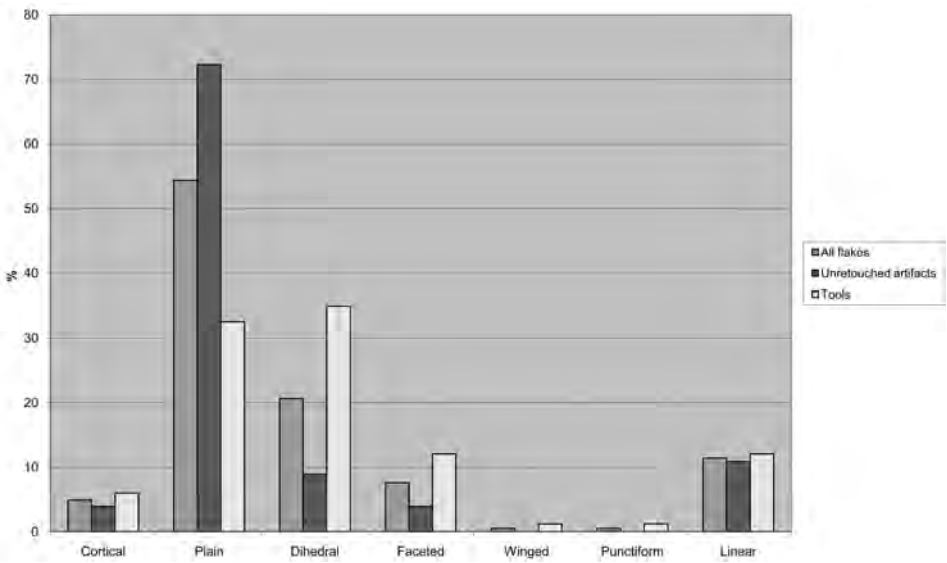

Fig. 21. Upper Palaeolithic component: relative frequencies of butts on all flakes, unretouched artefacts and tools.

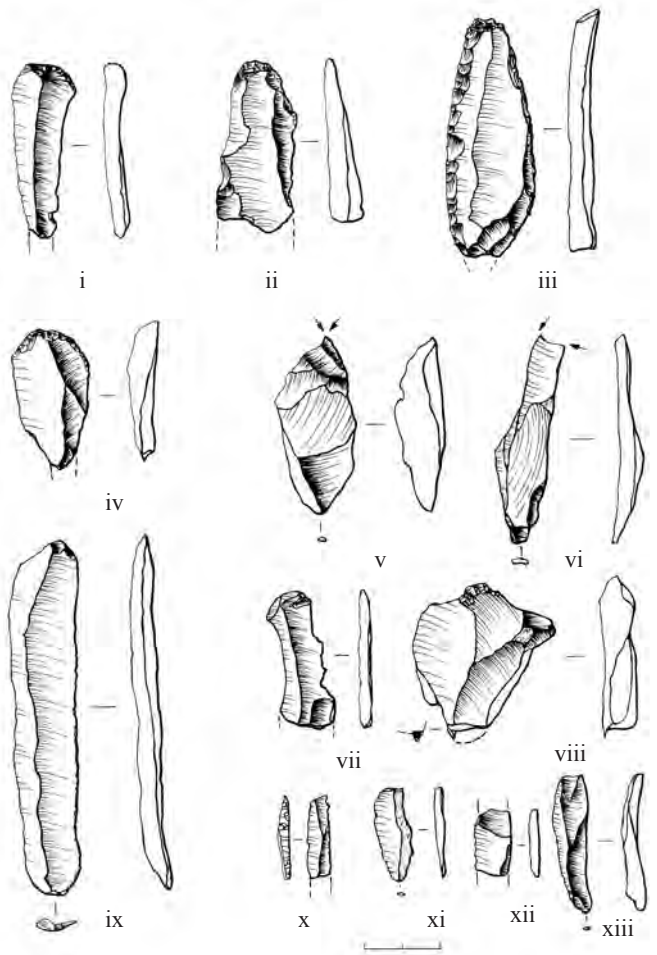

Fig. 22. Upper Palaeolithic component. i, ii, iii) endscrapers on blades, iv) endscraper, v, vi) burins, vii) denticulate, viii) nosed endscraper and borer, ix) blade, x) backed bladelet, xi) truncated bladelet, xii) denticulate bladelet, xiii) unretouched bladelet. Scale 1:2.

were found (Fig. 22: x-xiii). There are also some retouched blades and three borers with retouched long tip (a diagnostic feature I used for their classification as Upper Palaeolithic artefacts) (Fig. 23).

Most of the diagnostic tool types of the Upper Palaeolithic component of U 24 indicate an Aurignacian industry. Some elements of the lithic assemblage, however, may belong to a different time unit. The bladelets and bladelet cores, for example, are diachronic characteristics of the Upper Palaeolithic period in the region studied (abundant bladelets are found in the Gravettian and Epigravettian of Epirus,[22] but also in Aurignacian industries of the Balkans and Greece).[23] However, the diagnostic elements of another phase

[22] Adam 1999.
[23] Kozlowski and Otte 2000; Koumouzelis *et al.* 2001.

Endscrapers	62	(43.66%)	Denticulates	2	(1.41%)
carinated	18	(12.68%)	on blade	1	(0.7%)
nosed	14	(9.86%)	on bladelet	1	(0.7%)
on blade	23	(16.20%)	Borers	3	(2.11%)
on aurignacian blade	1	(0.70%)	Retouched blades	7	(3.93%)
double endscraper	2	(1.41%)	Points	2	(1.41%)
other	4	(2.82%)	shouldered point	1	(0.7%)
Burins	52	(36.62%)	natural point	1	(0.7%)
single	25	(17.61%)	Composites	3	(2.11%)
dihedral	17	(11.97%)	nosed endscraper + burin	1	(0.7%)
on truncation	8	(5.63%)	nosed endscraper + borer	2	(1.41%)
multiple	1	(0.7%)			
carinated	1	(0.7%)			
Backed bladelets	2	(1.41%)			
Truncations	9	(6.34%)			
on blade	5	(3.52%)			
on bladelet	3	(2.11%)			
other	1	(0.7%)			
			Total	142	

Fig. 23. Typology of tools identified in Upper Palaeolithic component.

of the Upper Palaeolithic period at U 24 are limited to a possible Gravettian shouldered point of bad quality. The above discussion once more highlights the difficulties arising from the attempt to disentangle the components of the Megalo Karvounari palimpsest.

The Aurignacian elements of the U 24 stone industry are the first to be identified at an Epirus site connected to terra rossa deposits. Recently, another site, dated by its finds to the Aurignacian period (although two Middle Palaeolithic Levallois cores are also reported), was discovered less than 15 km south of Megalo Karvounari at the Spilaion site, though in a different palaoenvironment. The Spilaion is located in 'a sinkhole on the northern side of the hillock, which is in fact a limestone outcrop made up of a highly weathered karst surface'.[24] The artefacts from Spilaion presenting characteristic features of the Typical Balkan Aurignacian[25] are far more numerous than those from U 24, but the two assemblages do have some common features, such as the absence of Dufour bladelets and the presence of carinated scrapers, nosed endscrapers and burins. However, core-processing activities at Spilaion show that lithic strategies were expedient and opportunistic in terms of goals and techniques (e.g. absence of prepared striking platforms, few blade cores),[26] something which is not observed at U 24, where the flaking techniques appear to be well organised, with specific goals.

Aurignacian industries are absent from the excavated caves and rockshelters of Epirus. Characteristically, at Asprochaliko, the site with the richest chrono-stratigraphical sequence, there is a hiatus between the later Mousterian (40 Kyr BP) and the Gravettian, which seems to start around 26 Kyr BP. At Kastritsa, according to the latest data, use seems to begin around 23 Kyr BP,[27] with Gravettian-type industries;[28] however, a

[24] Runnels *et al.* 2003, 138.
[25] Runnels *et al*. 2003, 142.
[26] Runnels *et al.* 2003, 143.
[27] Galanidou and Tzedakis 2001.
[28] Adam 1999; Galanidou *et al.* 2000.

carinated endscraper[29] is reported from the lowest level of the cave, perhaps indicating an earlier phase which has not survived, possibly due to the rising water level of Lake Pamvotis. At Klithi, too, occupation seems to begin even later, around 17 Kyr BP.[30]

The data on the Aurignacian period in Greece are scanty. Apart from some references to the presence of isolated artefacts with Aurignacian features, mainly carinated endscrapers, at open-air sites in the Peloponnese and Thessaly,[31] a debated Aurignacian phase at the Franchthi and Kefalari caves,[32] and a published Aurignacian industry mixed with Mousterian artefacts from the open-air site at Elaiochori in the Peloponnese,[33] the only stratified site in Greece to contain safely dated Aurignacian units is Cave 1 at Klisoura in the Argolid.[34] While the detailed publication of the Klisoura finds is pending, the preliminary study describes four distinct Aurignacian industries (uppermost, upper, middle and lower, layers III-IV) ranging from 34 to 22 Kyr BP, when the Gravettian was already developed in Epirus.

Near Epirus, in the Northern Balkans and Italy, the Aurignacian, as identified through stratified assemblages at many sites (Bacho Kiro and Temnata Caves in Bulgaria, Sandalja II and Vindija Caves in Croatia, Riparo Mochi, Fontana Nuova di Ragusa Caves in Italy)[35], may even begin before 40 Kyr BP at Bacho Kiro and Temnata cave,[36] at a time when in Epirus at Asprochaliko we still find Mousterian assemblages, and end around 26 Kyr BP. The only exception is the Sandalja II site, where samples of Aurignacian industries have been dated to 23 Kyr BP, an age concordant with the latest dating from Klisoura.[37] Detailed typological and technological studies of these assemblages have created a chrono-stratigraphical frame for the beginning, development and end of the Aurignacian in southeast Europe (e.g. Proto-Aurignacian, Typical Aurignacian, etc.).[38] It is very likely that the disparate elements making up the stone industry at Megalo Karvounari have accumulated over several millennia, covering all the stages of the Aurignacian identified at high-resolution sites in nearby regions. However, Megalo Karvounari, being a low-resolution site, does not permit a more refined discussion and comparison.

The Aurignacian assemblage of U 24 is connected with the presence of Homo sapiens at Megalo Karvounari. Together with the stone industry from Spilaion, it testifies to the presence of what was until recently a missing link in the Palaeolithic record of Epirus. Human presence in the Epirus caves ceased at the end of the Mousterian in around 40 Kyr BP (Asprochaliko) and resumed in the Gravettian, around 26 Kyr BP (Kastritsa).

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[29] Galanidou 1997, 502, Fig. 26.4.
[30] Bailey and Woodward 1997.
[31] Chavaillon *et al.* 1967; Runnels 1988.
[32] For the Franchthi and Kefalari caves see Perlès 1987.
[33] Darlas 1989.
[34] Koumouzelis *et al.* 2001.
[35] Kozlowski 1982; Ginter and Kozlowski 1992; Karananić 2003, Karananić and Smith 1998; Kuhn and Stiner 1998; Chilardi *et al.* 1996.
[36] Opinion is still divided as to whether the 'Pre-Aurignacian' of the Balkans (Bacho-Kirian) should be included in the Aurignacian industries. For further discussion of this issue, see Otte and Kozlowski 2003, 20-24; Zilhao and d'Errico 1999, 43.
[37] Koumouzelis *et al.* 2000, 534
[38] Kozlowski and Otte 2000; Koumouzelis *et al.* 2001.

Discussion

The methodology of the surface collection at U 24 permitted the detailed examination of a large area, while the exact recording of the spatial distribution of the finds contributed to the partial understanding of the taphonomic history of the lithic assemblage. At U 24 the archaeological material was not recovered in situ, confirming, in this case, pessimistic views regarding the likelihood of discovering finds in primary archaeological contexts in open-air sites connected to terra rossa deposits.[39]

Although the study of the Mousterian component of U 24 did not modify our knowledge of the occupation of Megalo Karvounari during the Middle Palaeolithic, the discovery and identification of elements of an Aurignacian assemblage at a second open-air site of Epirus extends the time depth of the Upper Palaeolithic occupation of the region.

At the outset of their investigation in the 1960s, the open-air sites of Epirus, based on the majority of the finds, were largely linked to Neanderthal activity. Conversely, with the exception of Kokkinopilos, only the excavated caves and rockshelters (Asprochaliko and Kastritsa) had provided abundant and diagnostic data on the Upper Palaeolithic period. This had led to the belief that, during the Middle Palaeolithic, the occupation network was concentrated at low-altitude open-air sites, near the coastal zone of Epirus. With the transition to the Upper Palaeolithic period and the arrival of populations of anatomically modern humans, occupation was reoriented to caves and rockshelters, mainly in the interior of the region.[40]

Following the Cambridge University surface surveys in Epirus from the 1980s onwards, however, and the re-evaluation of all the identified open-air sites and finds, this model was partially revised. Although there was appreciably less information on the Upper Palaeolithic period in open-air sites, it was enough to determine that anatomically modern humans were also clearly present at those sites. Unfortunately the small number and indeterminate age of the Upper Palaeolithic finds at open-air sites (e.g. chronologically non-diagnostic tool types) meant that the type and precise chronological range of this occupation could not be clearly determined.[41]

The information available today on the finds from Palaeolithic open-air sites in Epirus, identified over the past 50 years by surveys conducted by British and Greek-American teams, certainly places most of them in the Middle Palaeolithic period, although many sites have also produced very small quantities of purely Upper Palaeolithic finds. A significant number of sites, however, has yielded finds dated to both the Middle and Upper Palaeolithic periods. The Upper

Date	
Middle Palaeolithic	51
Upper Palaeolithic	10
Middle + Upper Palaeolithic	14
Palaeolithic	39
Total	114

Fig. 24. Dating of Palaeolithic open-air sites of Epirus recorded by the Cambridge surveys and the Nikopolis Project.

[39] Bailey *et al.* 1992, but see also for the opposite opinion Runnels and van Andel 2003; van Andel and Runnels 2005; Tourloukis 2009.
[40] Bailey *et al.* 1997, 521; Papaconstantinou and Vasilopoulou 1997, 479.
[41] Bailey *et al*. 1997.

Palaeolithic component of these sites is limited (with the exception of Kokkinopilos) and chronologically non-diagnostic, meaning that they were not used intensively at that time, nor can they be dated to a specific phase of this period (Fig. 24).[42] Up to now, Megalo Karvounari could have been placed in this category, once a small percentage of chronologically indeterminate post-Mousterian artefacts had been reported in addition to the abundant Middle Palaeolithic artefacts.

Following the study of the U 24 assemblage, we can now certify that the Upper Palaeolithic use of Megalo Karvounari was significant, placing it relatively confidently in the Aurignacian, without, however, being able to exclude the possibility that another Upper Palaeolithic time unit may lie hidden in the palimpsest of U 24 (e.g. elements of a transitional Middle to Upper Palaeolithic unit, a Gravettian or Epigravettian unit lacking diagnostic features, with the exception of the shouldered point mentioned above). Even the elements of the lithic assemblage from U 24 (number of cores, primary flakes, number of tools), albeit not completely clear due to the limitations of the palimpsest, do not seem to indicate a distinct change of use during the Middle and Upper Palaeolithic.

These indications are confirmed, at least preliminarily, by the as-yet-unpublished excavation material from open-air sites with terra rossa deposits near Megalo Karvounari: Eleftherouhori (site 7) and Molondra.[43] These sites have also produced lithic assemblages presenting clear characteristics of both the Middle and Upper Palaeolithic; most of the diagnostic elements of the latter period are dated to the Aurignacian and are present in significant numbers. This is evidence that, at least during the Early Upper Palaeolithic, the ancient wetlands delimited by terra rossa deposits, whose rich plant and animal resources attracted hominids, continued in use.

At this stage it cannot be determined whether the lack of comparable diagnostic material, at least from the open-air sites examined up to the mid-1960s, is due to the recovery methodology, or whether it reflects a true picture of their chronological range of use. That is a matter for future investigation, perhaps by more assiduous studies using modern methodologies for the retrieval of archaeological material from many of the sites examined at the outset of this long journey into the Epirus countryside, which have not yet been destroyed by modern human activity.

To conclude, the return of the Thesprotia Expedition to Megalo Karvounari, despite the weaknesses due to the unstratified nature of the material, demonstrates the value of the 50-year investigation of the low-resolution Palaeolithic open-air sites of Epirus, offering new knowledge and food for thought, solving problems of the past and expressing new ones for the future, thereby fulfilling the basic requirements of scientific research. A single lifetime is not enough to discover everything; we therefore have a duty to invest in the future, adding one more piece to the corpus of our as-yet-scanty knowledge of human existence, even if it proves necessary to return again and again to the − perhaps uninteresting after so many years − 'scene of the crime'.

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[42] Elefanti *et al.* 2009. Data processing by Stefanos Ligkovanlis.
[43] Palli and Papadea 2002; Ligkovanlis forthcoming.

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The Sevasto House: Architecture and Finds

Tommi Turmo

The Sevasto house lies in the vicinity of the Kokytos river and ancient Elea, the principal city in the valley during the Hellenistic period. The research of the house has been a close collaboration of the local archaeological authorities and the Thesprotia Expedition. The house was documented as a site during the survey in 2004 and subsequently excavated by the Greek archaeological service as a rescue excavation. The excavation revealed a well-preserved ground plan of a house with rich archaeological finds (Fig. 1).[1]

The house is situated on the western edge of the modern village of Sevasto, some 5 km southwest from Paramythia. It lies at the foot of Mt. Megalovouni which shelters the site from northern winds. Immediately in the east and southeast spreads the flat Kokytos valley with arable farmland. To the west the hills rise gently up forming a current olive grove. 50 m south from the house there is a well, which has also given the Greek name Pano Pigadi (”Upper well”) to the archaeological site. The house is located inside a fenced area forming a small olive grove, but which remains otherwise uncultivated. As a common practice in the region, the olive grove is occasionally used as grazing ground for animals, sheep particularly. Similar small patches of fenced areas form the immediate neighbourhood for the site.

Several important routes of communication and trade exist in the close vicinity of the house. The most important route from Fanari (ancient Glykys Limen) to Paramythia connects the northern part of the valley with the broad plain of Acheron. Another important route runs from the northeast to the southwest and connects Sevasto with the plain of Margariti up the valley of a stream which runs from the southwest.[2] The location of the house close to the crossing place of these two routes must be seen as clearly beneficial.

It comes therefore as no surprise that the immediate surroundings of the excavated house has revealed several places of archaeological interest, which speak directly of diverse activity in the area of Sevasto village. Immediately north from the Sevasto house, on the other side of the dirt road, a similar patch of area yielded several pieces of roof-tiles on the surface. As the area is situated clearly on the higher ground of the hill, it is likely that these finds belong to another building complex separate from the excavated house.[3] Further, the northern outskirts of the Sevasto village itself have revealed graves including various finds like an iron sword, and between the village and the Liminari hill in the south, on another smaller isolated hill, fragments of polygonal walls have been

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[2] Hammond 1967, 69-70; Svana 2009, 93.

[3] See B. Forsén *et al.*, this volume (PS 15 Site description).

Fig. 1. The Sevasto house uncovered. View towards the southeast.

documented.[4] Together these finds add colour to the history of the surrounding area. They also suggest the possibility that the Sevasto house is hardly an isolated farmstead, but rather a part of a small village or hamlet. This conclusion could be in accordance with the settlement pattern observed elsewhere in the Kokytos valley.[5]

The House – architectural details

The Sevasto house appears to have been saved by the most drastic effects of formation processes due to its location at the foot of the hill. In fact, the location has turned out to be beneficial as over the years the house was covered by a thick accumulation of soil from uphill. This layer of soil has contributed to preserve both the house structures and the find assemblage. In more recent times the site has been included in an olive grove, and thus the disturbance has continued to be minimal. The actual process of site abandonment appears to be permanent, and after the collapse of the building no later constructions were discerned. The structural remains therefore represent one period of habitation.

The Greek rescue excavation provided a short excavation report, which outlines the basic information concerning the progress of the work.[6] On the basis of these notes the following three-layer stratigraphy could be reconstructed. A layer of topsoil covered the building down to 0.30-0.40 m. As the results of the survey walk gave reason to expect, plenty of finds were collected already in this first documented layer. The following layer

[4] Dakaris 1972, 139-140.
[5] See B. Forsén, this volume.
[6] Petsios 2005. A shortened version of the report will be published in ArchDelt 60B (2005), in press.

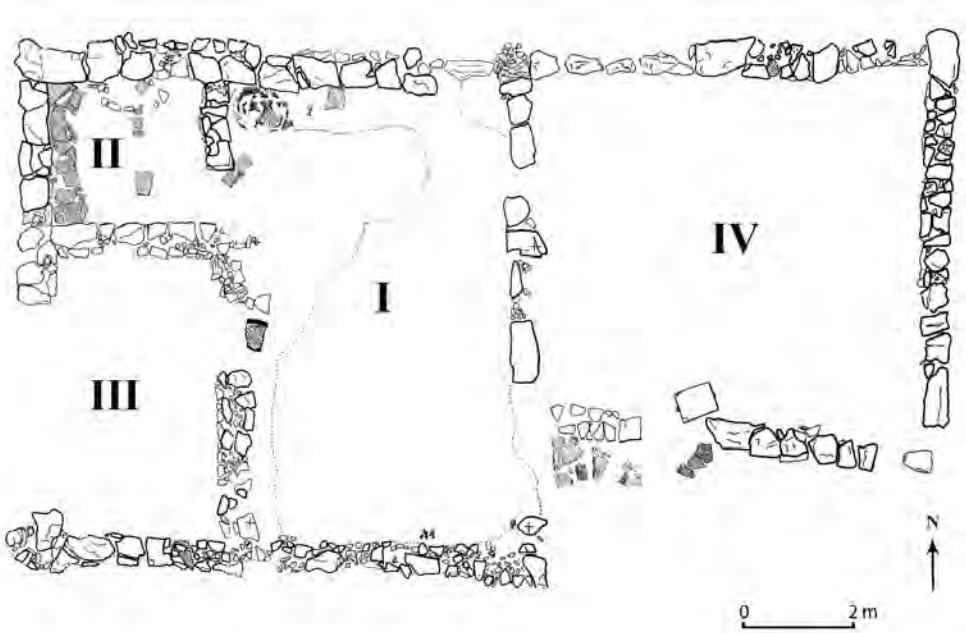

Fig. 2. Ground plan of the Sevasto house. After the map made by T. Konstantinos and K. Stamatia in 2005.

was horizontally divided by the emerging wall structure, which cut the space into the four individual sections or rooms. This unit was finished roughly at 0.60 m when a dense layer of collapsed roof tiles was detected. Finally, below the tiles, a continuous destruction level extended over most of the whole building. Apart from the roof-tiles, this third layer included small stones and soil with dark brown spots of burned material together with the great majority of the finds. Right below the destruction level the floor formation was discovered. The floor consisted of beaten reddish earth as is common in Hellenistic structures, the excavated houses in Agia Paraskevi offering a close parallel located only ca. 1.5 km to the southeast of the Sevasto village.[7] It seems therefore, that most of the finds were situated either directly on, or integrated into, the floor of the house.

The floor formation was detected only sporadically. It is most distinctive in room III, where the destruction level above had been largely ruined by illegal excavations. This damage was evident in several parts of the building, where traces of the destruction level were difficult to find. It remains uncertain whether these operations damaged the building structure itself.

The external measurements of the house are 16.9 x 9.3 m.[8] The foundation walls, standing in places about 0.50 m high, are built of roughly fitted stones and rubble. The width of the wall is very uniform, 0.60 m over the whole building, except for the eastern wall where it narrows to 0.50 m. Plain soil served as binding material between the stones, which formed the foundation or socle supporting subsequent mud-brick walls of upper courses. Yet, because of the complete disintegration not even a single brick is preserved. Neither is any trace of plaster visible on the walls.

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[7] Preka 1997, 610.

[8] The building measurements are based on the ground plan of the house. Petsios' report gives slightly different measurements.

The ground plan of the house consists of four rooms (Fig. 2). They are clearly not arranged around any central court or space, but rather form a tight entity of adjacent rooms. The orientation of the house is towards the south.

Even a preliminary study of the ground plan indicates, that the Sevasto house does not belong to the conventional typology of pastas, prostas or peristyle buildings with familiar characteristics of central courtyard and porticos. Here, it is the characteristic of large rooms which connects the house with local Epirotic building traditions, and thereby with the house type of the *Herdraumhaus*.

The earliest known such houses were excavated in the Vitsa region, some 25 km north from Ioannina. These rural structures consist of a single large room (6 x 7 m) with a central fire place.[9] Yet it is two Epirote towns, Orraon and Cassope, which have turned out to be essential for a more profound understanding of the building type. The *Herdraumhaus* as a typological concept was created after the excavations in the ancient Molossian town of Orraon, where exceptionally well-preserved houses made it possible to observe the architectural elements from foundation to roof top.[10] Cassope, in turn, provided a large bulk of material extending to several centuries permitting a closer investigation on the architectural development of the house type. From these studies originated the concept of the domestic core unit of the *Herdraumhaus*, which consists of a large central room, two floors high, flanked by two smaller chambers both up- and downstairs. Such an arrangement of the space formed the basis of room structures at several fourth century houses in Cassope. Interestingly, this basic core unit was noticed only in the earliest building phase and the unity was to disintegrate during the following centuries of the Hellenistic period, when the house plans were renovated and restructured.[11]

This domestic core of the *Herdraumhaus* becomes evident in the Sevasto ground plan as a tight three-room complex including rooms I, II and III. Room IV, on the other hand, possesses several characteristics which indicate that it may well be a separate unit or later addition. No doorway is discernible from room I to IV, the overall depth of the room is clearly shorter than the rest of the building, and both the northern and southern walls of room IV appear to have a structural break in the western half of the wall.[12]

The three rooms of the core form a perfect square of 9.3 m side (internal length 8.1 m). This is hardly a coincidence and even without the central hearth construction uncovered, the complex is instantly recognized as a domestic core unit of the typical *Herdraumhaus* as found in urban houses of Orraon and Cassope. The prime distinction remains that this building is not a town house, but a structure located in the countryside, adding an interesting aspect to the architectural evolution of the house type previously found in this stage of evolution only in the urban environment.

Throughout the study, it becomes evident that Orraon house A resembles the Sevasto house in a number of respects, providing an interesting reference point for comparison of architecture and possible room functions (Fig. 3). The core unit is somewhat bigger in Sevasto concerning both the long and the short sides (Sevasto 9.3 x 9.3 m and Orraon 7.5 x 8 m). Still, in basic architectural terms the core unit is equally divided in both houses.

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[9] Hoepfner and Schwandner 1986, 108-112, 269.
[10] Hoepfner 1999, 337; Angeli 2005, 16.
[11] Hoepfner and Schwandner 1986, 108-112.
[12] An example of a similar late addition to the core unit in Orraon house A (Hoepfner 1999, 410).

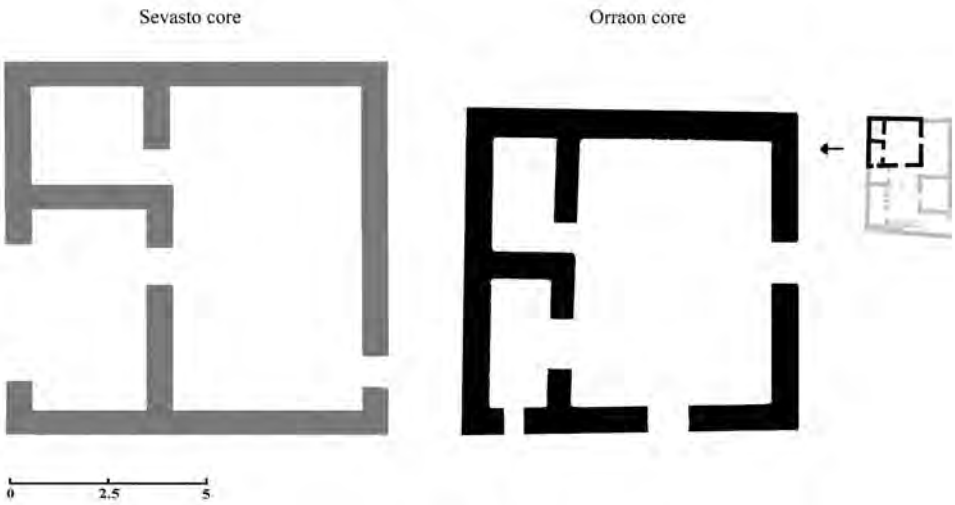

Fig. 3. Core unit comparison. Reconstructed ground plan of house A in Orraon. After Hoepfner 1999, 401-402.

Once the hearth-room is entered the line of two chambers is located on the left. Even the doorways to those two rooms are set identically. The small corner room in both houses includes a clearly identified bench or work plane. It is tempting to outline a very similar function for both of these rooms.

The current research concerning the known examples of the *Herdraumhaus* has so far concentrated on the architectural study, and the recovered find material has been applied only to confirm the possible observations detected from fixed structures. With the rich find material from the Sevasto house we now have a real possibility to make a more balanced inquiry into this Epirote house type, including not only the investigation of the room functions, but also the material culture in general.

Pottery and other finds

The Sevasto excavation provided finds of a great variety. It includes a ceramic assemblage consisting of the common Greek vessel shapes, combined with lamps, loom-weights and roof-tiles. The ceramics are supplemented by metal finds (coins, blades, nails), stone artefacts and bones. The pottery assemblage itself consists of 781 sherds, which provided 75 individual vessels after applying the MNV (Minimum Number of Vessels) methodology.[13]

[13] MNV refers to a methodology determining the principles behind the pottery count. The method here includes only the standard features of rim and base in the process of determining the number of vessels. The total of rim and base sherds is combined with vessels that survived as near- complete or as profiles. This sum is taken as the best quantifiable indicator of vessel frequency (Ault 2005, 8-9; Orton *et al.* 1993, 172). A small number of the vessels, although identified, were left outside the study due to the methodological restrictions of MNV. They comprised the vessels identified only by body sherds or handle fragments.

House total: 75 vessels (MNV)

Fine wares	MNV	%	Plain wares	MNV	%	Cooking wares	MNV	%
Drinking:			Storing:			Cooking:		
Kantharoi	7		Amphorae	5		Chytrai	5	
One-handlers	1		Hydriae	2		Lopades	2	
	8	10.7	Pithoi	11			7	9.3
Serving and eating:				18	24			
Bowls	11		Preparing:					
Plates	8		Lekanai	7				
Choes	1		Mortaria	4				
Craters	1			11	14.7			
Jugs	5							
	26	34.7						
Other forms:								
Lids	3							
Miniature vessels	1							
Unguentaria	1							
	5	6,7						
Total	39	52		29	38.7		7	9.3

Fig. 4. Sevasto vessel categories by function and shape, based on the MNV.

The assemblage represents 17 different vessel shapes (Fig. 4), which, in turn, were divided into general ceramic categories (fine, plain and cooking wares). For the aim of the research, the vessels have been categorized according to their function rather than their shape or form. This approach is essential, since the following analysis relies on ceramic assemblages found functionally together in ancient households.

The general picture emerging from the find assemblage speaks of relatively wealthy inhabitants, with fine wares constituting the majority of the pottery finds and including rare shapes like the thymiaterion or the miniature skyphos. The character and function of the house, on the other hand, remains much harder to determine. Despite being located in the countryside next to the fertile plain, nothing in the assemblage unambiguously refers to agricultural operations. The grinding stones, louters or mortars, belong to the household assemblage of any Greek house in antiquity regardless of where it was situated.[14]

Catalogue

The Catalogue intends to describe in detail only the most representative and well-preserved items in the find assemblage. Apart from pottery (Fig. 4), the assemblage consists of 11 loom-weights, five lamps, a thymiaterion, two stands, eight coins, several fragments of iron and bronze items, lead clamps (both incorporated into the pithos rims and found as separate items.), mill stones and bones. Due to the unsettled chronology of Epirote ceramics, all dates suggested are to be understood as approximate. The best-preserved vessels of the assemblage were catalogued by the Greek Archaeological Service. They are identified by the catalogue number starting with ΘΕ or ΑΣ at the end of the description.

[14] Cahill 2002, 238.

Fine wares

1. Cyma kantharos. Foot diameter 4 cm. Outer diameter 8 cm. Spreading ring foot. Prominent stem. Strap handle with thumb-rest. Mended from six fragments. Black glazed. Munsell 7.5YR 8/4.
Cf. Edwards 1975, 76-82; Pemberton 1989, 34-36.
Date: Third century BC.

2. One-handler. Outer diameter 12 cm. Strong inward curve of the wall. Handle round in section. Mended from 10 fragments. Black glazed. Munsell 10YR 8/2.
Cf. De Maria *et al.* 2005, 137; Rotroff 1997, 155-156.
Date: 325-275 BC.

3. Echinus bowl. Foot diameter 4.6 cm. Outer diameter 11 cm. Height 5.6 cm. Rim is formed by a strong inward curve of the wall. Angular, flat resting surface. Nipple underside. Complete profile, mended from 14 fragments. Black glazed. Munsell 10YR 8/4.
Cf. Rotroff 1997, 162-163, no. 1000-1010; Sparkes and Talcott 1970, 131-133; Edwards 1975, 29-33; Romano 1994, 69, no. 19, fig. 3; Haagsma 2003, 92.
Date: 300-175 BC.

4. Bowl. Foot diameter 5.7 cm. Outer diameter 12.5 cm. Height 5.7 cm. Slightly inturning rim. False ring foot. Complete profile, mended from 11 fragments. Plain, no glaze preserved. Munsell 7.5YR 7/6. ΘΕ 3517.
Cf. Rotroff 1997, 161, no. 1005.
Date: Third to second century BC.

5. Fish plate. Foot diameter 7.1 cm. Outer diameter 22 cm. Height 5.2 cm. Rim slope down to outside. Flat resting surface. Complete profile, mended from seven fragments. Black glazed. Munsell 10YR 7/4. ΘΕ 7675.
Cf. Edwards 1975, 41-42.
Date: Third to mid-second century BC.

6. Crater. Outer diameter 24.5 cm. Preserved height 6.6 cm. Projecting rim with horizontal groove on outer edge of top. Lug handle placed below. Preserved in three fragments from rim down to lower body. Black glazed. Munsell 7.5YR 8/6. ΘΕ 7676.
Cf. Rotroff 1997, 137-138, pl. 42, no. 590-594.
Date: 250-200 BC.

7. Chous. Trefoil mouth. Rope handle. Preserved in very fragmentary (19 fragments) condition. Plain, no glaze discernible. Munsell 10YR 8/6.
Cf. Rotroff 1997, 125-126.
Date: Early Hellenistic.

8. Jug. Outer diameter 8 cm. Preserved height 3.7 cm. Rim outward thickened. Preserved in five fragments. Plain and black glazed. Munsell 10YR 8/4.

9. Unguentarium. Foot diameter 3.8 cm. Preserved height 8.3 cm. Pieced together up to middle height. Preserved in 24 fragments. Black glazed on the exterior. Munsell 10YR 8/3.
Cf. Chrisostomou 1991, 119-125; Lilimbaki-Akamati 1991, 110-114; Riginos 1997, 108, pl. 76, no. 2828.
Date: Third to second century BC.

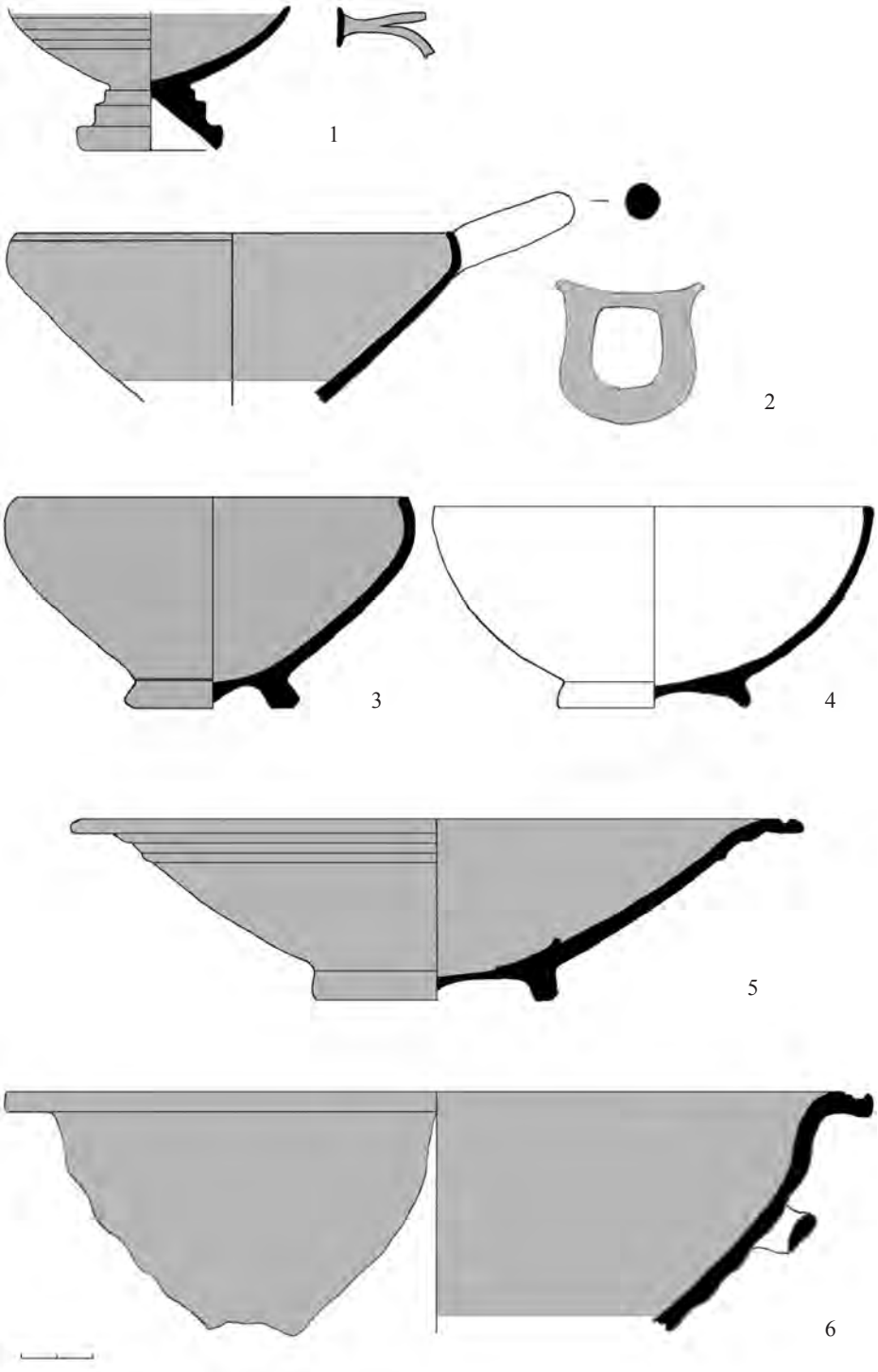

Fig. 5. Fine wares (Nos. 1-6). Scale 1:2.

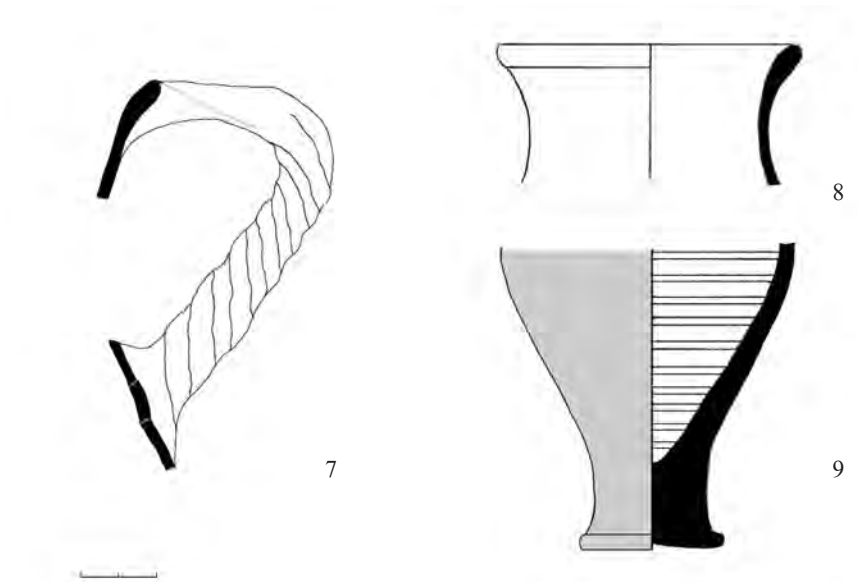

Fig. 6. Fine wares (Nos. 7-9). Scale 1:2.

Plain wares

10-12. Pithoi. The find material consists of 154 fragments and roughly 118 kg of pithos sherds. As the number of sherds constitutes 20 % of all the sherds in the assemblage, the weight comprises nearly 95 % of the total weight of the ceramic assemblage. They were estimated to come from 11 different vessels. The rim measurement showed a great variety of shape as the largest encountered diameter was 116 cm and the smallest only 27 cm. Moreover, some included lead clamps attached into the upper lip and one has a wavy decoration on the lip of the rim. 5YR 6/8-7.5YR 6/6.

13. Amphora. Outer diameter 9.2 cm. Preserved height 13 cm. Overhanging rim. Oval handles with ridge. Preserved in seven fragments. Plain. Munsell 7.5YR 8/4. ΑΣ 3220.
Cf. Koci 1987, 147, pl. I, no. 1; Mano and Dautaj 1997, 132, pl. III, no. 23; Lepore and Gamberini 2003, 80, no. 3240.
Date: 275-175 BC.

14. Lekane. Rim diameter 32 cm. Preserved height 3.0 cm. Plain with traces of reddish slip on the exterior, Munsell 2.5YR 5/6. Munsell 5YR 7/8. The Lekane presents a problem of classification as a rim fragment without a handle attached cannot be classified with confidence (Rotroff 2006, 108), which is exactly the case with the Lekanai in the Sevasto assemblage.

15. Lekane. Rim diameter 26 cm. Preserved height 8.6 cm. Horizontal, projecting rim. Preserved in nine fragments. Plain. Munsell 5YR 6/6.

16. Mortar. Base diameter 12 cm. Preserved height 5.4 cm. Coarse. Munsell 5YR 6/1.

17. Mortar. Inner diameter 27 cm. Preserved height 5.4 cm. Plain. Munsell 10YR 8/4.
Cf. Villing and Pemberton 2010, 590-594; von Hesberg and Eck 2008, 34-35, 79; Tréziny 1989, 63-65.
Date: Late fifth to third century BC.

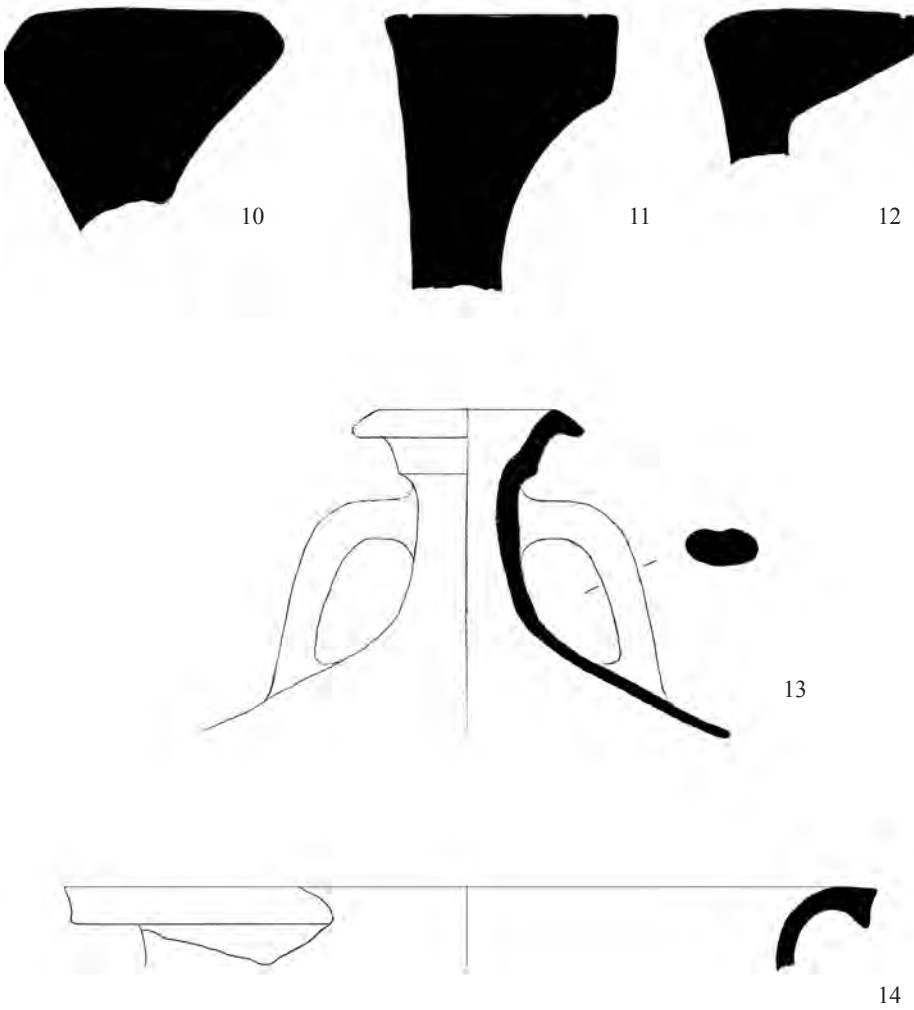

Fig. 7. Plain wares (Nos. 10-14). Scale 1:3.

Cooking wares

18. Chytra. Rim diameter 17.5 cm. Preserved height 3.7 cm. Flaring rim. Preserved in three fragments. Plain. Munsell 10YR 6/1.

19. Lopas. Rim diameter 20 cm. Preserved height 4.2 cm. Horizontal rim. Preserved in seven fragments. Plain. Munsell 2.5YR 7/8.

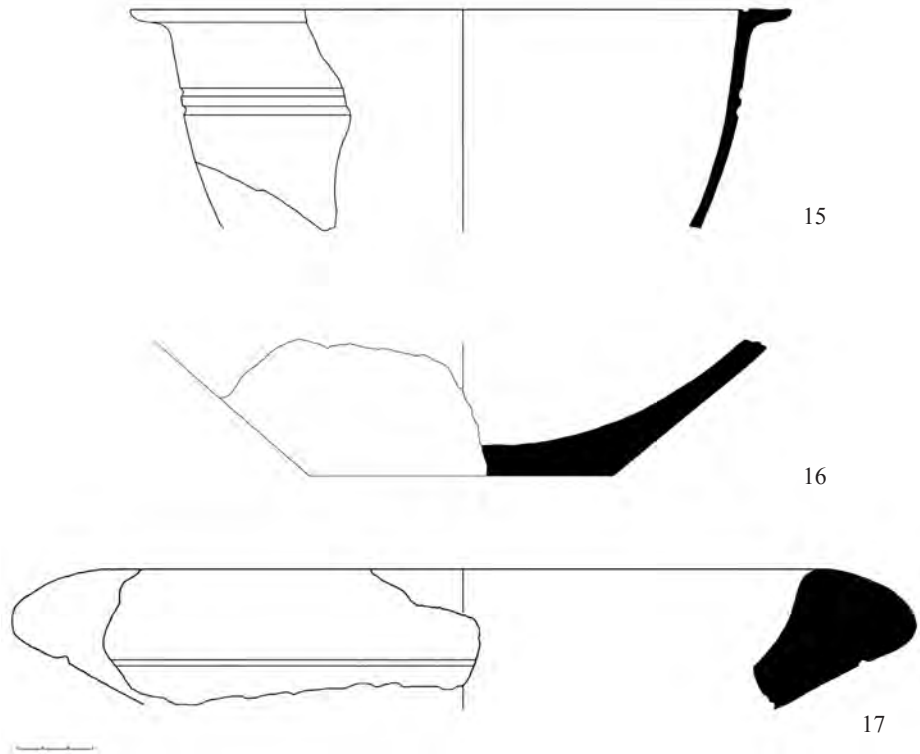

Fig. 8. Plain wares (Nos. 15-17). Scale 1:3.

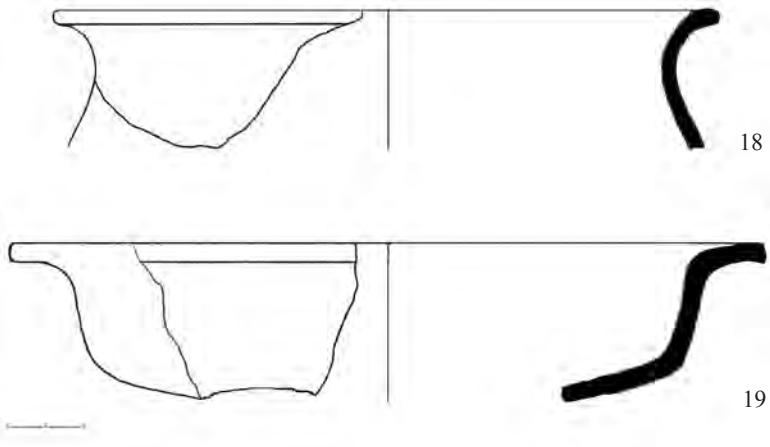

Fig. 9. Cooking wares (Nos. 18-19). Scale 1:2.

Miscellaneous finds

20. Miniature skyphos. Foot diameter 3.3 cm. Preserved height 2.2 cm. Black glazed. Munsell 7.5YR 8/6.

21. Conical loom-weight with one suspension hole. Circular base. Pear-formed profile. Top rounded. Height 8.5 cm. Width 5.3 cm. Weight 130 g. Munsell 5YR 6/6. ΘE 7671.
Cf. Tzouvara-Souli 1983, 29-30; Davidson 1952, 147-172.
Date: Hellenistic.

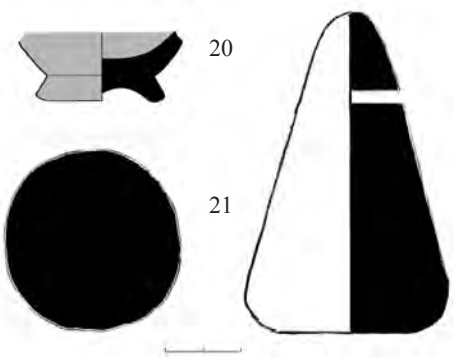

Fig. 10. Miscellaneous finds (Nos. 20-21). Scale 1:2.

22. Lamp. Outer diameter 9.1 cm. Height 5.6 cm. Preserved length 13.3 cm. Double sprouts with central rod. Plain. Munsell 7.5YR 7/6. ΘE 6814.
Cf. Broneer 1977, 215, pl. 38; Dakaris 1961, 113, pl. 70.
Date: 300-225 BC.

23. Lamp. Preserved height 3.5 cm. Preserved length 7.6 cm. Only sprout and part of the body preserved. Black glazed. Munsell 7.5YR 7/6. ΘE 7672.
Cf. Broneer 1977, pl. 18, no. 225; Howland 1958, pl. 41, no. 419; Rotroff 1997, 500-501; Braun 1970, 149, pl. 58.
Date: 325-150 BC.

24. Lamp. Outer diameter 6 cm. Preserved height 2.6 cm. Preserved length 6.0 cm. Mended from eight fragments. Black glazed. Munsell 7.5YR 7/6. ΘE 7673.
Cf. Broneer 1977, pl. 17, no. 138-139; Howland 1958, pl. 41, no. 398; Rotroff 1997, 499.
Date: 250-190 BC.

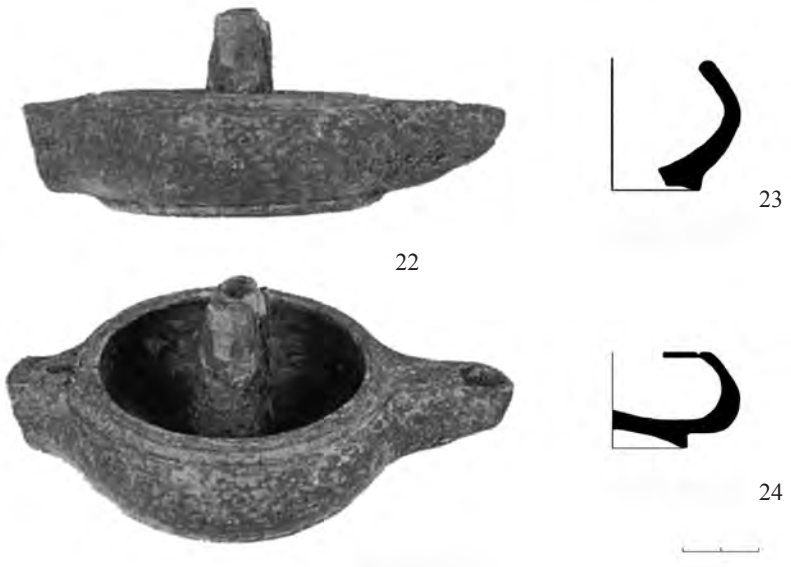

Fig. 11. Miscellaneous finds (Nos. 22-24). Scale 1:2.

25. Thymiaterion. Height 37 cm. Foot diameter 15 cm. A fairly thin stem, circled by six rings, rises from a broad disk base, which is hollow underneath. Of the six rings, five include decoration of evenly pressed thumb impressions. The hollow interior shows horizontal grooves from the base to the top. Munsell 5YR 7/4. ΘΕ 7736.
Cf. Zaccagnino 1998, 68-69; Rotroff 1997, 212, no. 1442; Reinders 1988, 270, 301, no. 54.
Date: 350-200 BC.

26. Stand. Preserved height 9.5 cm. Identification is difficult due to its fragmentary condition. It is possible that originally it was the neck of a large vessel like a hydria or an amphora, which was subsequently reused. Preserved in 13 fragments. Black glazed on the exterior. Munsell 10YR 8/2. ΑΣ 4136.

27. Stand. Diameter 6.0 cm. Diameter of pierced hole 3.5 cm. Height 1.2 cm. Originally interpreted as a rim of vessel. Nevertheless, somewhat similar clay rings were found in the Nekyomanteion and interpreted as supports or bases "στηρίγματα" (Dakaris 1961, 113, pl. 69b). This view is shared with Sparkes and Talcott, who see them possibly as stands for small-footed jars and think they should be distinguished from larger rings, which refer to pottery making (Sparkes and Talcott 1970, 180; Rotroff 2006, 139). I would suggest yet another possible function as a spindle whorl or loom-weight. Plain. Munsell 7.5YR 7/6. ΘΕ 7674.
Cf. Dakaris 1961, 113, pl. 69b; Sparkes and Talcott 1970, 180, pl. 43.
Date: Fourth to second century BC.

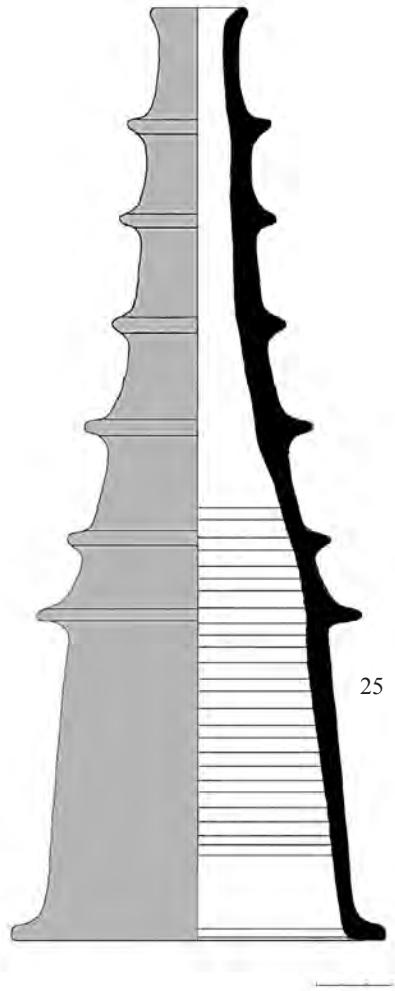

Fig. 12. Miscellaneous finds (No. 25). Scale 1:3.

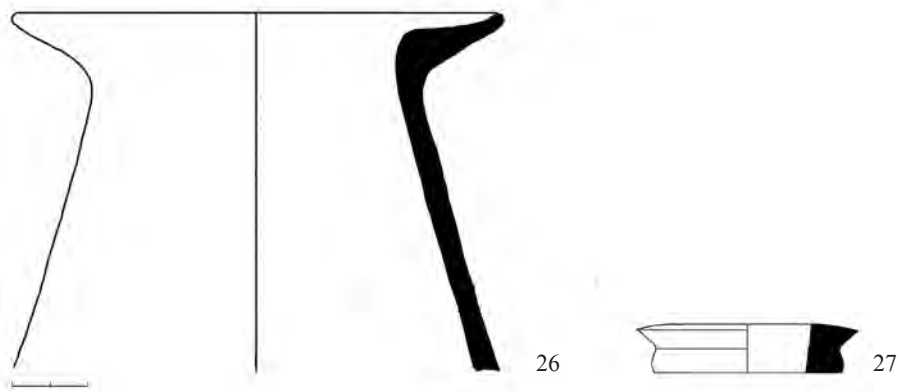

Fig. 13. Miscellaneous finds (Nos. 26-27). Scale 1:2.

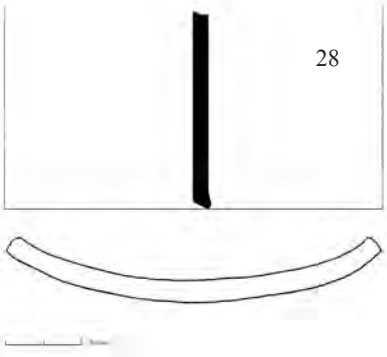

Fig. 14. Miscellaneous finds (No. 28). Scale 1:10.

28. Roof-tile. Laconian pan-tile. Width 50.5 cm. Thickness from 2.5 cm in corners to 3 cm in middle. Several plain pan-tile fragments as well as fragments with black slip on the upper surface were found scattered around the site. No fragment of cover tiles was found. Plain. Munsell 2.5YR 8/6.

29. Bronze handle. Length 6.3 cm. Diameter 0.9-1.0 cm. One end of cross section round, another end flattened. Vertical groove decoration.

30. Iron knife. Length 14.5 cm. Height 1.0-1.4 cm. Straight spine with curved end. Knob for handle attachment.

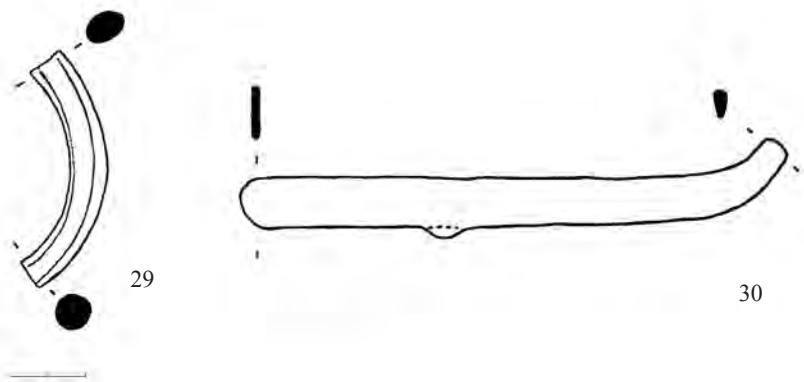

Fig. 15. Miscellaneous finds (Nos. 29-30). Scale 1:2.

Room functions

Here, the finds of each room are set in relation to the total assemblage of the house in order to determine functional assemblages, which help to illustrate the activities of the rooms. These results are reflected against the architectural study, which already related three rooms of the house to the core unit of the *Herdraumhaus*. Of 75 identified vessels, 64 can be attached to one of the four rooms. The small number of ceramic finds (MNV 2) in room IV does not enable any meaningful analysis, which, in this case, must rely mostly on architectural features.

Room I

Room I is located in the middle of the building measuring 4.7 x 8 m. Due to its central position, it has doorways to the west into rooms II and III, and to the east, where the central doorway presumably existed. In the northwestern corner of the room a round feature, built of small stones and enclosing an area of 90 cm in diameter, was detected. The construction was found filled with fragments of pithoi and functioned probably as a storage area. Given the high probability that the main entrance to room I was situated

in the south side of the room, the stairs run most probably along the northern wall, in much the same way as presented in the Orraon reconstruction of house A.[15] For a large and valuable vessel, this sheltered position can only be considered as both a practical and natural solution. The stairs provided certain protection at the same time as the large vessels occupied as little valuable space as possible in the room, which was the centre of domestic activity.

The short architectural analysis previously suggested that the large central room could have served as a hearth room in the building complex. The pottery and small finds appear to support this hypothesis. Particularly interesting is the fact that, among the vessel shapes, the sole examples of a crater and a chous were found here together with the best preserved example of a fine table amphora. Together they form a set of classic table ware, suggesting that this is the place where the wine was mixed, served and consumed. In the absence of an andron, the central hearth room seems to be the most suitable space for this activity as it was also the place where the family got together. Moreover, apart from the ceramic vessels, the inclusion of the fine thymiaterion in this assemblage fits particularly well.

The shortage of time and financial resources limited the excavation of room I and only roughly half of this central room was thoroughly excavated. A large section in the middle of the room was left untouched as the excavators apparently followed the walls and concentrated on revealing the total extent of the structure. This is reflected in the number of vessel finds (MNV 12), which must be considered rather low.

Room II

The small rectangular corner room II measuring 2.8 x 2.6 m is entered from the previous central room through a doorway of 1 m width. Along the western wall, a line of slab stones was set stretching across the room from north to south. The width of the construction is 0.45 m and it is built of slab stones of medium size. The largest piece is a well-formed triangular corner slab 0.60 x 0.45 x 0.45 m in the northwestern corner. It is still attached to the wall, remaining roughly 15 cm higher than the other slates. Together they formed a bench or work plane extending along the full length of the western wall. Excavation notes made a further mention of a semicircular construction in the middle against the northern wall. Built against the niche in the wall with a diameter of 0.90 m, it had another slab stone laid in the middle.

Room II indicates a strong emphasis on fine wares with 60% of all the vessels attributed to the room (Fig. 16). Among the shapes for serving and eating, the bowls (MNV 6) dominate, constituting over half of the examples found in the total house. The kantharoi (MNV 3) and the plates (MNV 2) are other common shapes whereas the one-handler, the unguentarium and the miniature skyphos are represented by only one vessel each.

The pottery finds and the architectural features give plenty of references to the function of the room. As noted, the great majority of all the pottery finds belong to the black glazed fine ware. In this small room they make sense only as placed in a cup board. The vessels were kept safe in storage, when not used during the meals or other social occasions.

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[15] Hoepfner 1999, 401-402.

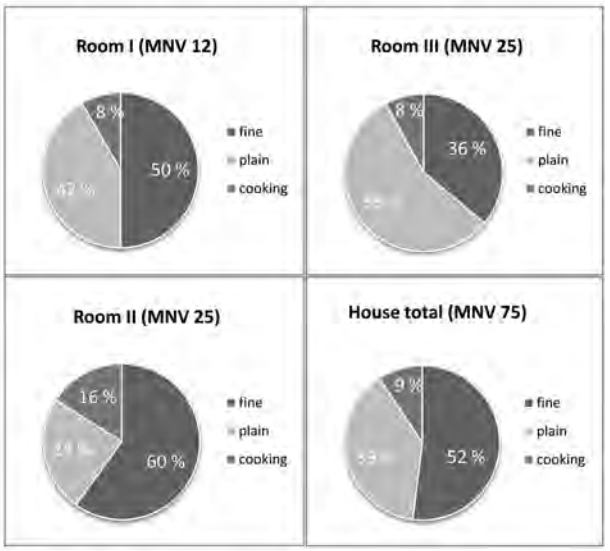

Fig. 16. Distribution of ceramic finds across the house; fine, plain and cooking ware.

However, the room provides further evidence, which cannot be understood exclusively by looking at the ceramic data. The find assemblage includes several fragments of grindstones together with an architectural feature of stone bench or plane. The investigation of the domestic material has shown that in the ancient world that particular combination was in fact common, the permanent grinding benches raising the grindstones off the ground for more comfortable use.[16]

Yet another aspect of the room's functionality is shown by six loom-weights. The number is over half of what was found in the whole building complex. It is notable that house A at Orraon provided a large number of loom-weights both inside and right outside of the similar corner chamber next to the hearth room. This has led Hoepfner and Schwander to propose the function of this room as isteon, a place where the loom was situated, whereas the actual weaving could be performed either inside the room or outside, if preferred.[17]

Room III

The third room in the southwestern corner of the building encloses an area of 2.8 x 5 m. Like room II it is entered from the central room through a doorway (1.1 m) in the east. Yet the room also seems to have a wide opening of 3.6 m leading outside to the west, serving probably as an open doorway or including a double-door. Such a large doorway could have facilitated wheeled traffic, and is commonly associated with houses where agricultural products were processed or stored.[18]

The ceramic assemblage has again a clearly distinctive character apart from rooms I and II, indicating a very different function (Fig. 16). Over half of the vessels (56%) are composed of plain wares attributed to the category of storing in particular. A high number of pithoi (MNV 6) together with an amphora appears significant.[19] These numbers refer to the room's special function of storage. Against this background it increasingly makes sense, that the large opening in the western wall was indeed intentional.

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[16] Cahill 2002, 164-166.

[17] Hoepfner and Schwander 1999, 408-410; Angeli 2005, 39.

[18] Cahill 2002, 115. For Orraon, see Hoepfner *et al.* 1999b, 395-409; Angeli 2005, 35-41, where a room of similar size was provided with a large doorway, which was blocked in a later reconstruction.

[19] These numbers involve some uncertainty, which needs to be pointed out. As the finds in general were assigned very unambiguously to certain rooms, most of the pithoi constitutes an exception. They were stored in four plastic crates one upon the other with only one tag attached, stating that they come from room III.

Apart from storage, the ceramic finds of room III further indicate a function of preparing food. Two mortars and four lekanai were documented here, providing a clear majority of both shapes in the building complex. It is somewhat surprising to find four fine-ware bowls and three kantharoi in this room, with such a strong character of storage and preparing. One may speculate on the possible collapse of the cupboard in room II spreading sherds into the room next door, when the house was destroyed.[20]

Room IV

The largest undivided space of the building is room IV. It is also the easternmost in the complex and has a roughly square plan measuring 7 x 7 m. The southern wall has lost some of its stonework and it is slightly twisted from the principal east to west axis of the house. Several slab stones were found outside the southwestern corner of the room. They probably belonged to a corridor leading to the main entry of the building. Further, a worked stone block (47 x 60 cm) with notched cuttings in the corners and equipped with lifting bosses lies close to the south wall inside room IV.[21] It appears to be removed from its original location and I am inclined to interpret the block as a base for a flight of stairs, which ascended to the second floor from room I.[22]

The excavation memorandum makes a short remark on stratigraphy of the room, noting that here the continuous destruction level with a carpet of tiles could only be found tentatively in the northwestern corner of the room. The absence of a destruction level with roof-tiles may indicate that room IV was not covered, at least not as properly as the rest of the building, and a lighter make-shift construction would have left only faint traces in the archaeological record. It is tempting to suggest the function of a stable for this architectural addition to the house complex in Sevasto.[23]

In general, the observed stratigraphy of the Sevasto house gives no indication of two separate layers, which would distinguish any second-floor assemblages. Yet the thickness of the foundation walls is exceptionally great, 60 cm, and they would clearly allow the construction of a second floor. The existence of the stair base further strengthens the high probability that a second floor also existed in the house, in much the same way testified by the typical *Herdraumhäuser* of Orraon and Cassope.

Combining all the above-mentioned information, the following room functions or activity areas are suggested for the Sevasto house (Fig. 17). It goes without saying that the identification of the stable remains very tentative and clearly requires further archaeological research to confirm. The domestic core of the building with the functions of the three ground floor rooms, nevertheless, can be proposed on a much more secure basis.

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[20] For Halieis, see Ault and Nevett 1999, 48; Ault 2005, 46. For Orraon, see Hoepfner 1999, 408. Alternatively, they could even be seen to form a part of the possible assemblage of the collapsed second floor.

[21] For an example of a similar rectangular block in Halieis, see Ault 2005, 14. The cuttings in the corners were interpreted to hold and brace the wooden structure of the stairs.

[22] The excavation report refers to the block as a stepping stone of the door (Petsios 2005).

[23] In their respective interpretations, both Dakaris and Hoepfner and Schwandner have reserved a stable for animals in one of the rooms in house A, adding that the character of the Orraon houses was seen as largely rural (Angeli 2005, 41).

[24] Rotroff 1997, 94-95; Rotroff 2006b, 357.

[25] See T. Talvio, this volume. One of the coins, dated to the Late Hellenistic period, speaks against this general picture of coherence but the coin may be considered intrusive as it was found above the destruction layer.

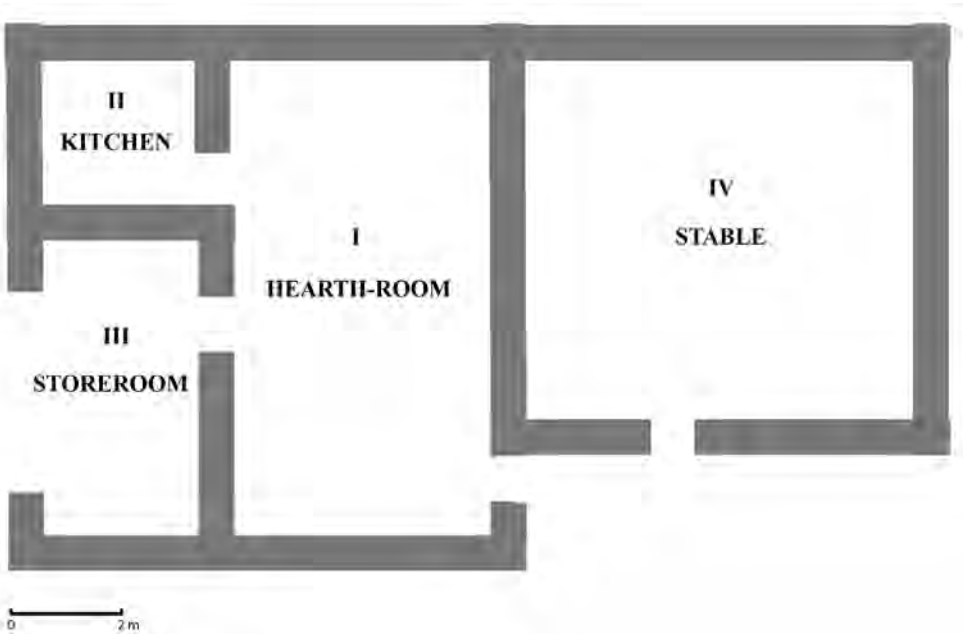

Fig. 17. Suggested room functions of the Sevasto house.

Historical context and conclusion

The overview of the finds points to a relatively narrow period of time during the Early Hellenistic period. The more closely dated finds of the ceramic assemblage fall into a period of some 150 years, indicating 325-175 BC. This result is confirmed and refined by the investigation on the shapes of drinking vessels. In the absence of the common shapes of the Classical and Late Hellenistic times, i.e., the skyphos and the Megarian bowl, it is the distinctive shape of the Hellenistic kantharos which clearly dominates the Sevasto assemblage of drinking vessels. This evident lack of skyphoi and mould-made vessels narrows the time frame to roughly 275-200 BC.[24] The coins, while offering yet another reference point, suggest only a rather wide and general period from the third to the first century BC, which, nevertheless, is in line with the dating of the ceramics.[25]

The end of the third century fits well with the troubled times experienced in Epirus. During the last decades of the third century Epirus was ravaged from the north by the Illyrians and from the south by the Aetolians. While the Illyrian attacks were felt hard in Northern Epirus, the plundering of the Aetolian forces must have been potentially most devastating in the south and, in particular, for the population living in the insecure countryside of the Kokytos valley. The Aetolian activities relate to the Social War, which was waged during 220-217. The threat was finally checked only in the 209 peace treaty.[26]

Although the infamous year of 167 BC in Epirus is commonly associated with the majority of the detected destruction layers in the Hellenistic period, I consider it more likely that the Sevasto house was abandoned and destroyed some time before that, possibly as early as 220 BC. The period from 275 to 220 BC corresponds to a habitation

[26] Hammond 1967, 595-612; Sakellariou 1997, 79-81.

of only two or three generations and is supported by the rather low number of finds (MNV 75) for a house of this size.[27] The abandonment of the house appears to have been a relatively sudden process and only the most valuable and portable items have been moved to the new destination. What was left behind, notably the roof-tiles and the heavy vessels like pithoi, still covers in fragments the unexcavated areas of the building. Although they clearly had a reasonable value for the owners, they were abandoned due to their large size or weight. The walls of Elea were never far away and chances to escape the hostile force plundering the countryside must have been high, given the fact that the approaching enemy could be spotted well ahead from the chain of fortresses in the valley. The owners apparently never returned to the house and it was not inhabited again. This may speak for the continued unsettled political situation after the Aetolian threat was checked. The fertile valley bottom may not have been considered a secure place for permanent inhabitation in times of political turmoil – instead the population gathered inside the walls of Elea.

The Sevasto house remains a fine example of the wealthy Early Hellenistic period in the Kokytos valley. The prosperity which came along with the successful conquests of the Aiakid dynasty spread across Epirus, and is apparent in the archaeological record of the Kokytos valley. Yet it is not only the material culture which makes the Sevasto house a site of particular interest. The architectural structures represent the traditional building type of the *Herdraumhaus* in the very basic form before the general architectural diffusion of the house structures testified all over Greece during the Hellenistic period. It serves as a rare example of the rural house type in its non-urban environment. In connection with the urbanization in Epirus, the traditional building unit of a large hearth-room with chambers was fit into the urban grid plan. Once set into an urban environment the house type soon started an architectural evolution, which saw the traditional building unit vanishing in favour of more sophisticated solutions such as those apparent in the ground plans of the Hellenistic cities like Cassope. The Sevasto house provides the missing link between the one-room shelters of Vitsa and the sophisticated urban houses of Hellenistic Epirote towns. Furthermore, the house speaks of the troubling times in the end of the third century with severe political turmoil followed by frequent conflicts.

[27] Despite the fact that the house was not excavated in its entirety.

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Further Observations on the Hellenistic Fortifications in the Kokytos Valley

Mikko Suha

The northern part of the Kokytos valley is home to four ancient fortified sites, the Castle of Paramythia, Elea, Agios Donatos and Kioteza, all of which are situated on the western foothills of the Paramythia range. Of these, the two small sites, Agios Donatos and Kioteza, remained virtually unknown until recently (Fig. 1). No archaeological excavation had previously been conducted on either site, and only short references to them could be found in the literature. N.G.L. Hammond was the first to refer briefly to Agios Donatos in 1967, whereas S. Dakaris described both Agios Donatos and Kioteza in 1972.[1]

Both fortresses have recently been examined and excavated by the Thesprotia Expedition: Agios Donatos in 2005-2008 and Kioteza in 2006 and 2008. My previous article on Agios Donatos[2] was based on the data available in 2006, but since then the site has yielded more information. Furthermore, even the unexplored neighbouring fort Kioteza has had trenches opened up within its perimeter, thus justifying this second article, which mainly concentrates on the structural remains and architectural features of the fortifications and not so much on the actual excavation process or the mixed strata found during the excavations.[3]

Agios Donatos

Drawing on data gathered during the two initial years of work we concluded that the fortification walls were built at some stage between the last decades of the fourth and mid-third century BC, most likely during the first quarter of the third century, i.e. the time of Pyrrhus. The archaeological record on site was affected by the later Roman re-use of the site.

Since the previous study two features of the fortifications have been examined in more detail: the large tower at the eastern end of the enceinte, and the straight-angle corner located at the south-eastern sector of the enceinte (Fig. 2).

The tower

A massive quadrangular tower dominates the eastern approach of the fortress, providing defense on the side where access is easiest. The most striking feature of the tower is the fact that it has an inner chamber at ground level. The tower measures some 7.30 x 6.50 m in width and depth respectively, with a chamber measuring approximately 5.50 x 4.40

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[1] Hammond 1967, 71; Dakaris 1972, 138-139.

[2] Suha 2009.

[3] I wish to thank Björn Forsén for all the support he has given me, as well as for the possibility to study these fortifications as a member of the Thesprotia Expedition. Figs. 2, 3, 10 right and 11 right are after a general map made by J., T. and A. Okkonen, Figs. 12, 13 and 18 after a general map made by J. and T. Okkonen. Fig. 14 is taken by T. Turmo. All the other illustrations are by the author.

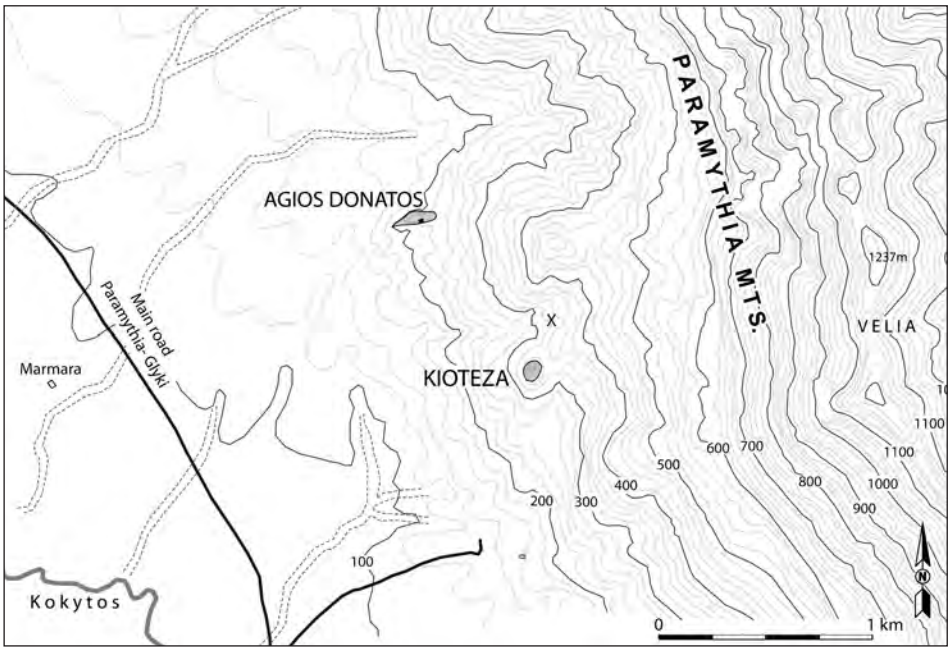

Fig. 1. General map of the area showing the location of Agios Donatos and Kioteza. The high pass over the Paramythia Range, Velia, is also marked. X indicates remains of a Roman (?) water pipe line in connection to a spring.

m[4], yielding a total floor area of 24.2 m². A doorway, 0.95 m wide, is built in the south-western corner. The walls of the tower consist of two faces of polygonal masonry[5], with a thickness of 1.02-1.07 m. Unlike the thick curtain walls[6] of the fort, the tower walls only have a very narrow space in between the two faces, which suggests that there never was any filling in between.

After the season of 2006, which concentrated on the tower for the first time[7], the excavation of the tower was resumed in 2007. The large fallen blocks which had previously hindered excavation near the eastern wall of the tower were removed using a tractor with a back-hoe. As a result the area excavated inside the tower was more than doubled in size, completely exposing the southern wall and approximately half of the eastern wall and a part of the western wall down to their foundations (Fig. 3), thus yielding more information on the structure of the tower. When the tower had collapsed it had tumbled towards the south-east, with the blocks from the northern wall filling the chamber. Approximately one third of the chamber still remains unexcavated as the remaining rock tumble near the northern wall makes any further excavation difficult.

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[4] The measurements in the first article differed slightly from these, being somewhat smaller. The measurements in this article are more correct, however, as the dimensions of the chamber after two field seasons of excavation could be examined more thoroughly.

[5] Polygonal meaning blocks with more than four sides on the facing, meeting at obtuse angles. Polygonal blocks can be of varying shapes, whereas ashlar blocks are always quadrangular and even-sided. See Scranton 1941, 16-17, 45; Winter 1971, 84.

[6] Curtain walls are the actual defensive walls of the fortress.

[7] Suha 2009.

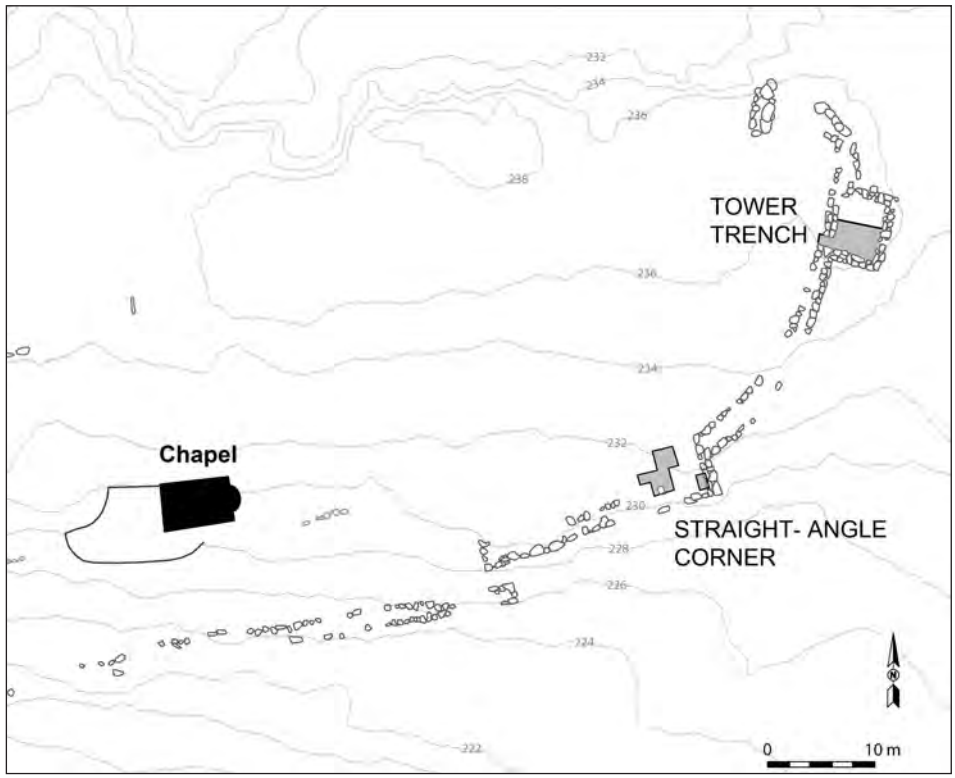

Fig. 2. The fortifications of Agios Donatos and the excavated areas mentioned in the text.

All of the walls in the tower were built using bulging polygonal blocks quarried on site. Similar stones were used in both the inner and outer face, suggesting that the tower was built with a ground-floor chamber right from the start.[8] The excavation revealed that the southern wall today is standing to a height of 2.80 m, far higher than was anticipated. The southern wall consists of especially large and irregular blocks; their sizes ranged from 0.82 x 0.22 up to huge 1.36 x 0.90 m in width and height respectively. The thickness of the blocks was more difficult to ascertain, but it seems to fall into a 40-50 cm category. Four of the blocks used are cut in a manner called *keying*[9].

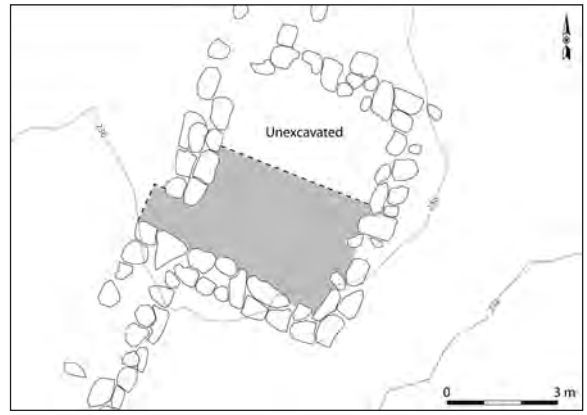

Fig. 3. Plan of the tower. Excavated area highlighted with gray.

[8] If the tower had been built with a solid ground floor, there would not have been any inner face.

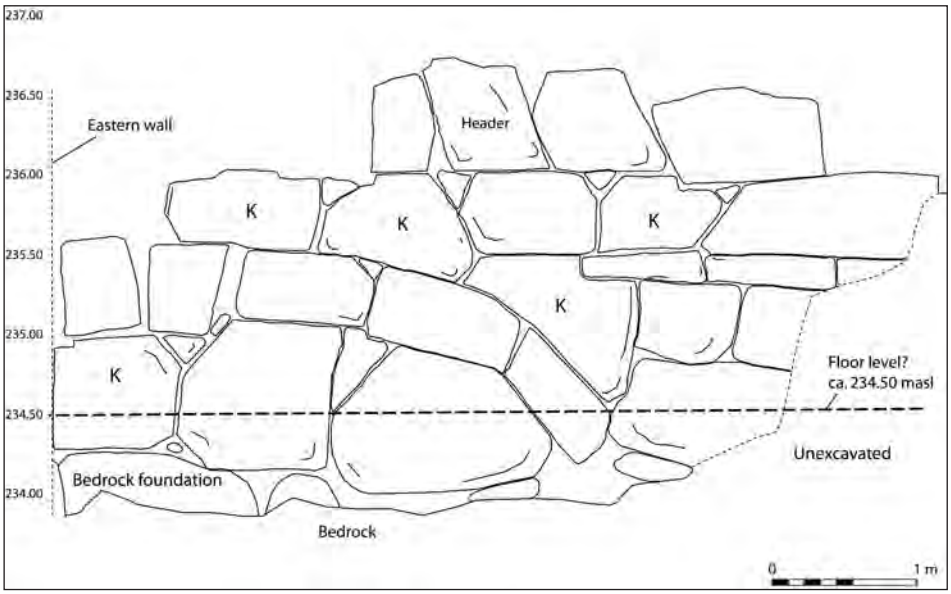

Fig. 4. South wall, south-facing elevation with the assumed original floor level at 234.50 masl. Note the frequency of triangular plugs and keyed blocks (K).

Between many of the blocks, small triangular *plug* stones of ca. 0.2 x 0.2 m range have been placed in order to make the courses more even.[10] One *header* block is preserved in the uppermost part of the preserved wall (Fig. 4). Header blocks were laid crosswise into the wall in order to bond the wall faces together.[11]

The eastern wall, on the other hand, is badly destroyed and some of it still remains obscured by tumbled blocks despite the clearing efforts. Approximately half of its length was exposed up to a height of some 1.4 m. Keying and several triangular plugs are discernible in this wall also. The plugs are slightly larger than the ones found in the southern wall, up to a 0.3 or even 0.4 m range. Within the exposed stretch of the wall there are two header blocks, both in different masonry courses (Fig. 5).

The western wall still stands up to a height of 2.4 m, but the upper part has shifted inwards when the tower collapsed, especially right next to the doorway. As a result the remaining wall leaned dangerously into the chamber. Thus, as a precaution it was only excavated down to bedrock in the extreme northern corner of the trench, furthest away from the doorway, where the wall still retained its original position. The blocks used in the western wall are somewhat more quadrangular than in the other walls. One keyed block is visible, as well as two triangular plugs.

The walls of the tower, like the whole fortress, are founded directly on bedrock. However, the bedrock is fairly uneven. In places it consists of sharp, narrow ridges up to 40-

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[9] Lawrence 1979, 238. Keying involved using somewhat L-shaped blocks in the wall. Such blocks supported the wall in an incline, acting as hooking blocks against the direction of the slope.

[10] Lawrence 1979, 238. Triangular plugs standing on their apexes were sometimes used as filling stones between large irregular blocks. Small plugs were usually placed at the top of the course, but sometimes a larger plug could be placed filling the entire course. Nevertheless, such plugs were always placed with their apex pointing downwards.

[11] Karlsson 1992, 68-69.

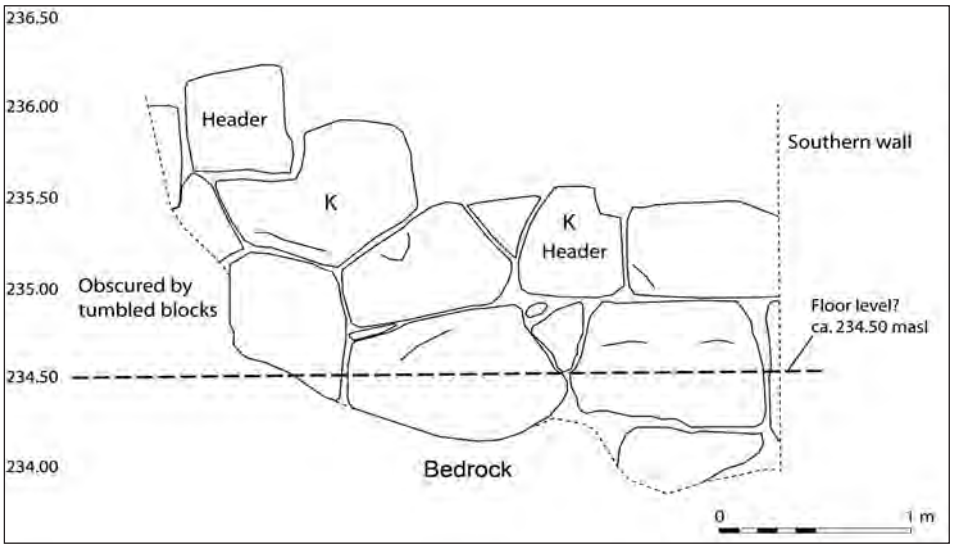

Fig. 5. Eastern wall with the assumed original floor level at 234.50 masl. Header blocks and keyed blocks (K) are also marked.

50 cm high, as was evident near the southern and eastern walls of the tower. The southern wall is built on top of the sharp bedrock outcrops at a height of 233.84-234.02 masl. But at the northwestern part of the trench, approximately in the middle of the chamber and close to the western wall the bedrock is smooth and level. Here the bedrock is on a considerably higher level, with the lowest parts at 234.51 and the highest at 234.74 masl (Fig. 6).

It seems unlikely that such sharp, relatively high bedrock outcrops as found close to the southern and eastern walls would have been utilized as a floor level. Instead one would rather think that they were covered with an earthen floor, filling the space between the ridges and covering them. Indeed, the excavation revealed that the soil in the lowermost 80-90 cm was of a dark, somewhat looser matrix with relatively many black glazed sherds and no Roman material. On the other hand, the layer above this stratum consisted of reddish, somewhat clayey soil with considerable amounts of Roman and only a few pre-Roman finds.

The floor of the ground-level chamber was seemingly left uneven. The smooth rock surface in the middle of the chamber at the altitude of 234.58-234.74 masl was left jutting out of the floor, whereas the earthen floor elsewhere in the chamber seems to have been located at 234.50-234.55 masl, just high enough to cover the sharp bedrock outcrops. In this case the largest blocks in the southern and eastern walls would have been half covered by the soil, which would have added to the stability of the walls (Figs. 4 and 5).

Whatever the case, it seems that the later Roman period re-use of the tower involved building a new concrete or *cocciopesto*[12] floor roughly 10-15 cm higher than the Hellenistic floor, at approximately 234.60-234.65 masl. Strangely enough, it appears that

[12] Adam 1994, 232. According to Adam the Roman floor building technique consisting of four layers is known as *opus signinum* or *cocciopesto* in Italian. The lowest layer (statumen) consisted of dry laid pebbles, followed by rudus, which consisted of lime mortar intermixed with gravel. On top of these was laid a layer called nucleus, which in turn consisted of lime mortar with broken tiles mixed within. The actual floor surface was only laid on

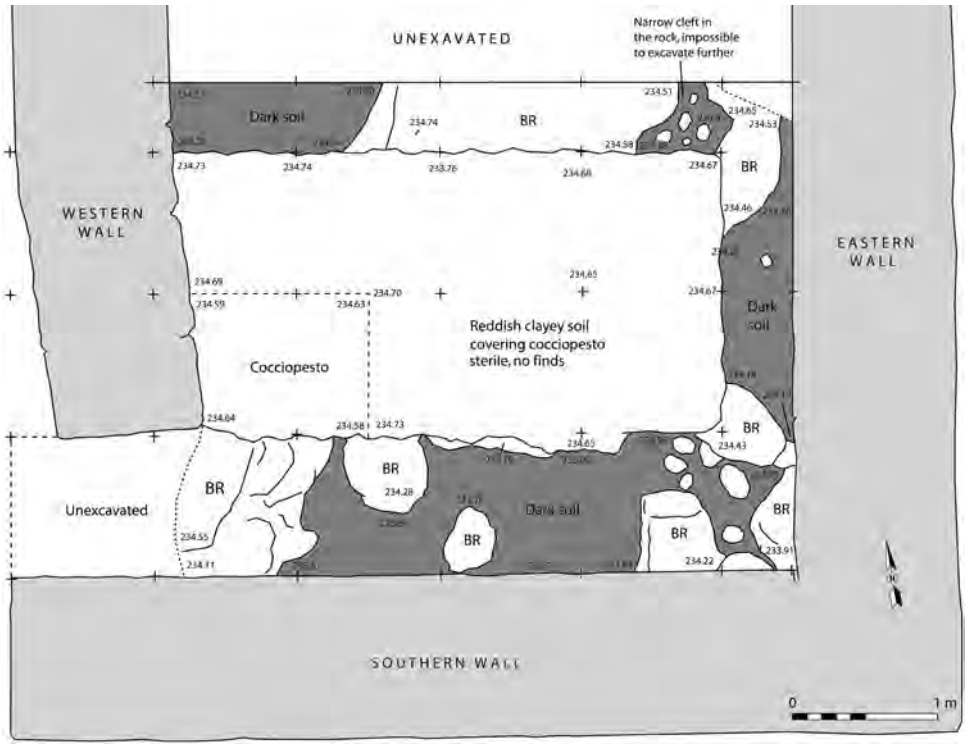

Fig. 6. Final plan of the tower trench. In the middle is a hard layer of *cocciopesto*, which turned out to be impossible to penetrate. Near the edges it was possible to reach bedrock (covered thinly by dark soil). Bedrock outcrops are marked with BR.

even the Romans left the floor uneven, with the previously mentioned smooth bedrock outcrop remaining some 10-15 cm higher than the floor. It also seems that the *cocciopesto* was only poured in the center of the chamber, so that close to the walls the earthen floor prevailed. Close to the southern wall, the concrete was thinnest and we managed to chip away the floor and excavate up to a meter deeper, but in the center of the chamber where the material was thicker it prevented all further excavation.

Keying was commonly used in walls built of regularly shaped blocks, such as ashlar or trapezoidal. Occasionally polygonal, roughly L-shaped blocks were used to anchor the regular masonry courses against the direction of the slope, adding to the stability of the wall descending a hill. The use of both keyed blocks and triangular plugs seems to have been frequent in the Peloponnese during the early Hellenistic period.[13] At Agios Donatos all the blocks used in the tower walls are polygonal and thus irregular. Therefore the keying of blocks played no significant role in anchoring the walls against the slopes on which they were built. Only in the southern wall is keying consistently used

top of these. At Agios Donatos all the observed floor foundations were of the second, rudus layer, with white limestone gravel mixed within lime mortar.

[13] In western Arcadia at least three enceintes have such features visible: The small fort at Gortys, as well as in Paleokastro and Agios Nikolaos near Vlachorafti. All are connected with the Macedonian occupation of Peloponnese, more precisely from the late fourth to the early third centuries BC. See Martin 1947, 144-147; Charneux and Ginouves 1956, 528-532, 541-542.

against the direction of the slope, with the L-shaped blocks' lower parts on the uphill side and higher levels on the downhill sides. In both the eastern and western walls, the appearance of blocks with keying is dictated by the shape of the particular blocks at hand rather than a conscious effort to strengthen the walls against the incline of the slopes. Plugs were used in the inside faces of walls whenever required, also due to the shape of individual blocks. On the outside faces, such plugs do not seem to have been as frequent, most likely because they might be knocked off and thus endanger the stability of the wall.

The southern wall has no remains of arrow slits or other apertures despite standing to a considerable height. If the original floor level was at approximately 234.50 m, the wall would still reach a height of 1.4 to 1.95 m above the floor level. No arrow slits would have been built higher than that. Neither does the eastern wall seem to have had any apertures, although the now disappeared upper masonry courses might have contained them. If the eastern wall had no apertures, one is inclined to think that the lowest chamber of the tower was used purely for storage or living quarters and not for defensive purposes. This would be consistent with Winter's observation that the ground-floor chambers in the fourth century or early Hellenistic towers had no active military role.[14]

The straight-angle corner

According to Hammond and Dakaris the fort had two towers as well as two right-angle turns of direction in the wall.[15] Two right-angle turns are indeed visible in the southeastern corner of the enceinte: Approximately 25 m south-west of the tower the curtain wall makes a 90 degree angle constituting the first jog of the *indented trace*.[16] The second jog, through which the southeastern gateway is built, is some 22 m further west.[17] The first corner has remains of a peculiar structure, which is worth looking into in detail. Could this structure have been interpreted as the second tower by Dakaris?[18]

The curved curtain wall running between the tower and the first jog of the indented trace varies between 1.9 and 2.4 m in thickness, being narrower close to the tower and thicker next to the corner. As the eastern curtain reaches the flank of the indent, the thickness of the wall abruptly changes from 2.4 to approximately 1.0-1.15 m (see Fig. 2). A few meters westward from the corner the curtain has collapsed. After some 8 m the inner face of the southern curtain comes into view; between this point and the corner the trace of the southern inner wall has disappeared. Where it was possible to measure, the thickness of the southern curtain varies between 1.9 and 2.1 m.

The curtain walls are built of an interior and an exterior face of polygonal masonry, between which there is a filling of compacted rubble and soil. The variation in the

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[14] Winter 1971, 180.

[15] Dakaris 1972, 138; Hammond 1967, 71. Hammond describes seeing remains of two towers in the northeastern corner of the enceinte. One tower is obvious, but the other one could not be found. Most likely he interpreted the large blocks of the western wall of the northeastern gateway as being the second tower. Dakaris, on the other hand, when describing the fortifications on the southern edge, speaks of two towers there.

[16] Lawrence 1979, 349; Scranton 1941, 150, 153. An indented trace consists of long sections of wall known as faces, and, at right angles to faces, shorter walls known as flanks or jogs. The alteration of faces and flanks sometimes for a considerable length creates a somewhat saw-tooth ground plan. It could be used as an inexpensive enfilading device instead of much more expensive towers.

[17] In Suha 2009, 122, I erroneously claimed that the face of the first jog would have been as long as 40 m.

[18] See note 15. Perhaps even Hammond spoke of this as a second tower, if he actually meant the eastern end of the enceinte rather than specifically the northeastern corner. The description is rather vague, after all.

thickness of the curtains can be explained by the swelling of the wall's earthen fill due to rainwater seeping into the structure. When the filling swells, it pushes the masonry further outward, eventually causing it to collapse.[19] On the other hand, the narrow wall in the corner consists of two faces with no filling in between, in this respect resembling the structure of the tower.

The present ground level inside the corner is approximately 3 m above that of the present ground level outside the fortress, too low for having been topped only with mere battlements. The interior wall face in the eastern, or flank, side is clearly visible all along its course. On the southern, or face, side the interior wall has disappeared, with only the lowermost blocks of the exterior face visible. However, the facing of the southernmost block of the eastern interior wall, closest to the corner, has been cut smooth in its southernmost 10-15 cm whereas the facing on the rest of the block remains slightly uneven and bulging. This smooth area of the block most likely indicates the location of the southern interior wall face. The southern wall seems to have had a thickness similar to that of the eastern wall, i.e. between 1.0 and 1.1 m.

Immediately after removing a few cm of topsoil in a trench in the very corner, a continuous layer of rubble was exposed all over the trench at an elevation of 231.31-231.53 masl (Fig. 7). These roughly fist-to-head-sized stones were loosely laid, with practically no soil in between. I am inclined to think that this is the original structure of the corner; large, heavy blocks making up the outside facing were carefully laid for support, while the space between the outer wall and the natural bedrock slope was filled in with loose stones in order to form a level surface in the interior. It was common practice to construct such features; the loose fill with no soil would have let the water seep through quickly, in this way not endangering the stability of the corner.[20]

In the northeastern corner of the trench one could see that all the remaining blocks of the interior wall face were laid directly on top of the filling, indicating that this masonry course in situ was the lowermost course of the wall (Figs. 7 and 8). To stabilize the structure, a header block was built to extend underneath the second block of the inside wall face, which, besides the header, was supported only by the rubble fill (Fig. 8). In the southern wall, the lowest blocks belonging to the inside face would have been located in the next masonry course, which however has disappeared. The actual floor level in the corner would most likely have been situated at least 10 to 40 cm above the level visible today, at approximately 231.60-232.00 masl. Thus, the fill and the blocks remaining today would originally have been hidden from view.

The same multitude of large, loose stones was found immediately below the topsoil also in another trench some 4 to 6 m further to the west. However, this trench was mostly covered by *cocciopesto* [21] floor which was poured directly on top of the rubble fill, hindering any further excavation in the area. In the southern part of the trench, some 4.12 m from the corner a large polygonal block was discovered *in situ* (Fig. 9). The block had been laid with its long side in a parallel course to the eastern wall, but it was difficult to expose the block completely as it also was partly covered by *cocciopesto*. At the location where the block was found, the ground slopes down toward the south, as there has been a landslide causing considerable damage to the curtain wall. Most of the curtain as well

[19] Hammond 1967, 715.
[20] Lawrence 1979, 217.
[21] See note 12.

Fig. 7. The straight-angle corner, view towards southeast. The loose rubble filling and the lowermost inner face blocks of the narrow corner wall are visible. The block adjacent to the flag has traces of the adjoining wall.

Fig. 8. The straight-angle corner, detail view towards southeast. The upper blocks are laid directly on top of the filling. A header, marked by arrows, is visible in the lower course. Around the block and in the foreground is the rubble fill. Note the large hollows around the rubble.

as everything behind it had tumbled downhill, eradicating all traces of curtains in the area (Fig. 9). The top of the newly found block was located at ca. 230.15 masl, which is approximately 1.20 m below the level of the first trench and up to 1.5 m below the assumed floor level.

There are two possibilities why this block was found where it was. Firstly, it could indicate where the narrow wall in the corner changed into a thick curtain wall (Fig. 10). The block could also have been a header in the interior wall face, as it is located where the interior face of the curtain wall would have stood. If there was a similar block located in the exterior wall face, now disappeared, they could have formed a cross-wall within the curtain. Cross-walls were used to divide the curtain into independent compartments, so that if one compartment should suffer a collapse, it would not have endangered the entire curtain. In Hellenistic fortifications, cross-walls dividing the fill into regular compartments were sometimes systematically used.[22] However, it cannot be ascertained today whether this was the case, as the walls in the area are so badly destroyed.

What kind of structure could these features indicate? In the corner there is a clear reduction in the total wall thickness. To the east and west of the corner the curtains are approximately 2 m thick, whereas the walls at the corner are only half of that. The corner structure has not been an actual tower as it does not protrude from the walls, yet its structural features do bear close resemblance to one.

The features of the corner could be explained in two ways. Firstly they could be interpreted as indicating the use of *ikria*, meaning scaffolding or a boarded platform. The

Fig. 9. The straight-angle corner, view towards south. To the left is the rubble fill; to the right, pointed by the arrow, is the large block. Dashed line indicates the location of the inside faces of walls. The cocciopesto floor, poured directly on top of the original rubble fill, is visible underneath the north arrow. The landslide is visible on the right-hand side.

[22] Karlsson 1992, 74; Winter 1971, 135- 136, n. 36. According to Winter, compartmenting was never used systematically in polygonal walls. See however Bogdani 2006, 51, fig. 7, where a series of cross-walls can be seen crossing a polygonal curtain at Çuka e Aitoit.

term was used in theatre to describe movable, wooden props. The third-century author Philo of Byzantion (*Parasceuastica et poliorcetica* 1.15.36) used the term in fortress-building, to describe planking used as a wall-walk or on stretches between the wall-walks and towers. In times of danger this planking could be removed to isolate the towers and to hinder the enemy movements on curtains.[23]

Typically a curtain wall consisted of the actual wall topped with thinner breastworks or a parapet over the outer side, protecting the wall-walk or *parodos* on which the guards patrolled. Ideally the parodos should have allowed two guards with their kit to pass each other unhindered. Most commonly the curtain walls were between 2.5 and 3.5 m thick, while the parapet was usually one block or some 0.6 to 0.75 m thick. That would have left an area of some 1.75 to 2.90 m as the width of the wall-walk.[24]

At Agios Donatos the thickness of the curtain walls varies between 1.9 and 3.2 m. The narrowest walls are located near the eastern edge of the enceinte, while towards the west they gradually become thicker. If we assume some 0.6 m as the thickness of the parapet, there would have been space for wall-walks with clearances of some 1.7 to 2.6 m. Clearly this would not have worked in this corner, however, as the thickness of the walls here is only around 1 m, leaving a mere 0.4-0.5 m wide stretch of the wall to walk on. The solution would have been to build the missing 1 m thickness of the wall-walk on wooden scaffolding or *ikria* anchored into the wall. The joists could have been built into the wall, leaving the ground floor in the corner free of any obstructions.[25] (Fig. 10.)

But why reduce the thickness of the curtain in this corner in the first place, as a thinner wall would have been more vulnerable and thus potentially dangerous for the inhabitants? The obvious answer is the need to protect the south-eastern gateway, located some 22 m to the west. The thin walls in the corner would only have made sense if they were pierced with arrow slits, perhaps up to two but at least one slit per side. Above these ground-floor slits another defensive feature, the parapet, would have added to the defensive value of the corner. The parapet would have consisted of either a series of crenellations, or more likely an *epalxis*, a high screen wall pierced by a series of apertures at regular intervals.[26] This would have allowed more defensive fire to be directed at the approaches to the gate than would have been the case if the corner was built using normal curtain thickness. No slits could have been built through a two-meter thick wall; and even if that had been possible, the fields of fire from such huge and thus excessively deep apertures would have been severely restricted.

The loose rubble fill in the corner gives some indication that the ground level inside the jog would have been located at least some 3 to 4 m higher than the ground level on the outside. Most of the perimeter of Agios Donatos is built similarly, along a slope with the inner face sitting at least a couple of meters above the lowest course of the outer

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[23] Karlsson 1996, 88-89; Lawrence 1979, 347-348; Winter 1971, 143- 146. Typically the ikria consisted of stone buttresses or spurs built into the back of the curtain wall. The wooden parodos then stretched between the spurs. The first safely dated example can be found at Gela in Sicily, dated to around 282-280 BC.

[24] Lawrence 1979, 345; Winter 1971, 127.

[25] As the corner is so small in size, there was no need for stone buttresses to support the structure. Also, the scaffolding would not have been removable, but a permanent fixture.

[26] Winter 1971, 139-140. As no evidence of either kind of parapets on site was found, it is not certain which of the two was used at Agios Donatos. I personally am inclined to think that a continuous screen wall would have been the more likely choice.

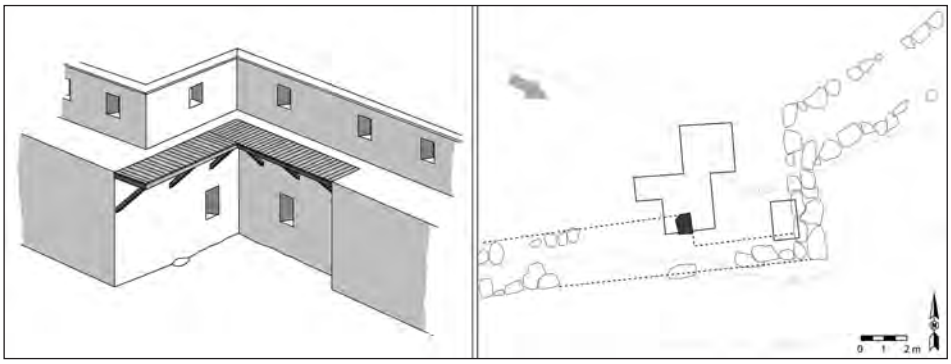

Fig. 10. The corner and the nearby curtains as an open space. The ikria would have covered the stretch with narrower wall in the corner. Also included in the drawing are the trenches excavated in 2008. The large block found is marked with a dark colour.

wall. Thus it was necessary to build only the outer face fairly high, as the inside face already sat higher up the slope. This was an ingenious way of saving labour and at the same time adding to the total height of the defenses.

Let us assume that the average height of the curtains of Agios Donatos would have been some 6 m. On the uphill side the wall-walk could have been located at the height of 4 m and thus at least 6 to 7 m above the outer ground level. The wall-walk would have been protected by a parapet which most likely would have been a continuous screen wall approximately 2 m high. Because the slope still descended fairly steeply even below the outer wall, it would not have been difficult for the curtains to reach heights of more than 10 m, a height safe from escalade attempts using ladders.[27] Using this estimate, there would have been ample unobstructed room in the corner, as the lowest supports of the scaffolding would have been located well above a man's head and the plank walkway at least some 4 m above the floor. The lower-storey slits would have been located at an approximate height of 4 to 5 m from the outer ground level, and thus they would have been relatively safe (Fig. 10).

An almost exactly matching parallel to such a construction can be found in Kydna, a Lycian fortress dated to the 280s BC. The fortress has very thin curtains, only 0.95-1.25 m thick, all around the enceinte. The *parodos* on top of the curtains was very narrow, only 72 to 90 cm wide, mostly constructed on cantilevered paving stones which can still be seen protruding some 20-30 cm from the inside wall.[28] However, in the northern sector, close to the main gate and tower 5, the wall-walk was built exclusively on planking resting on wooden scaffolding. Besides several towers the enceinte has five bastions, which consist of only three narrow walls and no roof. Most importantly, these bastions have apertures also in their lower levels, across the one-meter thick wall. The bastions protrude approximately 4.2 to 5.1 m, enabling the placement of a single slit per side. The arrow slits are 64-80 cm wide in the inside, whereas on the outside face the width of the aperture is ca. 20 cm.[29]

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[27] Kern 1999, 12.

[28] Adam 1982, 123-124; 165.

[29] Bastions 3, 7, 9, 11 and 13 lack inside walls; they are completely open to the inside. See Adam 1982, 69, fig. 34; 158, fig. 99; 159-161.

Another parallel for the use of thin curtains and towers with ground-storey chambers is the smaller fort at Gortys in the Peloponnese. The curtain walls at the western end are thin, only around 1.25 m, which would have necessitated the use of planking as the wall-walk.[30]

Much later the idea of multi-storey curtain walls was used to a great extent at Side and Perge, both of which are considerably later structures than Agios Donatos.[31] In Side and Perge the multi-storey curtains were not limited only to bastions or similar short stretches, but instead the curtains themselves were galleried. The curtain wall was thick and solid up to a height of ca. 3-4 m, then a row of vaulted galleries enabled the placement of small catapults, on top of which the *parodos* was located.[32]

The second possible interpretation of the features in the corner is a somewhat tower-like enclosed structure, essentially a tower which would not have protruded from the curtain wall except on the flank side. The large block found would in this case indicate where the western wall of the chamber was located (Fig. 11).

Using the measurements at hand, it is possible to hypothesize a square chamber in the corner. If the walls were approximately 1.0-1.1 m thick on all four sides, both the width and length of the chamber would have been 4.12 m, yielding a total floor area of 17 m². A second floor of similar proportions would probably have had a wooden floor on the wall-walk level. If this was the case, the upper floor would cover the entire chamber rather than just skirting around the walls like a mere *ikria*. Such an enclosed space would have enabled the defenders to use it more effectively, as a sort of guard-house. Moreover, such a space protected from the elements would even have made it possible to place a few catapults of the smallest caliber within.

It is obviously impossible to say whether there were any additional floors on top of the two considered here, but I would think that this tower's height did not exceed the height of the adjacent curtain walls and their *parodoi*.

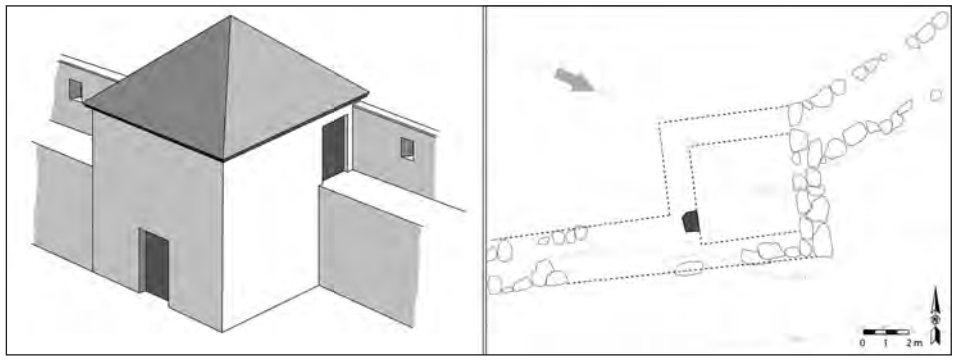

Fig. 11. The reconstruction with a 17 m² chamber and an upper storey of similar proportions. The large block is marked with dark colour. The roof shape and the location of doors are hypothetical. Drawing not to scale.

[30] Martin 1947, 116, 147. Martin dated the small fort to the second half of the third century BC.

[31] Karlsson 1996, 90, note 16; McNicoll 1997, 127-131, 143-148; Winter 1971, 142. Both Side and Perge were products of the second and first centuries BC.

[32] Adam 1982, 39; 40, fig. 11; 41, fig. 13; Karlsson 1996, 90.

Kioteza

Some 970 m south-southeast of Agios Donatos a neighbouring fortress, Kioteza, is built on a prominent limestone peak on the same foothills of the Paramythia range as Agios Donatos. However, Kioteza is much more defensible than the latter, being situated on a lone peak at some 350-370 masl, circa 220 m higher than Agios Donatos. Steep unassailable cliffs protect the western side of the fort, while approach is possible from the eastern, mountain side.

According to Dakaris the fortified area of Kioteza covers some 0.4 ha, 250 to 300 m in circumference, with fortifications on the northeastern side, while very steep cliffs protect all other sides, requiring no walling. The fortifications consist of a wall approximately 140 m in length and a gateway, adjacent to which the wall still stands to a height of 2.5 m. The wall he describes as being isodomic, i.e. built in ashlar masonry.[33]

In 2006 the fortifications were cleared of vegetation, whereafter we produced the first detailed topographical map of the site, revealing new details of the walls (Fig. 12). The fortress is in an extremely deteriorated state. Throughout the enceinte a single layer of stones is all that is left of the walls, except in two distinct places where up to five courses of masonry remain (Fig. 13). When the wall remains and the fallen blocks lower down on the slopes were examined, it became apparent that the prevailing masonry in the fort was in fact irregular polygonal instead of ashlar as purported by Dakaris. The blocks were probably quarried at the site, using whatever shape of rock happened to be extracted.

In the eastern corner of the enceinte stands a ruined tower, which Dakaris does not mention at all in his description.[34] The northwestern corner is still standing up to 2 m high, consisting of large squarish blocks. The blocks in the northern corner have faintly visible traces of vertical drafting in their exterior corners[35] (Fig. 14). From the tower the curtain wall runs in a northwesterly course for 20 m, terminating in a crosswise wall running south-southwest to north-northeast. This eastern curtain wall is very badly preserved, with only a fraction of the inside face visible. The crosswise wall is also in a very poor state, although up to four masonry courses are visible. It may indicate the more likely site of a gateway.

Northwest of the cross-wall there is an obscure stretch of some 8 m with tumbled blocks and a short stretch of very steep, uneven bedrock visible on the surface. Northwest of this, the outer wall can finally be traced well enough as the blocks have remained *in situ*. After running in a northwesterly course for some 5 m, the wall gently curves towards the west, running uphill for some 17 m until it comes across a huge boulder. This feature appears natural, consisting of several huge rocks standing in a precarious pile measuring some 6 x 3 m. However, it seems that the builders utilized this formation as a part of the curtain. The cliff here, let alone further uphill, is extremely steep, thus requiring no formidable barrier. The inside face of this western curtain is well preserved near the bend, with some 11 m preserved *in situ*.

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[33] Dakaris 1972, 138.

[34] Dakaris 1972, 138. Perhaps he thought that this structure was the gateway?

[35] Hammond 1967, 715; Lawrence 1979, 241-243. Vertical drafting was frequently used in the outer corners of towers and walls: each corner block had a sharp, exact corner with some 5-10 cm of both faces cut smooth, yet the rest of the block remained bulging and uneven. Such a feature was most likely utilized as a guide, to help the builders maintain the verticality of the walls during construction. In Epirus the use of drafted corners is particularly common.

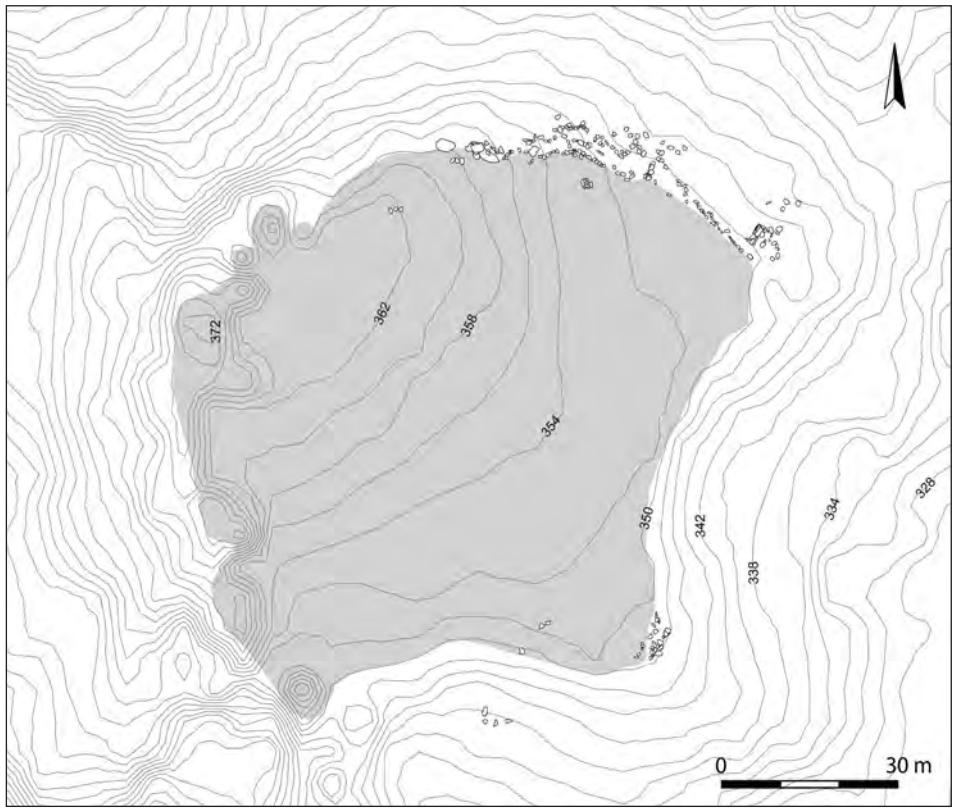

Fig. 12. Topographical map of Kioteza by Jari and Tuula Okkonen 2006. Marked are the hilltop (shaded area) and the possible remains of walls on site.

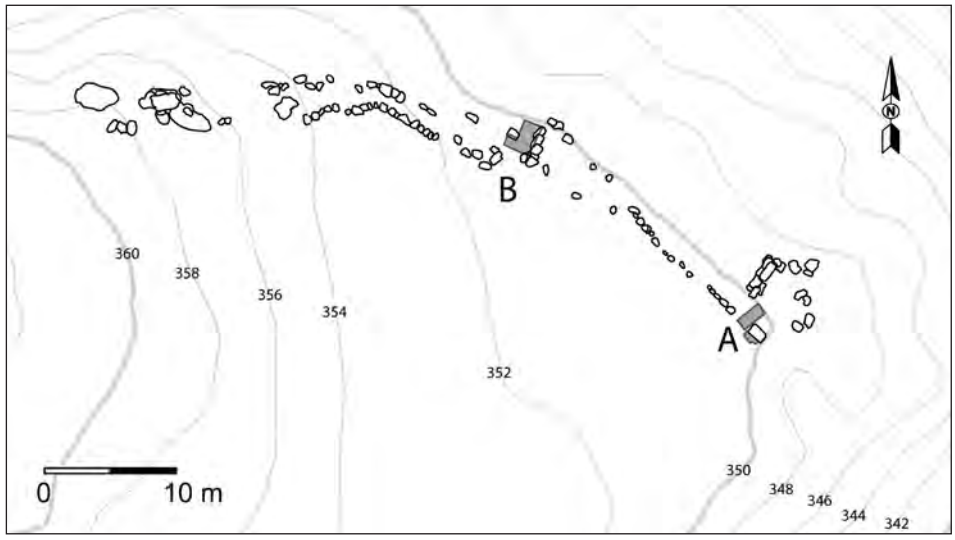

Fig. 13. Map showing the present condition of the fortifications at Kioteza together with trenches A and B. Contours at 2 m. After Okkonen 2006.

Fig. 14. The exterior corner of the tower, seen from the north. Note the faintly visible traces of drafting along the vertical edges of the blocks, indicated by arrows.

The fortifications are built on the northeastern side of the hill. There the approach is easiest due to a wide but low saddle connecting the hillock to the other foothills of the Paramythia range. The walls are built just above the 350 m contour line in the northeastern sector, where the lowest and the most even plateau on site is situated. This easily habitable plateau is covered with soil and vegetation, whereas the rising landscape towards the west and west-southwest consists solely of bare, uneven bedrock reaching at most a height of up to 372 to 374 masl. The southern hillside is steep, but not as steep as the others, probably allowing ascent from that side. To counter that possibility, there might have been a wall on the southern side also, but currently there are no clear indications of it. Only one single polygonal block was noticed on this side of the hill. Perhaps Dakaris included this

Fig. 15. The tower and trench A seen from within the fortress towards northeast. The outer face of the curtain can be seen to the left and the best-preserved exterior corner of the tower is visible in the upper part of the picture. The large block in the foreground is from the original southern wall of the tower, fallen on its side. The stone filling of the base can be seen in the trench.

Fig. 16. The gateway seen from the outside, towards south-southeast. The better preserved eastern wall is on the left, whereas the western wall consists of only one fallen block, whose original position is indicated by a dashed line. The gate corridor in the middle is blocked by loose stones probably originating from the filling of the adjacent curtains.

possible southern wall in his description. He claims that the fortifications cover a stretch of 140 m, whereas we were only able to find some 60 m of fortifications on site.[36]

Two trenches were opened in the fort: trench B next to the spot where a gateway might have been located, and trench A close to the best-preserved structural feature in the fort, the outer corner of the tower (see Fig. 13). After removing the topsoil in trench A we hit a layer of roughly head-sized rocks with somewhat clayey brownish soil in between. One layer was removed in case it was just some sort of collapse layer, but even the following layer was still the same, although now there were more stones and less soil. Adjacent to the trench a large stone was lying at a strange angle, indicating that it had fallen over at some time. When excavated, it was possible to find the even stretch of bedrock where the stone had originally lain. In its original position the block probably formed the corner of the doorway and the back wall of the tower (Fig. 15).

Thus, the tower seems to have had a solid foundation, filled with rubble and compacted earth. Probably the fill was not much higher than that which is visible today. The base of the tower at Kioteza greatly resembles the structure found in the straight-angle corner at Agios Donatos.

In trench B, on the other hand, it was possible to excavate deeper, on the uphill side up to 70 cm, whereas on the downhill side the bedrock was quickly reached. The fortifications are badly preserved, but they still consist of up to four stone courses on the eastern side of the probable gate (Fig. 16). On the western side there were no preserved

[36] See Fig. 12 (general map). On the southern side, on the edge of the darker-coloured hilltop, there is indeed room for an additional 80 m wall, incidentally on the 350 masl contour line. However, as stated, we were unable to find any substantial remains there.

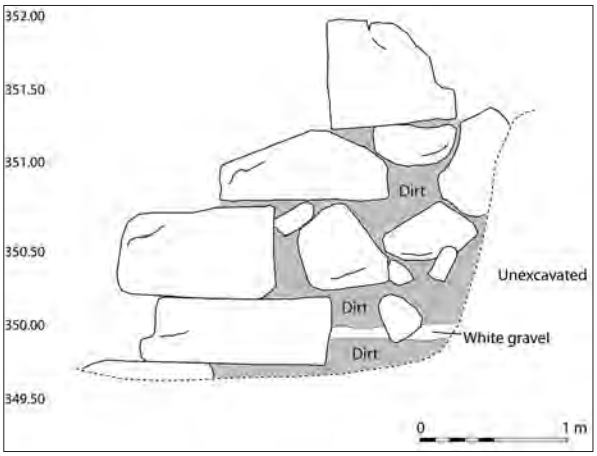

Fig. 17. Elevation of the badly destroyed eastern wall of the gate, seen from the east.

wall stones visible except for one, which had fallen on its façade side when material from above had pushed it over. However, it was possible to see where the block had once stood. The bedrock on site had been leveled to receive the block, which most likely originally formed the corner of the gate corridor and the outer face of the curtain. The trench yielded several irregular loose stones of larger than head caliber, tumbled from above, as well as a small number of very badly corroded large iron nails and a few rounded pottery sherds. No datable material was found. The soil was of the same brownish clayey substance as could be seen all over the lower terrace as well as in trench A.

One noteworthy feature was encountered: a thin layer of whitish gravel layer at 350.00 masl. The brownish clayey soil was discernible both above and below the gravel layer (Fig. 17). The gravel was rounded, white limestone and the layer was fairly compact. Most likely it represents the original road surface in the gateway. If not, it could also have been the filling of the nearby curtains, fallen here when the walls collapsed.

Proposed reconstruction of Kioteza

Only slight traces of the fortifications at Kioteza are preserved today, with most of the blocks of the walls fallen downhill and disappeared. The archaeological examination confirmed some theories of structural features. The following is my proposed reconstruction of the enceinte (Fig. 18).

In the southeastern corner stood a square tower measuring 6 x 6 m, protruding some 3 m from the adjacent curtain. To the south and southeast of the tower the natural cliffs were so steep and high that no walls were necessary. The tower and especially its corners were built of more regular, quadrangular blocks than were used in other parts of the enceinte. The tower had a chamber at the inside ground level, while the base of the tower consisted of a massive outer wall and a loose rubble fill as a floor foundation. This would have left the chamber floor some 2 m higher than the ground level outside the tower, much in the same manner as is visible in the straight-angle corner of Agios Donatos. There is no indication as to the thickness of the walls, but drawing on analogy with Agios Donatos the walls of the chamber could have been ca. 1.0-1.1 m thick. Using those dimensions the chamber would have had a floor area of approximately 24-25 m². It is also possible that this structure was an open-topped bastion, resembling the ones found in Kydna.

Starting from the tower, the eastern half of the curtain wall, some 3.1 m thick, ran some 20 m towards the northwest, more or less following the 350 masl contour line. The scanty remains suggest that the curtains were built of polygonal blocks. In the

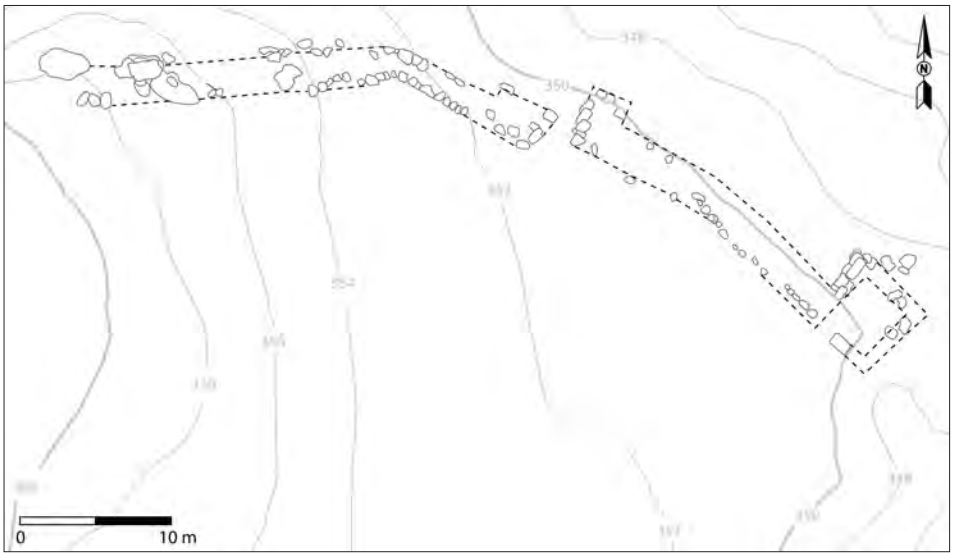

Fig. 18. The reconstruction proposal with the trace of the walls drawn in dashed line.

northwestern end, the last 3 m of the curtain formed a protruding bastion, 4 m thick, guarding the main gate of the fort. After the gateway the western curtain continued to run in a northwesterly direction for ten more meters, after which it gently turned towards the west. The first 4.5 m stretch of the curtain immediately adjacent to the gate was 3.1 m thick, forming a bastion guarding the right side of the gate.[37] After the thick section of the wall the width of the curtain narrowed down to 2.1 m.

The gateway of Kioteza was some 1.15-1.20 m wide, which would most likely have allowed a single-leaved gate. The 2 m long gate corridor was splayed, being narrower on the outside and widening slightly towards the interior end.[38] Such a gate arrangement is relatively common, and the closest clear parallels are found in Kalivo, located near Butrint in Albania.[39] On the left side, the curtain wall protruded 2 m further than the right side wall, an unusual but not totally unheard-of arrangement.[40] Usually the gate was situated in such a way that the protective protruding wall was built on its right side, so that the enemy approaching the gate would have been subjected to the defenders' fire on their unshielded right-hand side.[41] Perhaps in Kioteza the approach to the gate led past the western bastion, enabling the defenders to shoot not only at the enemy's right and left sides but also at their faces when approaching the gate.

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[37] Similar thickening of wall on the left side of the gateway is visible in the northwestern gate (Gate A) of the large enceinte of Gortys in Arcadia, although there the thickening was added on the inside of the curtain. In many respects the gate bears resemblance to the northeastern gate of Gortys, although on a greatly reduced scale. See Martin 1947, 99, 101, n. 4.

[38] Exact dimensions of the gate corridor are obviously impossible to ascertain due to the present state of the ruin, and obtaining them would require a larger-scale excavation of the site.

[39] In Kalivo a splayed gateway, 1.6 m wide on the outside and 2.3 m on the inside, also has internal bastions on both sides of the gate. The curtain wall has a normal thickness of 3.0 m, but near the gate its thickness increases to 4.5 m, thus elongating the gate corridor by some 1.5 m. See Crowson 2004, 1 and fig. 5.2.

[40] See for instance the "Scaean Gate" in Butrint.

[41] Winter 1971, 210.

Questions of dating

The two trenches excavated in 2008 yielded no datable material which could help in dating the fortifications at Kioteza. Looking at the walls themselves, the task of dating is no less challenging. Due to the extremely poor state of preservation of Kioteza, it is difficult to say with absolute certainty which kind of masonry prevailed in its construction. Some hints can be obtained by looking at the remains today. Dakaris described the masonry in the fort as *isodomic* or ashlar.[42] Most likely he came to this conclusion by looking at the best preserved portion of the enceinte, the northwestern corner of the tower. There the blocks indeed are rectangular, reminiscent of ashlar. If so, Kioteza would be earlier than Agios Donatos.[43]

However, the masonry seems to be different elsewhere along the enceinte. Those fallen curtain blocks which could be seen around the area were predominantly irregular, polygonal, rather than ashlar. In the eastern wall of the gateway, the second spot where the wall still stands to some height, the masonry is polygonal with traces of, now disappeared, triangular plugs having been located between the larger blocks. This clearly resembles the masonry found in the inner faces of the tower walls at Agios Donatos. On the other hand, the corner of the tower was built of large, somewhat quadrangular blocks to increase the stability of the structure, much in the same manner as is seen at the indent of Agios Donatos. In both locations the corners are also drafted, most likely to enable the builders to check the verticality of walls with a plumb line during construction.[44]

In light of the evidence its has become apparent that Agios Donatos' walls were built at some time between the last decades of the fourth century and circa 250 BC, most likely during the first quarter of the third century, i.e. the time of Pyrrhus. The archaeological record at Agios Donatos is affected by the later Roman occupation of the site, during which the tower was re-used in some way, and in the process it was mostly cleaned of older material. Not all of the material was cleaned out, however, as the lowermost layer was built upon by the Romans. Underneath the Roman floor, the dark soil between the crags of bedrock contained no Roman finds. Elsewhere in the fortress the preservation of older material was more random, as material has flowed downhill whenever the fortifications collapsed.

The eastern jog of the indented trace bears evidence of some structure closely resembling the tower of the fortress, yet it cannot be considered a pure tower as it only protrudes on one side from the enceinte. Possibly the corner was built with a multi-storey curtain wall, or perhaps the corner did indeed have a somewhat tower-like structure, an enclosed square chamber guarding the approach to the southern gate.

Kioteza, on the other hand, is more difficult to interpret as the site only bears the scantiest of traces of fortifications or other occupation. The site is clearly man-made, with fortifications protecting the easiest approaches. Dakaris suggested that the fortifications were slightly older than those of Agios Donatos because of the ashlar masonry. However, the gate yields traces of polygonal masonry highly reminiscent of the masonry used in

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[42] Dakaris 1972, 138.

[43] Hammond 1967, 711-716. According to Hammond the traditional way of dating polygonal walls earlier than ashlar walls does not seem to apply in Epirus. On the contrary, in Epirus ashlar walls are earlier than polygonal ones, many of which can be dated to the fourth and third centuries BC.

[44] Hammond (1967, 584) noted that the use of drafting was particularly common in Epirus. He was inclined to think that the use of drafting was characteristic of the last stages of Pyrrhus' reign, i.e. the 280s-270s BC.

the well-preserved inner faces of the tower walls in Agios Donatos. Also, the structure in the foundations of the tower of Kioteza is similar to that in the straight-angle jog of Agios Donatos: the corners are built of large, slightly quadrangular blocks with drafted corners, behind which is a filling of loose stone rubble through which the rainwater can quickly seep.

Of course, such stylistic features are not trustworthy means of dating the two forts. It was possible to date Agios Donatos by using the scanty archaeological evidence found on site. Kioteza is still more problematic, but nevertheless I would suggest that the fort should be considered roughly contemporaneous with Agios Donatos, that is, dated to the last decades of the fourth down to the mid-third century BC. Why the two forts were built so close to each other still remains unclear.

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Hellenistic Cremation Burial Practices: an Anthropological Study of Thesprotian Graves

Asterios Aidonis

Introduction

In the ancient Greek world, beliefs about death were not much different from the general framework of beliefs which was and still is common in ancient and contemporary communities.[1] Dying was not only a physical event but also a state of transition. The dead body was considered "unclean", as well as the house and the relatives of the dead. There were ethical rules that defined the appropriate acts which were necessary in order to bring the dead to their new condition and to accommodate the social and psychological needs of the living. Written legislation regarding the funeral procedures mainly had to do with the rationalization of the attitude of the living, e.g. the cost of the funeral ceremonies, the limitations in public mourning and the type of funeral monuments.[2]

A burial ceremony consisted of three ritual stages: *rosthesis*, *ekphora* and *taphe* (the actual burial).[3] In every one of those steps there is a social substratum which had to do with the duty of the living to honour the deceased, their need to purify their social environment from the taint of death, and their aim to establish the social memory of the deceased – an agent that is important for both the living and the dead, as the burial is the last action in the construction of it. Our knowledge about the first two stages mainly derives from literature and relevant scenes in pottery decoration. The last stage is what the archaeological research faces in cemetery excavations.

In Thesprotia, the detected cemeteries of the Hellenistic cities of Gitana, Elea, Doliani and Dimokastro have not been explored so far to a satisfactory extent, as the research has been limited mainly to rescue excavations. Thus a general view about the burial rituals in the region is still forming. As far as cremation is concerned, some inference about the ritual could be drawn, but the progress of archaeological research will certainly add new information and more data will come up for discussion. The present study tries to investigate the distribution of cremation as a burial ritual up to the current state of archaeological study in Thesprotia, its different aspects and its efficiency as a practical procedure.

The skeletal material under study largely comes from graves that have been unearthed during the restoration work in Gitana and during the construction of the hydroelectric dam of Kalamas, near Gitana. Two graves that contained cremations have

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[1] Kurtz and Boardman 1994, 313; Morris 1997, 12. I wish to acknowledge G. Riginos for permitting the study of the skeletal material. I express also my sincere gratitude to the Stavros Niarchos Foundation for its kind donation to the 32nd Ephoriate for Prehistoric and Classical Antiquities, which was of premium importance for establishing, organizing and equipping the Laboratory of Osteoarchaeology. Finally, special thanks to B. Forsén for being so kindly patient, as the preparation of this article coincided with rapid changes in our life.

[2] Kurtz and Boardman 1994, 67, 85, 114, 134-136, 155, 170, 189-191.

[3] Kurtz and Boardman 1994, 133-143.

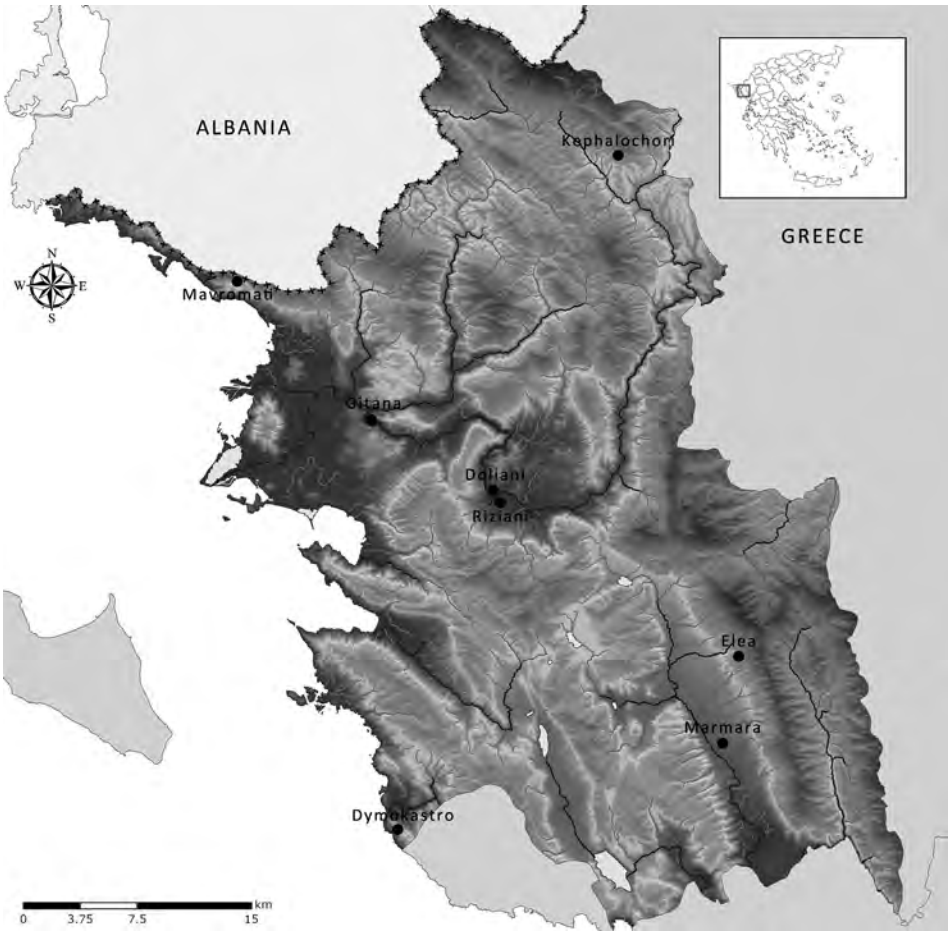

Fig 1. Archaeological sites of Thesprotia mentioned in the text.

also been discovered in Doliani, while another one was found during the construction of the border custom station in Mavromati, and one more during road work in Kephalochori, in the northern part of Thesprotia (Fig. 1). On the whole, the skeletal material from 70 graves has been examined; 42 of them were inhumations, 22 were cremation burials, 4 were found to contain both inhumation and cremation, and 2 were of unknown burial type because of their destruction in the past. In the vast majority of cremations, the bones were contained in cinerary urns. In some graves, small quantities of cremated bones were found scattered on the fill or in the floor of the graves. In order to form an opinion about the ritual, cremated bones were examined to investigate their representativeness, size and degree of burning.

Open-air cremation. Practice and technology

There are two types of cremation that can be distinguished in the archaeological context, the primary and the secondary one. In the case of primary cremation the pyre was

constructed inside the grave, usually a pit. The dimensions of those trenches were a little larger than inhumation graves, and in some cases additional ventilation ditches were dug to achieve the necessary air supply.[4] After the construction of the pyre the body was superimposed and burnt on the spot. The remains of the pyre, bones, ashes, and offerings were laid in situ and the grave was covered with soil. On the other hand, in secondary cremation the body was burnt in a pyre that was constructed in a place elsewhere than that of the grave. Afterwards, the bones were collected, encased in clay, marble or bronze urns and entombed with the offerings.

In terms of pyrotechnology, several factors and the relationship between them affect the chemical reaction of fire and, by extension, the cremation process: sufficient fuel, temperature, oxygen and time.[5] Open-air pyres would have sufficient oxygen, except where parts of the body could be overlapped by the collapsed material of the pyre, producing a differentiation in the degree of burning due to low air supply. Modern experimental cremations demonstrate that temperatures more than 1000^{o}C were attainable, but the distribution was not evenly spread across the pyre and its duration was for a short period of time.[6] Temperatures of ca. 700-800^{o}C could be attained for some time, ensuring the effectual completion of the process.[7] Open-air pyres were by definition variable, but some control of the process could be achieved through experience and knowledge.

The actual reconstruction of an ancient open-air cremation procedure is not always possible[8] because of the variety of the agents that could influence the process. Weather conditions such as wind and rain, the quantity and quality of the wood used as fuel, the construction details of the pyre, the position of the body, and human interference during the process are critical agents for the duration and the efficient outcome of a cremation. Data from experimental pyre constructions, in combination with the archaeological evidence and the information that can be drawn from documentary sources, pictorial representations and ethnographic parallels, could provide a plausible reconstruction of cremation in antiquity.

Pottery illustrations such as those that represent the pyres of Croesus,[9] Alcmene,[10] Patroclus[11] and Hercules[12] demonstrate a box-like construction of stacked logs, arranged in horizontal layers at right angles. Different pyre constructions are illustrated in two other vessels with the myth of Hercules as a theme; in an Athenian red figure pelike,[13] logs of the pyre are irregularly stacked, while in a bell krater[14] the pyre seems to be constructed

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[4] Kurtz and Boardman 1994, 69.
[5] McDonnell 2001, 494-495; Walker *et al*. 2008, 129; McKinley 2008, 164.
[6] McKinley and Bond 2001, 284.
[7] McDonnell 2001, 496.
[8] Ubelaker and Rife 2007, 41; Xirotiris and Langenscheidt 1981, 143.
[9] Paris, Louvre, G197. Cf. *Beazley Archive* 202176; *CVA*, *Paris, Louvre* 6, III Ic, pl. 35:1-2.
[10] London, British Museum F149 (1890.2-10.1). Cf. *Beazley Archive* 425104; *CVA, London, British Museum* 2, IV E a, pl. 1:2b.
[11] Naples, Museo Archeologico Nazionale di Napoli, 81393. Cf. *LIMC* I, s.v. Achilles, no. 487, pl. 109.
[12] Rome, Museo Nazionale Etrusco di Villa Giulia, 11688. Cf. *Beazley Archive* 205585; *LIMC* V, s.v. Herakles, no. 2909, pl. 120.
[13] Munich, Antikensammlungen, 2360. Cf. *Beazley Archive* 215719; *CVA*, *München, Museum antiker Kleinkunst* 2, 19, pl. 81:1; LIMC V, s.v. Herakles, no. 2916, pl. 120.
[14] S. Agata de'Goti, Mustilli, XXXX260021. Cf. *Beazley Archive* 260021; *LIMC* V, s.v. Herakles, 129, no. 2918.

in a trench.[15] Construction details of the pyre could provide some kind of control in the cremation procedure. The building of the pyre with logs stacked and arranged in crosswise layers allowed circulation of the air[16], while the use of dry vines[17] or brushwood as fire lighter between the logs contributed to a uniform distribution of the fire.

The quantity and flammability of the wood are decisive factors that influence the cremation process as well. Homeric descriptions of the pyres of Patroclus, Achilles and Hector are rather exaggerated and pertain to the status of the deceased. Ethnographic analogies refer to about 300-500 kg of wood,[18] while experimental cremations use 700-900 kg.[19] The dimensions of primary cremation pits from archaeological contexts[20] suggest that a quantity of about 2-3 m^3 could be enough for an efficient cremation. The quality of wood is another agent, related to the available environmental resources. The use of hard wood that burns slowly, instead of resinous soft wood that reaches high temperatures for a short time, would be preferable, but in general the fuel used rather depended on its availability. Oak wood, which is commonly identified in the remains of a cremation, is used not just because of its availability but also because of its density that produces the prolonged high temperature which is necessary for cremation.[21] Archaeological evidence from the necropolis of Corfu also supports the use of oak as cremation fuel.[22]

After the construction of the pyre, the body was placed on the top and then the structure was lit up. The fire spread and consumed the wood and the body, providing the observant with not only a spectacle but also stimuli for most of the senses. The duration of an efficient cremation could vary, depending on the weather conditions, the fuel that was used, and human interference. In modern Nepal it takes about three to five hours, depending on the experience of those carrying out the cremation.[23] Picturing an ancient cremation, three hours after lighting, the pyre would have been burnt to a certain extent and collapsed, followed by the fall of the body. Bones and soft tissues of the thoracic and abdominal region of the body could continue to burn slowly.[24] As in modern ethnographic parallels, the reorganization of the burning wood could be needed to ensure an effective burning of the body.[25] The cremation would last up to ten hours if the fire was not doused to cool enough to allow manual collection of the cremated bones.[26] Literature sources describe the recovery of the bones the day after cremation.[27] It seems that an open-air cremation was not as quick, clean and clinical a procedure as we think it was.[28]

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[15] Stampolidis 2004, 120; Musgrave 1990a, 275.
[16] McKinley and Bond 2001, 284.
[17] Kurtz and Boardman 1994, 42.
[18] Oestigaard 2005, 15.
[19] McKinley 2008, 168.
[20] Kurtz and Boardman 1994, 69; Parlama1978, 31; Lazari 2009, 225.
[21] McKinley *et al*. 2008, 5.
[22] Lazari 2009, 225.
[23] Oestigaard 2005, 15.
[24] McKinley and Bond 2001, 284; McKinley 2008, 167-168.
[25] Gejvall 1963, 380-381; Ubelaker and Rife 2007, 42, 48, 50; Oestigaard 2005, 13.
[26] McKinley 2000, 407.
[27] Hom. *Od*. 24.64-75; Hom. *Il*. 24.785-799.
[28] Williams 2004, 271.

Bone alteration due to cremation

Cremated bones can easily be recognized from the changes in their morphology and texture because of fire. The vast majority of them are small fragments, coloured gradually from dark brown to white, showing shrinkage, warping and transverse or parabolic fracture patterns. These changes reflect the conditions that bones experienced in the pyre. Human cremated bones commonly unearthed in archaeological excavations usually do not invite enough attention due to their poor condition of preservation, even though it could be very informative material both for the biological background of the population under study and for the cremation as a socio-ritual event and practical procedure.

Bone is a connective tissue which at molecular level consists of one third organic material (mostly collagen) and two thirds inorganic (hydroxyapatite). At the gross level, a mature bone consists of two basic components, cortical and trabecular bone. Different types of bones (e.g. long vs. flat bones) show different patterns of warping and breakage because of the difference in their structure. On a physicochemical level, cremation causes dehydration and oxidation of the organic component of the bone and recrystallisation of the inorganic material. Observations in heat-treated human bones[29] show that up to 400ºC the organic material of the bone is gradually combusted and recrystallisation of the bone mineral begins at 600ºC. At temperatures higher than 600ºC crystal growth occurs, while between 1000 and >1400ºC sintering leads to a fusion of crystals and at 1600ºC the bone mineral melts.

Macroscopically, cremated bones are classified in different grades of burning, depending on their morphology which reflects the temperatures experienced and the duration of heating. Experimental data, although presenting some variability, provide standards in heat-related bone alterations regarding colour and texture.[30] The colour of bone fragments is a function of oxygen availability, duration of heating and temperature.[31] A wide variation should be expected, since even in the same bone a range of colours can be interpreted as an effect of different cremation conditions (Fig. 2). Bones cremated at low temperatures (200-

Fig 2. Fragment of cremated femur showing differentiation in burning rate.

[29] Holden *et al*. 1995, 29-45.
[30] Shipman *et al*. 1984; Walker *et al*. 2008; Ubelaker and Rife 2007, 47-48.
[31] Ubelaker 2009, 3.

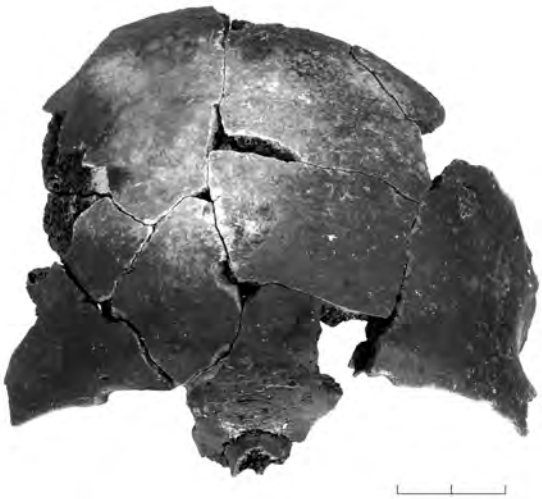

Fig 3. Skull fragments burnt at low temperature.

300°C) change from ivory to dark brown-black (slightly charred) (Fig. 3). At higher temperatures bones become grey (incompletely oxidized). At a temperature of 800°C or higher, bones acquire a blue-gray or white colour (fully oxidized).[32] At this stage, recrystallisation of the inorganic material occurs, eliminating the bone's elasticity, making it fragile and presenting shrinkage, fissuring and twisting (Fig. 4). Fissuring follows distinctive patterns according to the bone's shape, size and density.[33] Those alterations are also indicative of whether bones were burned with flesh on (green) or after the decomposition of soft tissue and fats (dry), a case in which those alterations are minimal.[34]

Fig 4. Femur fragment fully oxidized, showing shrinkage, fissuring and twisting.

The graves under study

The archaeological research in Thesprotia during recent years has unearthed an increasing number of cremations, which have been detected either within the boundaries, if there were any, of the cemeteries of the Hellenistic cities, or in sporadic graves that cannot be associated with the already known settlements. The skeletal material under study mainly comes from rescue excavations that took place in the wider area of the archaeological sites of Gitana and Doliani, or from graves unearthed by chance during road or other infrastructure work in other parts of Thesprotia.

The archaeological site of Gitana is located at the southwestern edge of the Vrysella hill, in the confluence of the rivers Kalamas and Kalpakiotikos, a privileged position that

[32] McKinley 2000, 405; Walker *et al*. 2008, 135-136.
[33] McKinley 2000, 405; Shipman *et al*. 1984.
[34] McKinley 2000, 405; Bartsiokas 2000, 513-514.

allowed the control of the deltaic plain of the Kalamas river. The city was founded shortly after the mid-fourth century BC.[35] Livy (42.38.1) refers to Gitana as a meeting place of the Epirote League (*concilio Epirotarum*).[36] It was surrounded by a strong polygonal fortification and built according to the Hippodamian urban system. The cemetery of the settlement is located outside the northwestern fortification, but graves have also been detected alongside the Kalamas banks.

Winter rains at the end of 2003 toppled the eastern bank of the road that leads to Gitana. The rescue excavation that followed revealed 21 graves dated between the second half of the fourth century and the first half of the second century BC.[37] The vast majority of them (18) were inhumation burials, while two were found to contain both inhumations and cremations, and one was a double cremation burial with two oinochoai as cinerary urns. Additionally, between 2004 and 2005, during the excavation in the area where the public service building would be erected, 15 more graves were surveyed. Ten of them were cremation burials, three were inhumations, one contained both burned and unburned bones, and one was unidentified.

Also at the end of 2003 and the beginning of 2004, about one km west of Gitana, the excavation that preceded the construction of the hydroelectric dam of Kalamas brought to light another cluster of graves. The site was already known to belong to the wider area of the necropolis of Gitana, because a number of graves had been detected during the construction of the dam in the 1960s.[38] Also in 1987 four cist graves of the early third century BC were surveyed; one of them was found to contain cremations.[39] The recent excavation of 2003-2004 brought to light six more graves with cremations, covering a period from the early third to the first century BC.[40] About 100 m to the west, a "Π"-shaped construction regarded in the past as a small building proved to be a burial precinct, surrounding an undisturbed cist grave that was made of large rectangular monolithic limestones. Eight secondary cremations were identified. The cremated bones of the deceased were placed in clay urns and limestone caskets. The numerous offerings found dated from the late third to the first century BC.[41] In the same area, two more graves were detected: a pit burial, and a cist grave made of tiles containing a subadult inhumation.

Another group of cist graves was excavated between 2005 and 2006 in the wider area of the archaeological site of Doliani. The fairly strong fortified city has been identified as the ancient Phanote, the seat of the Thesprotian tribe of Phanoteis.[42] Part of the Hellenistic cemetery of the city is located on the opposite hill, while some graves have been unearthed in the wider area of the settlement. All in all, among 13 cist graves that were surveyed, two were found to contain cremations.

During road work that took place in Kephalochori, in the northern part of Thesprotia, in the summer of 1993, a cist grave dated from the second to the first century

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[35] Kanta-Kitsou 2008, 20.
[36] Funke *et al*. 2004, 345.
[37] *ArchDelt* 58B (2003), in press.
[38] *ArchDelt* 16B (1960), 207.
[39] Preka-Alexandri 1987, 347.
[40] *ArchDelt* 59B (2004), in press.
[41] Riginos 2005.
[42] Dakaris, 1972, 39-41.

BC was discovered.[43] The grave, typical for the Hellenistic period in Thesprotia, was built of large monolithic rectangular limestones. Six cremations were detected, placed in five clay cauldrons and one stone temple-like container. The offerings – unguentaria, clay lamps, lagynoi, kantharoi and gold wreaths, among other finds – reveal the wealth of the grave owners. All the occupants of the grave were adults. The clay cauldron ΘΕ2839 contained the cremated bones of two persons.

In 2000, a rescue excavation during the construction of the border custom station in Mavromati brought to light eleven burials of the early Hellenistic period.[44] Only three graves were found to contain some offerings (unguentaria, clay lamps). All the burials were inhumations but in cist grave number 6, along with the inhumed skeleton, an oinochoe used as a cinerary urn was detected, containing the cremated bones of a subadult.

On the whole, bones from 70 graves were examined; 45 come from the wider area that covers the cemetery of Gitana, 13 from Doliani, 11 from Mavromati and one from Kephalochori. The distribution of burials by site and type is summarized in Fig. 5. Almost one in three burials was a cremation, which represents 31.4% of the total sample, while 60.0% are inhumations. In a number of graves (5.7%) both rituals coexisted, while for a few graves (2.9%) it was not possible to distinguish whether they were cremation or inhumation burials because of their disturbance in the past. The percentage of cremations is mostly affected by the large number, up to 42.2%, of cremation burials excavated at Gitana, a percentage very close to that of inhumations (48.9%). The samples from Doliani, Mavromati and Kephalochori are fairly small and an interregional comparison could be rather implausible. At both Doliani and Mavromati, at least in the excavated parts of the cemeteries, inhumation was the predominant burial custom (76.9% and 91% respectively). The grave from Kephalochori is an exceptional finding but it is the only one unearthed in the area and could therefore not be considered a representative one.

	Gitana		Doliani		Mavromati		Kephalochori		Total	
	n	%	n	%	n	%	n	%	n	%
Cremation	19	42.2	2	15.4			1	100	22	31.4
Inhumation	22	48.9	10	76.9	10	91.0			42	60.0
Mixed	3	6.7			1	9.0			4	5.7
Unknown	1	2.2	1	7.7					2	2.9
Total	45	100	13	100	11	100	1	100	70	100

Fig. 5. The distribution of burials by site and type.

Intraregional comparison of burials in Gitana demonstrates some variability between the three subgroups coming from the different regions of the wider cemetery (Fig. 6). In the area across the road that leads to the site, inhumation is the predominant burial custom, representing 85.7%, while cremation constitutes only 4.8% of the burials. A total of 9.5% of the graves in this area were found to contain both inhumation and cremation. On the contrary, in the area where the visitors' building was erected as well as in the dam of Kalamas, cremation clearly outnumbers inhumation, showing a percentage of 66.7% and 88.9% respectively.

[43] Riginos 1994; Riginos 1999, 174-180.
[44] *ArchDelt* 55B (2000), in press.

	Public service building		Fragma Kalama		Across the road		Total	
	n	%	n	%	n	%	n	%
Cremations	10	66.7	8	88.9	1	4.8	19	42.2
Inhumations	3	20.0	1	11.1	18	85.7	22	48.9
Mixed	1	6.7			2	9.5	3	6.7
Unknown	1	6.7					1	2.2
Total	15	100	9	100	21	100	45	100

Fig. 6. Intraregional distribution of burial types in different areas of the cemetery of Gitana.

Analysis of the cremated bones

Cremated bones commonly found in excavations do not only give information about the biological and demographic data of past populations, but also should be accounted for as a product of social and ritual actions, related to the way people dealt with death. The analysis of cremated bones is essential in order to understand the different stages of the ritual of cremation, while systematic data collection can provide information regarding geographical, social and individual differences or similarities about the ritual's expression. All of the cases that have been examined were secondary cremations, contained in clay urns or stone containers (Fig. 7). The Minimum Number of Individuals (MNI) was determined

Fig. 7. Clay urns and stone containers from Thesprotia.

for each cinerary urn and grave. The estimation of each cremation's efficiency was based on the macroscopic appearance and colouration of the bones. The length of the largest bone fragment was measured and used as an indicator of fragmentation for comparison with the already published data.[45] The cremated bones of each urn were weighed in order to estimate the amount of bones recovered from the pyre. Comments regarding age and sex were recorded wherever the material allowed those observations. The data from the total of the skeletal material are summarized in Appendix I.

Minimum Number of Individuals (MNI)

The estimation of the Minimum Number of Individuals is essential for any further discussion of the material under study. The estimation was based on the identification and grouping of bones that occur singly or in pairs in each individual. Parts of bones that usually survive the extreme fragmentation and are identifiable, such as the petrous and mastoid parts of the temporal, the supraorbital part of the frontal, the articulating processes and the mental protuberance of the mandible, the part of the occipital with the internal and external occipital protuberance, the epiphyses of long bones, wherever they survive are good indicators to estimate the number of persons or at least the minimum number of individuals represented in a grave or in a single urn.

As mentioned above, 26 of 70 graves that have been examined contained secondary cremations in cinerary urns or stone containers. The skeletal material from 22 of 26 graves that was available for study represents a minimum number of 40 individuals. While in the vast majority of 34 urns that have been found, one individual was identified in each of them, in ΘΕ2839 from Kephalochori and ΘΕ7084 from Fragma Kalama bones belonging to two individuals have been recognized. The remains of the other 4 individuals have been identified in graves that were disturbed or destroyed in the past and thus found scattered in the fill of the grave. The number of individuals identified in each grave varies from one, usually in pit burials, to six (Kephalochori) or even eight (grave 11 from Fragma Kalama) in what have been used as collective family graves for a long period of time.

Weight

The total weight of bones that could be expected from an adult individual after a modern cremation varies from 1000 to 3600 g[46] depending on sex, age and skeletal robusticity. Those observations refer to modern crematoria where the conditions are completely managed. In open-air cremations surveyed in archaeological contexts, a great variation in the amount of bones included in urns should be expected. The weights vary, both geographically and temporally, from a few grams, collected in a symbolic, sampling or imperfect manner, up to 2000 g,[47] indicating meticulous collection. Variation in the amount of bones that have been collected from the pyre debris reflects a variation in the attitude of the mourners that carried out this task.

In order to investigate this aspect of the ritual, the cremated bones from all the graves were weighed to find out the amount of bones contained in each urn. From the total 30,504 g of bones that were examined, 28,421 g come from urns or containers while 2083 g were found in the fill of the graves. A range from 1 to 2191 g was observed in

[45] Musgrave 1990b, 310.
[46] McKinley 2000, 404; Musgrave 1990a, 272.
[47] Musgrave 1990a, 286.

Arch. Site	Mean	Median	St. Deviation	Range	Minimum	Maximum	Sample Size
Lefkandi				2021	1	2022	54
Gypsadhes	553	465	230	670	280	950	11
KNC	650	543	521	2323	1	2324	74
Torone	301	204	319	1513	9	1522	60
Perati	499	410	503	1740	1	1741	12
Phoinicas	938	953	561	1725	113	1838	12
Vergina II: Female	1312						1
Vergina III	615						1
Nea Mihaniona II	1239						1
Nea Mihaniona III	1390						1
Derveni Beta	1968						1
Thesprotia	907	870	509	1813	159	1972	27

Fig. 8. Cremation weights from various sites (after Musgrave 1990b, 310, Table 1) and comparison with those from Thesprotia.

the examined urns. However, this range represents urns which were disturbed and their content found scattered in the fill of the grave, or which contained a double interment. For a view as accurate as possible of the mortuary procedure, the scattered material as well as the remains from two urns that contained more than one individual (ΘE7084 containing 1267 g, and ΘE2839 containing 2191 g of cremated bones) were excluded from calculation. Finally, 27 of 34 urns met those requirements: they contained a single interment and were undisturbed (Appendix II). The weight of the cremated bones of those urns is 24,488 g, representing 80% of the total amount of the collected bones. The minimum weight (159 g) was observed in a pit burial (ΘE7043) in a ditch, and the maximum (1.972 g) in a temple-like stone casket (ΘE7083), giving a range of 1813 g and a mean of 906.96 g. Fig. 8 presents the already published cremation weights from other sites in Greece[48] for comparison with those found in Thesprotia.

The main question about the amount of collected bones is whether this differentiation in the mourners' attitude demonstrates variation in the expressed care for the deceased and, by extension, whether the weight of a cremation is possibly associated with social status. Musgrave assumes that the care over bone collection concerns differences in familial attitudes.[49] The division of urns under study in two groups, where the first includes urns (n=12) from 11 pit burials and the second urns (n=15) from five large cist graves, usually with numerous offerings, reflects a differentiation in the weight of the cremated bones collected from the pyre (Fig. 9). This outlined "inequality", at least according to the data available so far, indicates that the relatives or other persons with the duty to collect the cremated bones from the pyre were much more thorough when they handled the cremains of individuals whose urns were intended to be placed in "rich" cist

	Pit burial urns	Cist grave urns
n	12	15
Mean	516.9	1219
Median	430.5	1316
St. Deviation	279.1	430.4
Range	929	1530
Minimum	159	442
Maximum	1088	1972

Fig. 9. Descriptive statistics of the weights of cremated bones collected from pyres, according to the type of grave they come from.

[48] Musgrave 1990b, 310, Table 1.
[49] Musgrave 1990a, 286.

graves than those in "poor" pit burials. Whether this attitude reflects other symbolism, besides the potential of the wealthy to access better "cremation facilities" and their aim to create and support their social memory, is a matter of discussion and more data are needed in order to pursue it.

Fragmentation

Fragmentation in cremated bones is highly associated with the stresses that the bones experience in the pyre. The dehydration of the bone and the destruction of its collagen that occur in the pyre result in the loss of its elasticity and its tensile strength. Eventually bones begin to shrink, warp, twist and fracture along the lines of greatest stress.[50] Again a great variability should be expected according to the type of bone and the different conditions in an open-air pyre. Furthermore, the collapse of the pyre's structure, the probable reorganization of the burning material, and stoking of the fire would result in further partitioning of the already fragmented bones. The morphological appearance of bones under study mainly consists of small fragments about 15-60 mm long with curved, transverse or longitudinal fracture patterns. Some fragments are between 60-100 mm, and very few are more than 100 mm.

Some researchers do not exclude the possibility of post-cremation processing and deliberate crushing of the bones in order to fit into their containers,[51] while others maintain that there is no conclusive evidence for such a practice and that much fragmentation occurs also after burial.[52] The length of the longest postcranial fragment has been used as a possible indicator of post-cremation processing of the bones.[53] Fig. 10 presents the already published data[54] and the lengths that were observed in the sample from Thesprotia. Following the previous division of urns in two groups, a differentiation

Arch. Site	Mean	Median	St. Deviation	Range	Minimum	Maximum
Lefkandi				2021	1	2022
Gypsadhes	553	465	230	670	280	950
KNC	650	543	521	2323	1	2324
Torone	301	204	319	1513	9	1522
Perati	499	410	503	1740	1	1741
Phoinicas	938	953	561	1725	113	1838
Vergina II: Female	1312					
Vergina III	615					
Nea Mihaniona II	1239					
Nea Mihaniona III	1390					
Derveni Beta	1968					
Thesprotia	907	870	509	1813	159	1972

Fig. 10. Length of the longest postcranial fragment from various sites (after Musgrave 1990b, 310, Table 2) and comparison with those from Thesprotia.

[50] Bontrager and Nawrocki 2008, 216.
[51] Gejvall 1963, 381; Paidousis and Sbarounis 1979, 3.
[52] Musgrave 1990a, 285; McKinley and Bond 2001, 289.
[53] Musgrave 1990b, 320.
[54] Musgrave 1990b, 310, Table 2.

also in size was observed, although not so clear as with weight. The fragments from cist grave urns show a higher average length even though some overlapping is observable (Fig. 11).

	Pit burial urns	Cist grave urns
n	12	15
Mean	86.2	102.0
Median	78.8	102.1
St. Deviation	30.2	21.6
Range	99.3	80.3
Minimum	49.9	64.2
Maximum	149.2	144.4

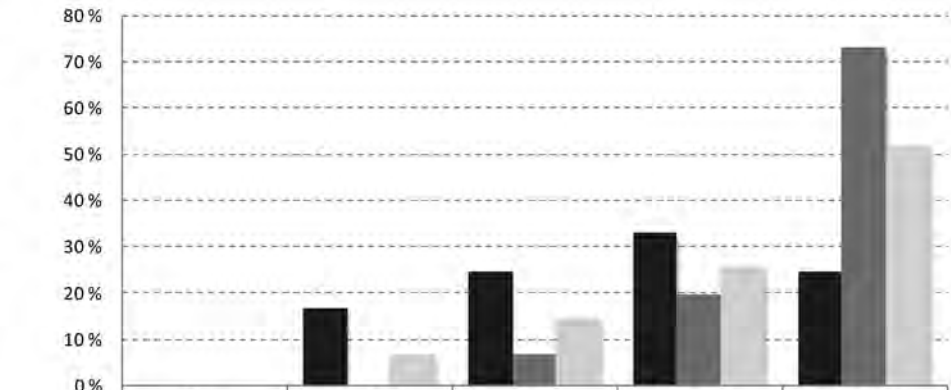
Fig. 11. Descriptive statistics of the length of the longest postcranial fragment included in urns, according to the type of grave they come from.

It is difficult to draw an inference from the available data as to whether pounding of the cremated bones was applied before their collection. It would be interesting to investigate whether there is a correlation between the length (and also the weight) of bones and the cubic capacity of the urns, but this was not possible as most of the urns are part of the permanent exhibition of the Archaeological Museum of Igoumenitsa. It would also be interesting to investigate whether the dissimilarity in size reflects differences in the procedure of cremation, especially regarding the construction of the pyre and the degree of human interference during cremation, but no pyre site has been detected yet in Thesprotia. Different taphonomic conditions are also a factor that could cause further reduction in fragment size. Urns in pit burials are much more vulnerable to matrix compressions than those in cist graves. Thus, as the bone fragment size is affected by several factors, it remains unclear whether the observed difference is a result of deliberate pounding, different cremation procedures, or even post-depositional effects.

Efficiency of cremation

As already mentioned, cremated bones display a variation in colour, ranging from brown, black or grey to chalky white. These changes are evidence of temperatures achieved in the pyre, as experimental work has shown that there is a relationship between temperature and bone colour. The latter is also illustrative of the conditions that bones experienced in the pyre, such as the differences in oxygen availability, the time of exposure to high temperatures, the density of soft tissue that covered a bone, or the distribution of "working temperatures" across the pyre. This variation that usually occurs in bones from a single cremation or even in a single bone should be expected when working with material from open-air pyres. An effective cremation needs sufficient time and high temperature; the colour variation from bone to bone is therefore important to record any difference. The proportion between white, fully oxidized bones and grey, partially oxidized or black, charred ones could represent the cremation's efficiency.

The analysis of colour variation has been based on a categorization of bones with a five-step scale that represents the degree of success in the outcome of a cremation. The scale comprises "poor" for mostly unburnt or charred bones, "medial" for equal proportions of charred, partially and completely oxidized bones, "good" for mostly partially oxidized bones with a proportion of fully oxidized, "very good" for mostly fully oxidized bones with a proportion of incompletely oxidized, and "excellent" for fully oxidized bones. As can be seen in Fig. 12, 52% of the total sample consisted of fully oxidized bones, 41% were characterized as "good" or "very good", and only 7% contained a proportion of unburnt or charred bones. The previous difference in weight and size between pit burial urns and cist grave urns is also observable regarding the efficiency of cremation. While most of the pit burial urns (58%) fall into the "good" and "very good" category, the vast majority of cist grave urns (73%) present an excellent



	Poor	Medial	Good	Very good	Excellent
Pit burials	0 %	17 %	25 %	33 %	25 %
Cist graves	0 %	0 %	7 %	20 %	73 %
Total	0 %	7 %	15 %	26 %	52 %

Fig. 12. The distribution of cremated bones according to burial type and cremation efficiency.

burning rate. The overwhelming majority of oxidized bones with the expected gradation observed in the total sample shows the experience of those who carried out this task, and the care given to the cremation procedure to achieve high temperatures (over 800^{o}C) for a prolonged period of time in order to accomplish an efficient outcome.

Discussion

Burial rituals are deeply symbolic practices, because they involve psychological, social and ideological aspects of life of the participants. Mortuary practices and ritualistic behaviour are motivated by the will to represent the social identity of the individual and the responsibility that other members of the social group recognize for the deceased. Funerary rites as rites of passage serve the transition of the deceased from the state of being to the state of the dead, a process that is important both for the dead and the living, as it is the last action in the construction of social identity and social memory. Burial rituals are also important as public social acts that are manipulated by a network of social and ethical rules. Thus, differences in mortuary treatment, expressed within a population, may reflect different facets of economic, religious or social life, even though the distinct archaeological evidence is difficult to correlate with the vague picture of social structures and networks, or with the now lost symbolism of highly symbolic practices such as burial rituals.

Within this framework, an effort to understand the motivation behind the choice of inhumation or cremation as burial treatment during the Hellenistic period in Thesprotia was attempted, using the hitherto available data. Archaeological research shows that cremation was a common burial treatment, representing approximately one third of the burials. Particularly in Gitana, where most of the material under study comes from, cremation is almost as common as inhumation at least in the so far excavated parts of the cemetery. Some of the richest burials discovered so far, such as those from Fragma

Kalama and Kephalochori, were cist graves that contained secondary cremations. Still, the accumulated wealth of those graves, over their long period of use, is not enough to establish cremation as an indicative factor for social status. Thus, there are cremation burials that hardly could be characterized as rich, regarding the wealth of the contained offerings and their construction details. Furthermore, archaeological research has revealed graves that could be characterized as belonging to high-rank individuals, such as the burial monument in Marmara, Zervochori, where the deceased were inhumed,[55] or the graves from Prodromi[56] and Riziani, where both rituals co-existed.[57] Thus, cremation could not be associated only with social rank, supposing that the latter is expressed by the wealth of a grave.

The adoption of cremation or inhumation does not necessarily mean different conceptions of afterlife. The two rituals differ in the way that the dead body is transformed from the one state to the other. During cremation this process is much faster; fire functions as an agent of transformation of the identity of the deceased and as a means of transportation across the boundaries,[58] while the entire procedure was a visual spectacle observed by the performers of the ritual. Cremation also required the participation of the mourners in its different stages and would be sharply etched in their collective memory.[59] On the contrary, in the case of inhumation the body transforms gradually without any human participation and the mourners remain with an intact picture of the body. Consequently, even though cremation and inhumation serve the same practical purpose, which is the disposal of the dead, or the same ethical purpose, which is burial with the appropriate honours and the transformation from living person to dead ancestor, they do it in different ways that lead to a difference in the construction of social collective memory.

The choice of one or the other burial treatment could be a matter of personal will, as the deceased may have issued instructions concerning the way they would like to be remembered,[60] or could be a result of social relationships which enforce obedience to a specific ritual. The latter is the most interesting possibility regarding the reconstruction of social organization, even though "mortuary material *may* mirror societal organization, but may also distort and idealize social relationships".[61] Both views are difficult to detect in the mortuary record. Intraregional comparison and spatial distribution of cremation and inhumation in the cemetery of Gitana (see Fig. 6) show a probable clustering of burials, but the data are still insufficient as only parts of the entire cemetery has been excavated. Thorough investigations to a sufficient extent of the Hellenistic cemeteries and contextual analysis of archaeological data, both unavailable at the moment, are required in order to form an opinion about the motivation behind the adoption of the one or the other ritual.

The analysis of the cremated bones illuminates some aspects of the mortuary ritual of cremation during the Hellenistic period in Thesprotia.

Cremation was used either in individual graves such as the pit burials, or in collective family graves that were used again and again for a long period of time such

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[55] Riginos 1992, 351; Riginos 1999, 172-174. For the bones, see Tsinas 2008.
[56] Choremis 1980, 18.
[57] *ArchDelt* 62B (2007), in press.
[58] Oestigaard 1999, 359.
[59] Williams 2004, 271.
[60] Williams 2004, 265.
[61] Owen 2006, 357.

as the big cist graves. In the second case, not only the cremation but also the grave itself functioned as a spot of collective memory for the members of a family.

The coexistence of cremation and inhumation within the boundaries of a cemetery has been discussed previously, but in some cases both burial rituals were detected even in the same grave. It is unclear yet whether this is an intentional act or a result of intrusion.

Standard sex determination and age estimation methods applied to cremated bones, although with a fair amount of uncertainty, provide some interesting information regarding the demographic data (see Appendix I). Cremation was practiced for both sexes and mainly for adults, except in two cases – the remains of a child from cist grave 11 at Fragma Kalama and the remains of a subadult from grave 6 at Mavromati, Sagiada.

The weight of the cremated bones has been used as an indicator of the attitude of the mourners, regarding the care over collecting the cremated bones from the pyre. The difference that was observed between the urns from cist graves and those from pit burials may reflect a difference in the status of the deceased. Some "inequality" was also observed regarding the efficiency of cremation. Bones from cist grave urns were more oxidized than those from pit burial urns, a fact that probably reflects better cremation facilities, namely more and perhaps higher-quality wood and sufficient time. Bone fragment size is affected by several factors, and it remains unclear whether the observed differentiation resulted from human interference or taphonomic conditions.

The present study tries to investigate the distribution of cremation as a burial ritual based on the archaeological research in Thesprotia up to date, its different aspects and its efficiency as a practical procedure. All of the cases that have been examined were secondary cremations in clay cinerary urns or stone containers. No primary cremation burials during Hellenistic times have been found or reported in Thesprotia so far. The Roman cemetery recently excavated in Mazarakia, where primary cremation is the predominant burial type, provides an opportunity of comparison between mortuary rituals of local and foreign origin. Further excavations in the detected cemeteries of the Hellenistic cities of Gitana, Elea, Doliani and Dimokastro are required in order for us to understand their structure and burial practices.

Appendix I - Data for Hellenistic Cremation Burials from Thesprotia

Archaeological Site	Burial	Urn	Type of Urn	Weight	Largest Fragment	Colour	Burning Rate	Sex	Age	MNI
Doliani, Latomeio	1	ΘE 7735	Pelike	1065	79.39	White	Excellent	?	Adult	1
Doliani, Necropolis	10	ΘE 6895	Oinochoe	1480	110.47	White	Excellent	M?	Adult	1
Doliani, Necropolis	10	ΘE 7319	Amphora	1322	70.78	Grey-white-black-brown	Good	M?	Adult	1
Gitana	-	ΘE 6853	Hydria	1088	149.22	White	Excellent	F?	Adult	1
Gitana, Fragma Kalama	5	Scattered		233	84.94	White	Excellent	?	Adult	1
Gitana, Fragma Kalama	9	Scattered		252	54.3	Black-grey-white	Medial	F?	Adult	?
Gitana, Fragma Kalama	9	ΘE 3446	Amphora	1390	64.19	White-grey	Very good	M?	Adult	1
Gitana, Fragma Kalama	9	ΘE6544	Amphora	1	31.31	White	Excellent	?	?	?
Gitana, Fragma Kalama	9	MAP1/16-2-2004	Temple like container	870	102.05	White	Excellent	?	Adult	1
Gitana, Fragma Kalama	9	Π57/16-12-2004		15	26.88	White	Very good	?	Adult	?
Gitana, Fragma Kalama	11	ΘE 6492	Stamnoid pot	1437	119.48	White	Excellent	M?	Old Adult	1
Gitana, Fragma Kalama	11	ΘE 6496	Oinochoe	1034	119.11	White	Excellent	F?	Adult	1
Gitana, Fragma Kalama	11	ΘE 6503	Lebes	1435	89.4	White	Excellent	M?	Adult	1
Gitana, Fragma Kalama	11	ΘE 6504	Lebes	1888	112.2	White	Excellent	M?	Old Adult	1
Gitana, Fragma Kalama	11	ΘE 7083	Temple like container	1972	144.44	White	Excellent	M?	35+	1
Gitana, Fragma Kalama	11	ΘE 7084	Temple like container	1267	101.38	White	Excellent	?-?	Adult	2
Gitana, Fragma Kalama	11	ΘE 7085	Cylindrical container	442	124.8	White-grey	Very good	?	7y +/- 24m	1
Gitana, Fragma Kalama	13	Π53/4-2-2004		421	95.39	White	Excellent	M?	Adult	1
Gitana, Road	7	Π19/17-11-2003		384	116.12	White-grey	Very good	F?	Adult	1
Gitana, Road	12	ΘE 6505	Oinochoe	635	113.77	White	Very good	F?	Adult	1
Gitana, Road	12	ΘE 7257	Oinochoe	976	80.65	Brown-black-white	Good	?	Adult	1
Gitana, Road	19	Π42/20-11-2003		422	105.33	White-grey	Very good	?	Adult	1
Gitana, Visitors' Building	Pot 1	ΘE 7043	Lagynos	159	64.64	Grey-white-black	Medial	?	Adult	1
Gitana, Visitors' Building	Pot 2	Π170/31-5-2005		269	70.2	Grey-white	Good	?	Adult	1
Gitana, Visitors' Building	Pot 3	Π195/3-6-2005		559	57.96	Grey-white-black	Good	?	Adult	1
Gitana, Visitors' Building	Pot 4	ΘE 7242	Oinochoe - Lagynos	593	76.9	Black-brown-grey-white	Medial	M?	Adult	1
Gitana, Visitors' Building	5	Scattered		200	76.05	White	Excellent	?	Adult	1
Gitana, Visitors' Building	5	Π114/10-12-2004		52	47.42	White	Excellent	?	-	?
Gitana, Visitors' Building	6	Scattered		162	72.21	White-grey-black	Very good	?	Adult	1
Gitana, Visitors' Building	7	Scattered		693	93.08	Adult: grey-white, Subadult: white	Very good	?-?	Subadult, Adult	2

Archaeological Site	Burial	Urn	Type of Urn	Weight	Largest Fragment	Colour	Burning Rate	Sex	Age	MNI
Gitana, Visitors' Building	7	ΘE 6791	Lagynos	29	41.57	Grey-white	Good	?	-	?
Gitana, Visitors' Building	8	Scattered		26	50.56	White	Excellent	?	Adult	1
Gitana, Visitors' Building	11	Scattered		111	53.03	White-grey-black	Very good	?	Adult	-
Gitana, Visitors' Building	11	Scattered		158	64.39	White-grey	Very good	?	Adult	-
Gitana, Visitors' Building	13	Scattered		185	101.16	White-grey	Very good	?	Adult	-
Gitana, Visitors' Building	13	ΘE 7254	Amphora	230	56.69	White-grey	Very good	?	Adult	-
Gitana, Visitors' Building	14	Scattered		63	60.86	White-grey	Very good	?	Adult	1
Gitana, Visitors' Building	14	Π276/30-6-2005		439	54.4	White-grey	Very good	?	Adult	1
Kephalochori	1	-	-	1252	84.94	White	Excellent	?	Adult	1
Kephalochori	1	ΘE 2838	Pithoid pot	802	99.49	White-grey	Very good	F?	Adult	1
Kephalochori	1	ΘE 2839	Chytroid pot	2191	105.45	White	Excellent	F?-?	Adult	2
Kephalochori	1	ΘE 2841	Chytroid pot	1316	100.31	White	Excellent	F?	Adult	1
Kephalochori	1	ΘE 2868	Chytra	580	109.37	White	Excellent	?	Adult	1
Kephalochori	1	ΘE2803-Scattered	Skyphos	148	48.76	White-grey	Very good	?	?	1
Mavromati	6	ΘE 8069	Lekythos or Oinochoe	258	49.91	White	Excellent	?	Subadult	1

Appendix II - Data for Hellenistic Cremation Burials from Thesprotia (found undisturbed and containing only one interment)

Archaeological Site	Burial	Urn	Type of Urn	Weight	Largest Fragment	Color	Burning Rate	Sex	Age	MNI
Gitana, Road	7	Π19/17-11-2003		384	116.12	White-grey	Very good	F?	Adult	1
Gitana, Road	12	ΘE 7257	Oinochoe	976	80.65	Brown-black-white	Good	?	Adult	1
Gitana, Road	12	ΘE 6505	Oinochoe	635	113.77	White	Very good	F?	Adult	1
Gitana, Road	19	Π42/20-11-2003		422	105.33	White-grey	Very good	?	Adult	1
Gitana	-	ΘE 6853	Hydria	1088	149.22	White	Excellent	F?	Adult	1
Gitana, Visitors' Building	Pot 1	ΘE 7043	Lagynos	159	64.64	Grey-white-black	Medial	?	Adult	1
Gitana, Visitors' Building	Pot 2	Π170/31-5-2005		269	70.2	Grey-white	Good	?	Adult	1
Gitana, Visitors' Building	Pot 3	Π195/3-6-2005		559	57.96	Grey-white-black	Good	?	Adult	1
Gitana, Visitors' Building	Pot 4	ΘE 7242	Oinochoe - Lagynos	593	76.9	Black-brown-grey-white	Poor	M?	Adult	1
Gitana, Visitors' Building	14	Π276/30-6-2005		439	54.4	White-grey	Very good	?	Adult	1
Gitana, Fragma Kalama	9	ΘE 3446	Amphora	1390	64.19	White-grey	Very good	M?	Adult	1
Gitana, Fragma Kalama	9	MAP1/16-2-2004	Temple like container	870	102.05	White	Excellent	?	Adult	1
Gitana, Fragma Kalama	11	ΘE 7085	Cylindrical container	442	124.8	White-grey	Very good	?	7y +/- 24m	1
Gitana, Fragma Kalama	11	ΘE 6503	Lebes	1435	89.4	White	Excellent	M?	Adult	1
Gitana, Fragma Kalama	11	ΘE 7083	Temple like container	1972	144.44	White	Excellent	M?	35+	1
Gitana, Fragma Kalama	11	ΘE 6504	Lebes	1888	112.2	White	Excellent	M?	Old Adult	1
Gitana, Fragma Kalama	11	ΘE 6496	Oinochoe	1034	119.11	White	Excellent	F?	Adult	1
Gitana, Fragma Kalama	11	ΘE 6492	Stamnoid pot	1437	119.48	White	Excellent	M?	Old Adult	1
Gitana, Fragma Kalama	13	Π53/4-2-2004		421	95.39	White	Excellent	M?	Adult	1
Doliani, Latomeio	1	ΘE 7735	Pelike	1065	79.39	White	Excellent	?	Adult	1
Doliani, Necropolis	10	ΘE 7319	Amphora	1322	70.78	Grey-white-black-brown	Good	M?	Adult	1
Doliani, Necropolis	10	ΘE 6895	Oinochoe	1480	110.47	White	Excellent	M?	Adult	1
Mavromati	6	ΘE 8069	Lekythos Oinochoe	258	49.91	White	Excellent	?	Subadult	1
Kephalochori	1	ΘE 2838	Pithoid pot	802	99.49	White-grey	Very good	F?	Adult	1
Kephalochori	1	ΘE 2868	Chytroid pot	580	109.37	White	Excellent	?	Adult	1
Kephalochori	1	ΘE 2841	Chytroid pot	1316	100.31	White	Excellent	F?	Adult	1
Kephalochori	1	-	-	1252	84.94	White	Excellent	?	Adult	1

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An Early Closed Deposit at the Roman Villa of Agios Donatos

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Agios Donatos of Zervochori is a small, ca. 1.1 ha lower spur of the Paramythia mountain range. On this small spur located at a level of ca. 220 masl and ca. 100-150 m above the bottom of the Kokytos valley there is an Early Hellenistic fortress, the existence of which has been known since the days of Hammond and Dakaris.[1] This fortress was chosen as one of the main research focus points of the Thesprotia Expedition in 2005, when an intensive survey of the spur revealed, apart from the Early Hellenistic fortification walls, also remains of house foundations inside the fortress itself. Part of the visible house foundations was constructed in *opus incertum* and the pottery collected included a surprisingly large amount of Italian terra sigillata, thus indicating that the site, which we call PS 25, had been in intensive use also during the Early Roman period.

From 2006 until 2009, several trial trenches were excavated at different points of Agios Donatos with the aim of broadening our understanding of the construction and date of the Early Hellenistic fortification walls as well as shedding more light on the nature of the Early Roman re-use of the site.[2] Trenches A, B and E produced much new information about the fortification walls that can now be dated to roughly the first quarter of the third century BC.[3] However, Trench E, and especially Trench A, which exposed half of the only square tower of the fortress, also produced Roman finds. The tower had apparently been re-used in Roman times, as a cocciopesto floor was found at a depth of ca. 1.6-1.7 m below the surface. Most of the filling of the tower can be dated to the first half of the first century AD,[4] although the uppermost 0.5-0.8 m can be dated to the second and third century AD. Below the *cocciopesto* floor finds dating to the late third or second century BC were recovered.[5]

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[1] Hammond 1967, 71; Dakaris 1972, 138-139. This chapter has been written in collaboration between the two authors. Björn Forsén has written the introduction, the stratigraphy of trench F and the small finds, Paul Reynolds the pottery section, whereas the section on date and implications was written together by the two authors. We owe thanks to John Hayes for discussing the pottery with us as well as to Jeannette Forsén and Patricia Francis for reading through and commenting on different versions of our text. Finally we want to express our thanks to the trench masters who were responsible for the actual excavation work of trench F in 2008 (Eeva-Maria Viitanen) and in 2009 (Terhi Taipaleenmäki). Figs. 4-5 and 12 are by Björn Forsén, Figs. 7-10 by Paul Reynolds and Figs. 1, 6 and 12-14 by Mikko Suha. Esko Tikkala produced the final versions of all the other illustrations of the chapter, partly on the basis of pencil illustrations by Anna Patteri (Fig. 10) and Eeva-Maria Viitanen (Fig. 2).

[2] For the location of the trenches, see Forsén *et al*., this volume, Fig. 30.

[3] Suha 2009; Suha, this volume.

[4] This corresponds to Locus 3 (partly mixed) and Locus 4 through 16, which included e.g. a large amount of Italian terra sigillata, for which see Ikäheimo 2009 and Ikäheimo, this volume.

[5] The late strata are Loci 1 and 2, whereas the early strata below the *cocciopesto* floor are Loci 17 and 18. The dates are based on a preliminary study of the pottery conducted by Paul Reynolds. The coins found in the tower partly support these dates. Thus, the only coin found below the cocciopesto floor dates to between 148 and the mid-first century BC, whereas the only coin found in the upper layers dates to the late second century AD. The main filling of the tower, which dates to the first century AD, includes a larger variety of finds with coins dating between the fourth and first century BC. For the coins, see Talvio, this volume.

Five additional trenches (C, D, F, G and H) were opened up in connection with the house foundations inside the fortress. Furthermore, parts of the walls were cleaned and traced, thus revealing an extensive Roman villa covering an area of ca. 90x40 m on three different terraces and also the re-use of the square tower.[6] Some of the wall foundations seem to belong to earlier Hellenistic buildings that were, however, largely destroyed when the Roman villa was constructed. Trench D and F proved to be of special interest. Trench D exposed in its entirety a small room with the inner dimensions of ca. 2.4x5 m. This room, which was located on the second or middle terrace, was probably a bedroom decorated with high quality wall paintings of the Second Pompeian style, with the best Italian parallels dating to between 50 and 30 BC.[7] On the lowermost terrace Trench F in its turn exposed another small room containing a closed deposit. The finds of this room are the topic of this chapter.

Stratigraphy of Trench F

Trench F is located just to the east of the apse of the small chapel of Agios Donatos. In 2008 this trench was 2x1 m large, but in 2009 it was enlarged to a size of 4x2 m, thereby exposing in its entirety a small room with the inner dimensions of ca. 1.8x1.8 m. This room was at one stage accessed through an 80 cm wide door from the lower southern terrace. This doorway had later been blocked with a crude masonry wall, which indicates that the room was probably abandoned (Fig. 1).

The small room in Trench F is demarcated to the north by bedrock which rises at a steep angle between the lowermost terrace and the middle terrace, leaving the middle terrace about 2 m higher than the lowermost one. Between the small room and the slanting rock face there is yet another small space with the inner dimensions of 1.8x1.5 m. No doorway to this space was found and it seems likely that it never was used as a room proper, but rather was built in order to create a vertical back wall to the small square room located at the lower terrace. Bedrock was reached in the inner space at a depth of only 50 cm below the top of the dividing wall and the filling above bedrock was largely void of finds.

The stratigraphy of the small square room is indicated by the profile drawn in 2008 of part of the west to east section through the middle of the room (Fig. 2). Below the humus-rich top soil follows a close to 90 cm thick light grey (10YR 7/2) layer, Locus 5. This layer contains plenty of building debris, such as tiles, mortar, plaster and some stucco, as well as pottery, animal bones, some shells and small finds (e.g. a loom-weight). Beneath Locus 5 follows a ca. 20 cm thick light brownish-grey (10YR 6/2) layer, Locus 6, which contains plenty of stones (diameter 5-20 cm), but less building debris than Locus 5. No tiles were, for instance, found in Locus 6, and the amount of pottery and other finds was much less than in Locus 5. The lower part of Locus 6 contained a certain amount of mortar sand, which clearly demarcates it from the following layer, Locus 7.

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[6] The architecture of the villa will be published by E.-M. Viitanen in Thesprotia Expedition III. The frieze-epistyle blocks that are reused in the small chapel of Agios Donatos and may originate from a Macedonian-type barrel vaulted tomb (E. Tikkala 2009) could theoretically also have belonged to the Roman villa.

[7] The wall paintings and stucco mouldings will be published by A. Freccero in Thesprotia Expedition III. See also the site catalogue (Forsén *et al*., this volume).

Fig. 1. The small cellar room in Trench F from the south. In front the blocked doorway.

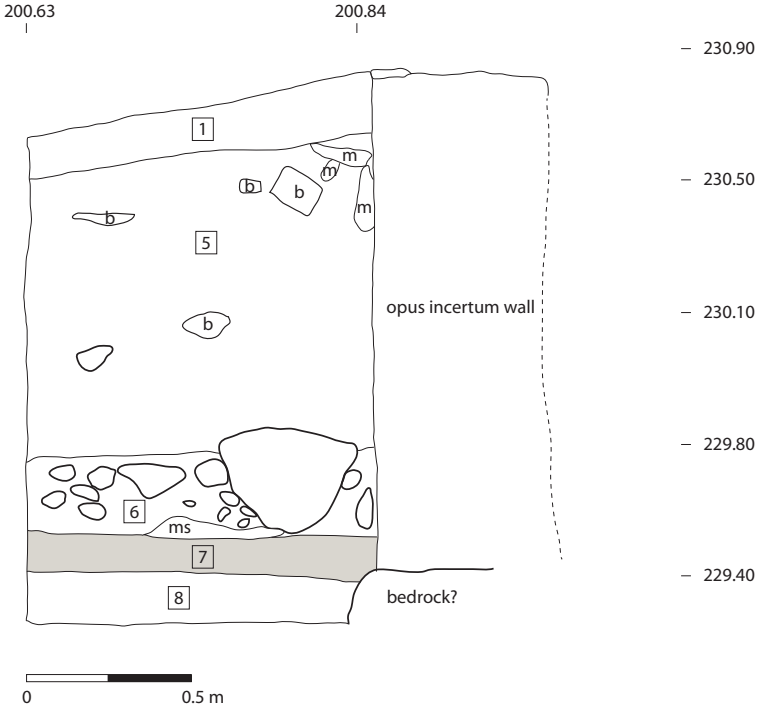

Fig. 2. North profile of the trial trench of 2008 (marked as P-P in Fig. 3). M = mortar, ms = mortar sand, b = brick/tile.

Locus 7 is a ca. 10-15 cm thick horizontal, fairly fine, sandy layer almost black (10YR 3/1) in colour. It contained a large amount of pottery and other small finds, as well as charcoal, animal bones and some shells, but few stones and tile fragments. The amount of finds decreased while going through locus 7, below which followed the fairly compact reddish-brown (5YR 5/2) locus 8, containing small limestone pebbles, but only a couple of pottery sherds and animal bones. The opus incertum wall to the east of the profile ended near the dividing line between locus 7 and 8. Below that two large stone blocks, probably the foundation of the wall were visible. No clear floor level was recorded, although it seems sensible to assume that the top of locus 8 was the level of the earthen floor of the room.

The loci excavated in 2008 were named F, Loci 5-8. When the trench was enlarged in 2009 to encompass the whole small room the area was excavated in two 2x2 m squares, F1 and F2, F1 being the southernmost of the two squares (Fig. 3). When the vertical back wall was uncovered it turned out that part of F2 belonged to the small square room and part to the northern closed space. The lower layers in the room per se were after that excavated as F1-2, Locus 3 (corresponds to F, Locus 5 of 2008), F1-2, Locus 6 (corresponds to F, Locus 6 of 2008), F1-2, Locus 7 and Locus 8 (corresponds to F, Locus 7 of 2008, the lower part of this find-rich layer was in 2009 considered as a locus of its own, i.e. F1-2, Locus 8), and finally F1-2, Locus 9 (corresponds to F, Locus 8 of 2008).

Most of the finds were made either in the southwest and southeast corners of the room, just to the left and right after entering the room through the small door, or then along the walls. Thus two lamps (Nos. 6-7), the small bowl (No. 3), a piece of Eastern terra sigillata B, a tile stamp ('COS' in Latin) and two of the loom-weights (SF 2 and SF

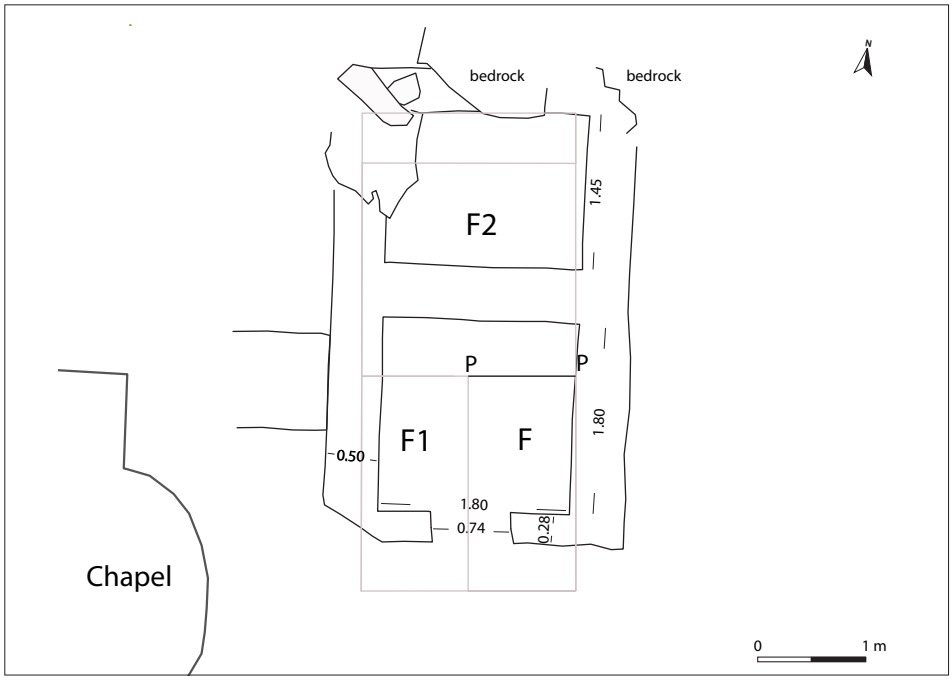

Fig. 3. Ground plan of Trench F with the small cellar room, behind which the closed space, probably never used as a room. Marked are also the trial trench of 2008 (F) as well as the two excavation squares of 2009 (F1 and F2).

3) were found in the southwest corner, whereas the bone handle (SF 11), the lead figurine (SF 9) and one of the loom-weights (either SF 1 or SF 6) were found in the southeast corner of the room. The following objects were recorded along the eastern wall (at a distance of 30 cm at most from the wall): the two lead weights (SF 7 and SF 8, found together), the unguentarium neck (No. 5), the barbotine cup with two handles and one of the loom-weights (either SF 1 or SF 6). Finally, the glass pearl (SF 10) finally was found next to the north wall of the room.

For the rest of the finds no exact find spot was noted; the cooking pots were found smashed into a large number of pieces, usually collected along the walls or in the southwest or southeast corner of the room. Lamp 3 was not found directly inside the closed deposit, but rather in the lowermost part of the layer above it (F, Locus 6, pail 2), but probably also belonging to the deposit. The deposit can be described as a dump of Late Hellenistic household waste, which was left in the room at some stage and consequently sealed by the thick layer of building debris (F, Locus 5-6 and F1-2, Locus 3 and 6). This layer of building debris seems to be roughly of the same date as the deposit, although it contains less pottery. The only object of this layer included here is the cooking pot No. 10, part of which was found in the deeper part of the building debris inside the small room (F, Loc. 6, pail 2). However, other parts of the pot were found in the uppermost parts of the building debris, just to the north of the small room itself (F1-2, Locus 3, pail 1).

Pottery

The small assemblage of pottery found in the 'cellar' room comprised several largely complete (Nos. 1, 3, 6-8), or half complete (Nos. 9-12, 15) vessels, as well as fragments (Nos. 2, 4, 5, 13-14). Though the variable state of preservation is probably partly due to the fact that not all the deposit was excavated, it is clear that the pottery was not an in situ group. As stated above, the pottery was part of a dump of household waste, including animal bone, deposited in the room. There were no amphora diagnostics recovered.

Two thin-walled vessels, a two-handled cup and a beaker (Fig. 4), decorated with thickly applied barbotine wreaths are from the same workshop (Nos. 1-2). The only parallel

Fig. 4. Cup with two handles (No. 1) and beaker (No. 2), both decorated with a horizontal wreath of leaves.

Fig. 5. Lamps Nos. 6-8.

found for the distinctive cup No. 1 is illustrated in the catalogue of the Archaeological Museum of Igoumenitsa, from the late Hellenistic graves excavated at Kephalochori in Thesprotia.[8] This orange-red slipped two-handled cup, decorated with fine barbotine vine tendrils, though clearly not the same product as our cup (No. 1), does share its rounded body profile, ring base and ring handles (in this case with additional small thumb holds). The lower register bears rouletting. In the catalogue the piece is dated to the first century BC. Roman first century two-handled cups of this general shape and everted rim would seem to have a carinated lower body.

A small hemispherical bowl or cup in a pale green fabric (No. 3) recalls the ware of Apulian products (e.g. some Otranto type Medieval amphorae) but such a ware could be reproduced almost anywhere. A fragment of an unguentarium, in a hard, fine fabric with yellowish, turned surfaces and matt colour coat decoration (No. 5) is in the same Hellenistic imported plain ware that occurs in abundance in Hellenistic levels of the 'Tripartite Building' of Butrint.[9] Indeed a single, identical unguentarium of this type was recovered in the late Hellenistic sequence (For 635.1). It is very likely that mortaria in this plain ware found in Butrint are the same products as one illustrated from the Gravina Pit Group of ca. 80-70 BC.[10]

The three lamps (Fig. 5), all wheel-made, comprise two forms, both without handles. The first type (Nos. 6-7) is comparable to Agora Howland Type 39, typically handleless and dated 'to the late 2nd and into the 1st century B.C', or more precisely to 115-90 BC. In a revision of the dating of the Agora lamps, Rotroff has changed the dating of the two relevant contexts to 120-100 BC.[11] Two similar examples are published from Phoinike, in southern Albania.[12] The second type (No. 8) has strong parallels with the dominant lamp type in the Gravina Pit Group of ca. 80-70 BC.[13] The latter, according to John Hayes, 'are late versions of the simple wheel-made varieties found on Roman

[8] Kanta-Kitsou *et al*. 2008, 133, no. 3.
[9] Reynolds in preparation; for the site, see Hernández and Çondi 2008; for Roman pottery, see Reynolds, Hernández and Çondi 2008.
[10] Hayes 1994, 221, fig. 11.122.
[11] Howland 1958, 124 and plate 19; Rotroff 1997, 504-505.
[12] Gamberini 2005, 140, fig. 8.55.15, from Tomb 37.
[13] Hayes 1994, 212-213, fig. 8.

Republican sites throughout central and southern Italy'.[14] Fairly good parallels for the latter are also to be noted from Olympia, dated to the first century BC.[15]

The cooking pots (Nos. 9-12), also Hellenistic shapes, are products in local or regional orange coarse ware. These are not so obviously tempered with large fragments of chert as Imperial Roman Butrint cooking wares. Though chert and flint is present in the Agios Donatos cooking pots, perhaps calcite and feldspar is more common here?[16] It was not possible to make other than macroscopical examination of the fabrics on the spot, so these observations (and fabric descriptions, Catalogue) need to be confirmed through thin-section analysis of samples.

One vessel, thin-walled with a pointed curved rim and (single?) rectilinear handle attached to the rim top (No. 9, Fig. 6), and another in a thicker fabric, handle type unknown (No. 10), may be related to a much smaller 'jar' in cooking ware fabric in the Gravina Pit Group.[17] Though No. 9 is reconstructed as a vessel with two handles, the general shape recalls one-handled cooking pots in the Athenian Agora, particularly those late in the series (see Catalogue, below). Note that No. 9, unlike Nos. 10-12, did not bear traces of soot, so it may not have served as a cooking pot. The form is present in late Hellenistic levels of the 'Tripartite Building' of Butrint.[18] In the latter case it is associated with Roman Republican amphorae (predominantly Lamboglia 2), cooking pots similar to one Gravina Pit shape,[19] a casserole also found in the Gravina Pit,[20] non-figurative 'Ionian' Megarian bowls (ca. 150/130-80 BC), the occasional Campanian black glaze dish (Lamboglia 6 and 36) and a range of black colour coat fine wares that are not paralleled in Gravina. The latter, with their yellow-white fabrics may be products of nearby Phoinike,[21]

Fig. 6. Cooking pots Nos. 9 and 11.

[14] Hayes 1994, 206.
[15] Schauer 2008, 229, Abb. 4.3-6.
[16] I am grateful to Miguel Ángel Cau Ontiveros for his comments on my fabric descriptions.
[17] Hayes 1994, 224, fig. 13.142.
[18] Reynolds in preparation.
[19] Hayes 1994, fig. 13.130-131.
[20] Hayes 1994, fig. 14.149.
[21] Gamberini 2005; Gamberini 2008; Minguzzi *et al*. 2008.

though there are almost identical vessels at sites in Thesprotia that beg the question as to where the Butrint fine wares originate from.[22] These Butrint deposits could date to the last quarter of the second century BC or, perhaps more likely, to the first decades of the first century BC. This in part depends on the date ascribed to these, in this case, generally unstamped Lamboglia 2 amphorae: whereas they are probably more common from ca. 100 BC,[23] the earliest examples of the form have been dated from the late second century BC[24] or from the last quarter of the second century BC.[25] There appear to have been none in the foundation levels of Valentia, at Numantia (134-133 BC) or in wrecks of similar date.[26]

The second form at Agios Donatos (No. 11), with vertical ring handles pressed under the rim, is thicker-walled (Fig. 6). Another vessel (No. 12), has no rim, but may have been the same form. Such handles are found on cooking pots as well as casseroles throughout the Hellenistic period,[27] some of the latest examples being the cooking pots found in the Gravina Pit Group.[28] The rim type is not paralleled in Butrint or Gravina. Three round-based vessels, probably cooking pots, from the necropolis excavated at aforementioned Kephalochori (Thesprotia) may bear some connection.[29] These vessels have been dated to the third quarter of the second century BC.[30]

A large crater or jar form (No. 13), with its horizontal ring handle, is clearly Hellenistic in concept. The large, flat base (No. 14) is in the same rather fine ware.

Finally, a globular, rather thick-walled jar with two handles and concave rim-lid seat is a distinctive shape (No. 15). This is more generally a Roman form, but we may note two 'coarse ware' (*común*) vessels from a context thought to date to the foundation of the Roman colony of *Valentia* in 138 BC that are similar in concept, but the rims are more articulated and the bodies are rather ovoid (Nos. 16-17).[31] Two Campanian vessels, actually closer in shape with regard to the more sagging profile, have (early) first century AD parallels (Nos. 18-19).[32] However, apart from perhaps illustrating the longevity of such a form, none provide the necessary precise parallels and dating that would be helpful.

Fine wares

1. Cup with two handles. 60% of rim and ca. 80% of the body. Rim diameter: 8.2 cm. Thin-walled and light-weight. Ring base. Horizontal wreath of barbotine leaves across both sides of the cup. The barbotine is applied so thickly that some of the leaves have detached from the body. Fine pale

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[22] Kanta-Kitsou *et al*. 2008, e.g. 125, figs. 1-3; 133, fig. 1.
[23] Bruno 1995, 27-38, 293-301; Beltrán Lloris 1970, 349-358, for Spanish examples.
[24] Py 1993: dated 135 BC-25 BC.
[25] Cipriano and Carre 1989; Bruno 1995, 27, 29.
[26] Ribera i Lacomba and Marín Jordá 2003.
[27] E.g. Rotroff 2006, Chapter 6.
[28] Hayes 1994, fig. 13.127-128.
[29] Riginos 1999, figs. 23-25: these are classified quite simply as 'urns', and are unfortunately illustrated only as photographs and not as profile drawings. See also Aidonis, this volume, fig. 4, three last vessels in the right lower corner.
[30] Riginos 1999, 178, Gruppe B.
[31] Ribera i Lacomba and Marín Jordá 2003, fig. 3, lower centre, top, dated 145-135 BC.
[32] Gasperetti 1996, 30, fig. 2.15-16: with reference to Dyson 1976, 132, fig. 51.109-111, Tiberian; De Caro 1994, fig. 42.130

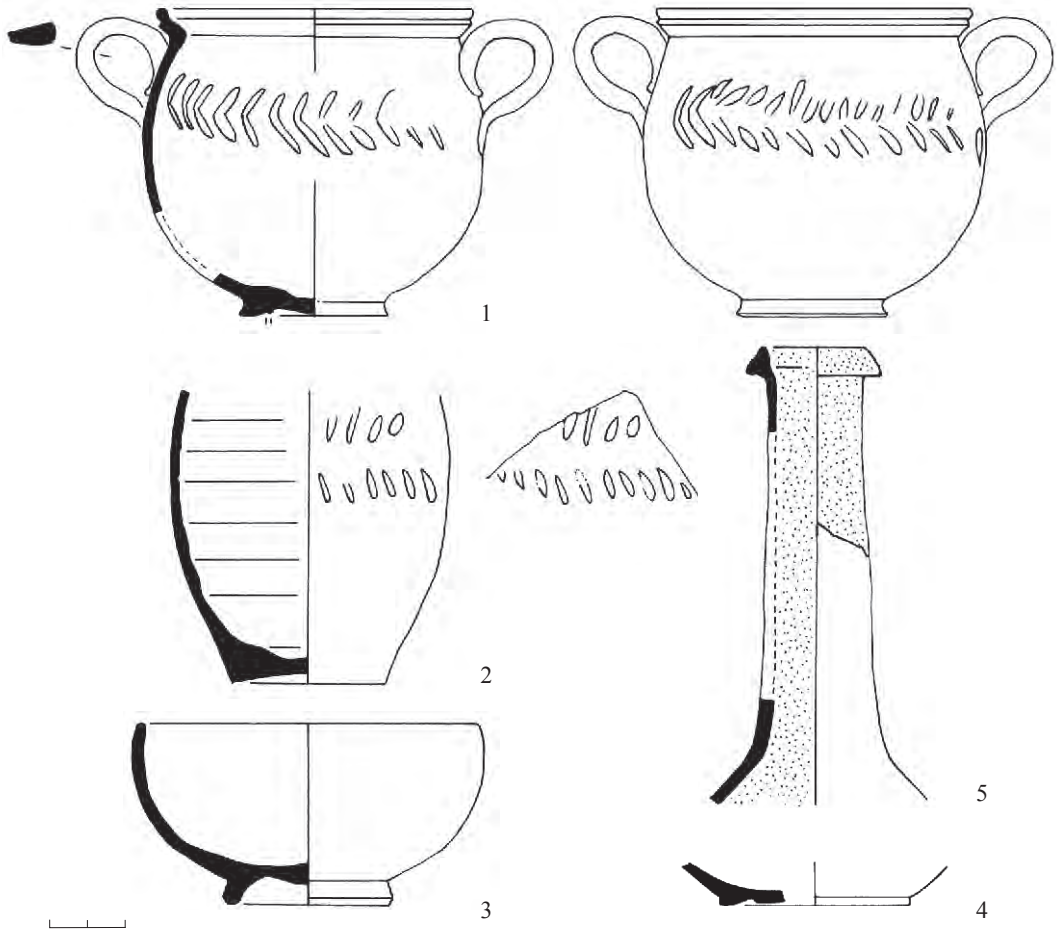


Fig. 7. Fine wares (Nos. 1-5). Scale 1:2.

salmon orange fabric. Fired pale yellow ochre inside. Mica dust on the surface.
Find context: F2, Loc. 7, p. 3.

2. Beaker. Base/wall. Diameter: 8 cm. Thin-walled and light weight. Same barbotine decorated ware as no. 1. Horizontal wreath of leaves, here the two halves well separated. Concave base. Very pale orange fabric, inner surface a little more yellow-orange. Inner surface has common fine-0.5 mm gold and lesser silver mica flakes. Inner surface finely pitted due to inclusions. Outer surface, being turned, mica less visible. Rather uneven break with common very fine quartz? Occasional very fine-fine white inclusions (chert?). Occasional 1 mm lime in surface pit.
Find context: F1, Loc. 7, p. 3, west side.

3. Cup. Complete. Rim diameter: 11 cm. Base diameter: 5.5 cm. Hemispherical body, ring base. No trace of slip. Fired pale green-yellow. Occasional fine oxide.
Find context: F1, Loc. 7, p. 4, west side, southwest corner.

4. Thin-walled ware base. Diameter: 6 cm. Bevelled foot. Rusty orange fine fabric with occasional fine chert, so a regional product. Poorly fired, leaving colour on ones hands.
Find context: F, Loc. 7, p. 2.

5. Unguentarium. Rim-neck. Diameter: 3.5 cm. Thin-walled. Well fired, hard, fine pale yellow fabric. Well turned-smooth surfaces. Matt, dark maroonish-brown paint/colour coat inside and upper section of the neck.
Find context: F, Loc. 7, p. 1.

Lamps

6. Lamp. Complete but for a few body sherds. Wheelmade. Spout attached separately. Circular body. No handle. Almost flat, string-cut base. Small band rim. No slip preserved. Salmon orange fabric, a little 'soapy'. Moderate fine-1 mm oxide pellets, moderate fine-0.5 mm lime and occasional 1 mm quartz. Related to Howland Agora Type 39, dated to the late second and early first centuries BC.[33] Rotroff's re-examination of the date of this type notes Howland's more precise dating of 115-90 BC and suggests a date of 120-100 BC.[34] She also provides a wider possible date range for a derivative of this type.[35]
Find context: F1, Loc. 7, p. 4, west side, southwest corner.

7. Lamp. End of spout missing. Wheelmade. Spout attached separately. Concave base. Bevelled narrow band rim. No handle. Matt red colour coat preserved on underside. Smooth surfaces, a little 'soapy'. Yellow ochre fabric (no chert or mudstone, so not local or Corinthian, respectively?). Rare fine lime. Same ware as No. 6. Howland Agora Type 39. For the date, see No. 6.
Find context: F1, Loc. 7, p. 4, west side, southwest corner.

8. Lamp. Complete but for two body sherds and the end of spout. Wheelmade. Spout attached separately. Small carinated cylindrical body, with rim simply bevelled. No handle. String cut base. Dark brown colour coat inside and outside. Very pale orange-dark yellow ochre fabric. Occasional 1 mm angular inclusion (chert? Not oxide). This general type, is typical in the Apulian Gravina pit group of ca. 80-70 BC, though these differ in the details of rim and base, as well as source(s) (the majority bearing a grey glaze, some being products of Metapontum).[36]
Find context: F, Loc. 6, p. 2.

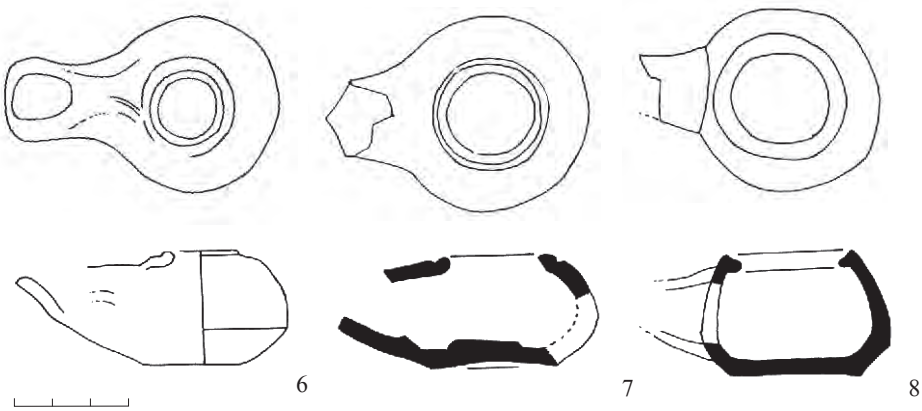


Fig. 8. Lamps (Nos. 6-8). Scale 1:2.

[33] Howland 1958, 124, pl. 19.
[34] Rotroff 1997, 504.
[35] Rotroff 1997, 505; Howland 1958, Type 39', the context comprising material dating to between 200 and the late first century BC.
[36] Hayes 1994, 206, 212-213, fig. 8.45-53, 57.

Cooking wares

9. Cooking pot? Roughly 50% of rim, ca. 50% of body, most of base. Rim diameter: 18 cm. Bag-shaped, globular, thin-walled vessel with a vertical collar and pointed rim. One, wide thin strap handle present with a central rib and right-angle profile, attached above and below the rim. Though I have reconstructed it as having two handles, this could be a one-handled lidless cooking pot (*chytra*).[37] Light double ribbing only in the area where the lower handles are attached. Lightly carinated to a rounded base. Base and extant body are not sooted, so, unlike Nos. 10-12, below, its use as a cooking pot is not assured. Bright orange fabric (more orange than cooking pots Nos. 10-12).
Macroscopic fabric description: Uneven, hackly break. Surfaces quite pitted. Inclusions a little 'melted' into the matrix. Moderate 0.5 mm irregular rounded brownish quartz; common fine, to occasional 2 mm whitish inclusions, irregularly faceted-hackly that may well be feldspar; occasional 2 mm black flint; moderate fine-1 mm white chert.
Find context: F2, Loc. 7, p. 3.

10. Cooking pot. Four fragments (59% total). Rim and upper wall. Rim diameter: 15 cm. Wide, pointed rim (cf. No. 9) and a collar neck, with its outer section flattened. Handle scars below rim (not on top face). Step to shoulder. Rim sooted on outer face and irregularly on rim top for 1 cm, with more soot on lower section of wall, 3 cm below the shoulder line.
Macroscopic fabric description: Rusty orange fabric. Uneven, granular break. Same fabric as No. 11, but inclusions are finer, generally fine-0.5 mm, with occasional 1-2 mm fragments. One 3 mm lump of oxide. Moderate fine rectilinear ice-coloured calcite is identifiable alongside more irregular semi -clear hackly material (feldspar?: see comment on No. 9). Occasional 3 mm reduced black oxide lump. Several 2 mm irregular lumps of grey and white conglomerate or rock (limestone and calcite?).
Find context: F, Loc. 6, p. 2 (2 rims, 15%), the rest in F1-2, Loc. 3, p. 1, north extension.

11. Cooking pot. 50% of rim, 1 handle, ca. 40% of body and most of base. Rim diameter: 17 cm top. Round section, arched handle(s) springing vertically from the upper shoulder to rest under the outer edge of the rim. Stepped shoulder to short collar and everted, rather square sectioned rim bearing a flat indent-lid seat on the top outer face. Deep body, carinated to a rounded base with flat central section (so is stable). One side sooted on base and up to 3 cm below handle. Large patch of sooting on body on the other side of the vessel. Macroscopic fabric description: Dark rusty orange (-red) fabric. Uneven, granular break. Common irregular semi-clear to brownish fine-1 mm fragments on the surface that may be quartz as well as feldspar (see No. 9); occasional 0.5 mm and 2-3 mm orange-brown flint; occasional large hackly pale grey material, probably chert; moderate 0.5 mm chert, common whitish fine-v. fine chert or calcite; moderate 0.5-2 mm oxide lumps; rare lime. Cf. Agora Rotroff 2006, two-handled chytra, no. 633 (ca. 225-175 BC), but there are no good Agora parallels.
Find context: F2, Loc. 7, p. 3.

12. Cooking pot. Rim missing. Roughly 70% of body and one handle. Base area part restored. Handle and body similar to No. 11, but smaller, with a shallower body. Base/lower body well carinated. Sooting on half of base, but up to the lower handles on both sides of the vessel. Did not sit directly in the fire but alongside it?
Find context: F 2, Loc. 7, p. 3.

Kitchen (plain) wares

13. Handled jar or crater. Diameter: 27 cm top. Similar rim and arched handle to cooking pot no. 11. Quite thick-walled. Horizontal ring handle pressed against the underside of a flared rim. Soft,

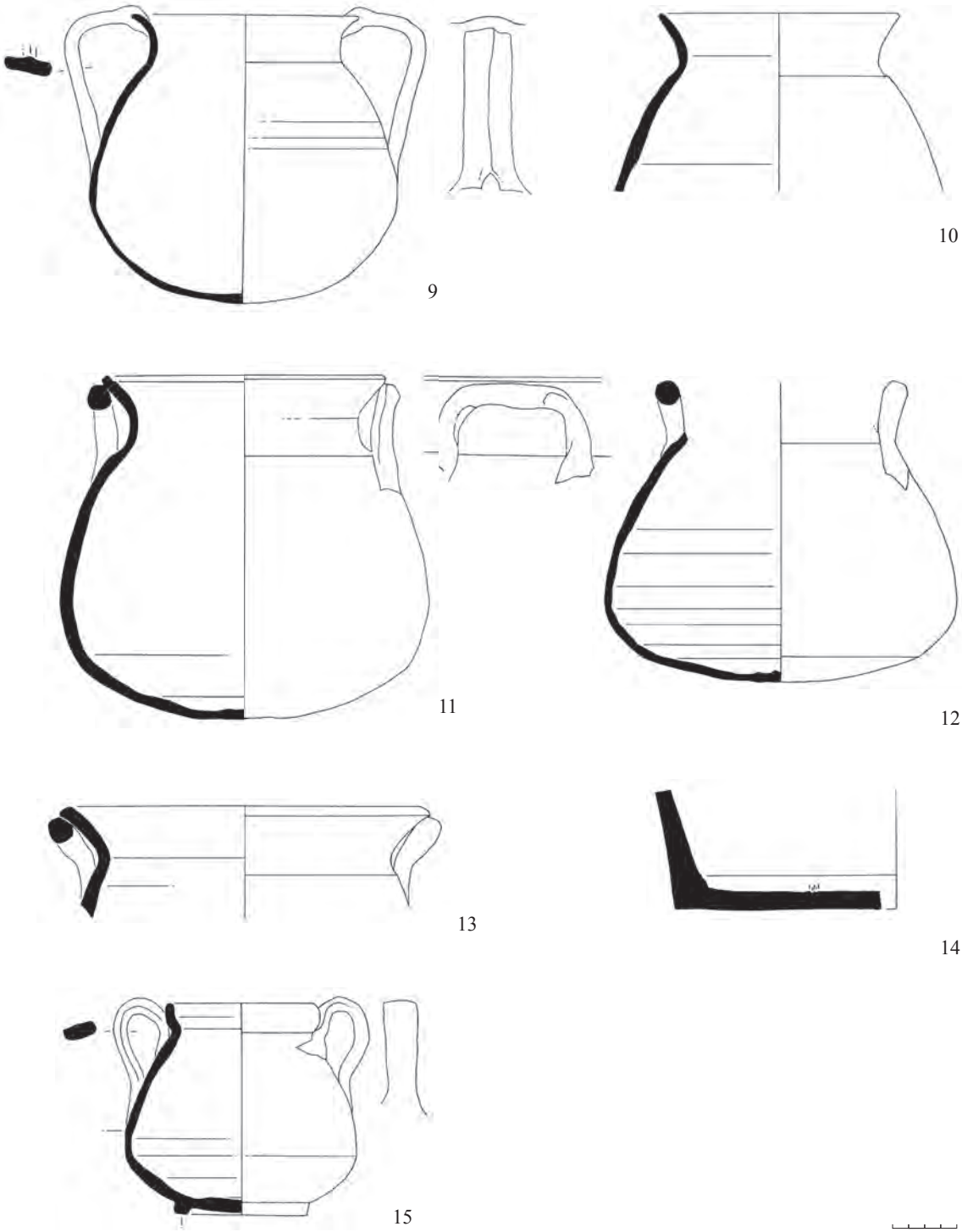
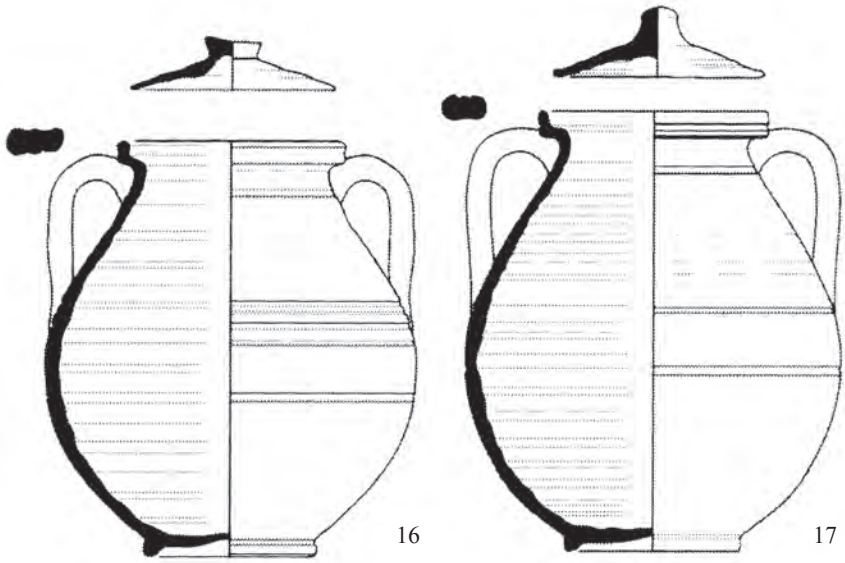
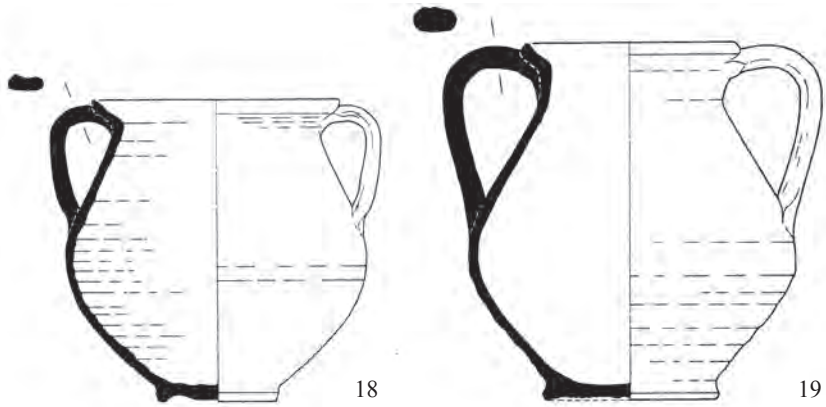


Fig. 9. Cooking and kitchen wares (Nos. 9-15). Scale 1:4.



Ribera i Lacomba, A. and Marín Jordá 2005, fig. 3. Approximate scale 1:3.



Gasperetti 1996, fig. 2.15-16.

Fig. 10. Kitchen ware parallels (Nos. 16-19). Scale 1:3.

fine bright orange fabric, poorly fired, leaving colour on one's hands. Moderate 1-3 mm chert. Close regional product.
Find context: F1, Loc. 7, p. 4, west side.

14. Jar or basin base. Diameter: 34 cm. Flat base and straight, lightly everted lower wall. Bevelled step on the lower inner wall. Light double groove on the floor. Similar ware to No. 13.
Find context: F, Loc. 7, p. 2.

15. Two-handled jar (two large for a cup?). 50% of rim, 2 handles and ca. 55% of body. Rim diameter: 11cm. Base diameter: 10.5 cm outer foot. Ring base. Carinated lower body. Plain strap handles. Convex rim and concave lid seat. Thick-walled. Well fired, very pale red fabric with rare chert. Moderate fine-2mm oxide, occasional 4 mm. It was not possible to examine the fabric more closely but it seemed to be finer (less quartz?) than that of the cooking pots. For comment, see Text.
Find context: F2, Loc. 7, p. 3.

Small finds

Apart from the pottery, the closed deposit also contained some small finds, mainly loom-weights, but also a glass pearl, a bone handle and three lead objects, as well as a fragmentary tile stamp. These are all published here except for the tile stamp that will be included in a forthcoming chapter on stamps and graffiti from the villa.

Loom-weights

A total of six conical loom-weights (Fig. 11) were recorded. A large number of loom-weights, mostly conical, were found in the other trenches dug on Agios Donatos as well as in the intensive field survey of the small hillock. In Corinth the conical loom-weight is the dominating type throughout time from the seventh until the first century BC.[38] In Attica and possibly also Arcadia there seems to be a shift in use from pyramidal to conical loom-weights in the fourth century BC.[39] According to our present knowledge the conical loom-weight also seems to be the dominant type in Thesprotia during the Hellenistic period.[40] The best published parallels to our loom-weights in Thesprotia can be found in Nekyomanteion in layers that date to the late third to early second century BC,[41] but this does not exclude the possibility that several of the shapes may have been in use even later in the second or first century BC.

SF 1. Conical loom-weight with pear-formed profile. H. 8.2 cm.
Find context: F, Loc. 7, p. 1.
Cf. Davidson 1952, profile XII; Tzouvara-Souli 1983, e.g. fig. 2, no. 7076, fig. 6, no. 7326, fig. 8, no. 7325ε; Turmo, this volume, Fig. 21.
Date: This shape is dated by Davidson between the mid-third and mid-second century BC. It was also one of the most common shapes found in Nekyomanteion (late third to early second century BC).

SF 2. Conical loom-weight with straight sides and somewhat rounded off lower edge. H. 9.8 cm.
Find context: F1, Loc. 7, p. 4.
Cf. Tzouvara-Souli 1983, fig. 9, no. 7317β and pls. 37-38.
Date: The loom-weights from Nekyomanteion date to the late third to early second century BC.

SF 3. Small conical loom-weight (H. 5.7 cm) with straight sides and two round stamps. The motive of the stamps is not visible.
Find context: F1, Loc. 7, p. 4.
Cf. Tzouvara-Souli 1983, pl. 36, middle one in lower row, for roughly similar shape, and Tzouvara-Souli 1983, pls. 17-20 and 25 for round stamps.

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[37] Cf. Rotroff 2006, 164-169, e.g. fig. 71.562: ca. 225-165 BC, fig. 72.569: ca. 150-110 BC, fig. 72.573: ca. 115-86 BC.
[38] Davidson 1952, 146-172. Davidson and Thompson 1943, 76, estimate that nine tenths of all loom-weights found at Corinth were conical.
[39] For Attica, see Davidson and Thompson 1943, 65-94; for Arcadia, see Forsén and Forsén 2003, 236-237.
[40] Cf. Tzouvara-Souli 1983 for loom-weights from Nekyomanteion that date to the late third or early second century BC (including only four pyramidal loom-weights among a total of 94 ones) or Turmo in this volume for loom-weights from the Sevasto house that date to between 275 and 200 BC (only conical loom-weights).
[41] Tzouvara-Souli 1983.

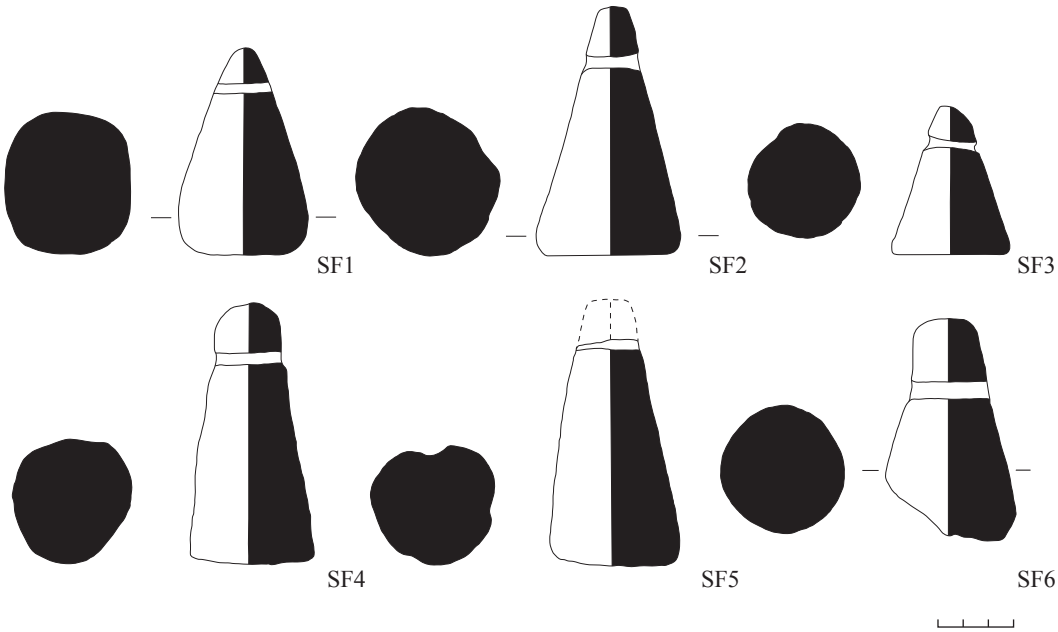

Fig. 11. Loom-weights (SF 1-6). Scale 1:3.

SF 4-5. Crudely shaped conical loom-weights. Top missing from one of the weights. H. of complete one 10.3 cm.
Find context: F2, Loc. 7, p. 3; F2, Loc. 8, p. 1.
Cf. Tzouvara-Souli 1983, fig. 6, no. 7324στ and pl. 35, nos. 7317γ, 7324 and 7326.
Date: The loom-weights from Nekyomanteion date to the late third to early second century BC.

SF 6. Chipped conical loom-weight. Preserved H. 8.7 cm.
Find context: F, Loc. 7, p. 1.

Lead objects

As well as three objects made of lead, the layer also contained some scrap pieces of lead, probably meant to be used as raw material for future production. Two of the objects were nearly identical lead weights (Fig. 12). Identical weights found in the ancient city of Leukas have been interpreted as weights for fishing nets,[42] whereas nearly similar weights from Delos seem to have been used quite frequently as official weights with letters as a stamp on the

Fig. 12. Lead weights (SF 7-8).

[42] Zachos and Douzougli 2003, 80, weights no. AE 2510 and AE 2512. For nearly similar lead fishing net weights from the Roman harbour in Mainz-on-Rhine, see Ginella and Koch 2006, 110, Abb. 56, esp. the second weight from the right.

Fig. 13. Lead figurine (SF 9).

bottom (some indicating Italian or Sicilian origin).[43] The villa on Agios Donatos was in antiquity located at a distance of ca. 18 km from the seashore next to Nekyomanteion. Still small quantities of sea shells and a fish vertebra found in the excavations indicate that the inhabitants of the villa consumed sea products.[44] The lead weights may indicate that some of the inhabitants of the villa actively took part in sea fishing. No similar weights were found elsewhere on Agios Donatos.

The third object made of lead is a small figurine depicting a dancing figure, probably a male (Fig. 13). This unique object, to which we know of no good parallels, had probably been used as a simple doll for a child.

SF 7. Lead weight. Roughly conical, with flat top and irregularly concave bottom. H. 6.0 cm, Base 2.4x2.4 cm.
Find context: F, Loc. 7, p. 3.
Cf. Zachos and Douzougli 2003, 80, weights nos. AE 2510 and AE 2512; Fiedler 2003 II, 349, nos. 1951-1952; Deonna 1938, 155-156, pl. 56; Davidson 1952, 163, 172, no. 1212; Sackett 1992, pl. 308:11-13.
Date: Late Hellenistic. The best parallels from Leukas were found in a Late Hellenistic house (terminus post quem for the construction of which is given by a coin dating to between the late third century and 167 BC; destruction dating to the turn of the first century BC and the first century AD). The weight from Corinth is dated to the Hellenistic or Roman period. In Knossos the weights are dated from the Augustan to the Hadrianic periods. No dates are given to the weights from Delos, but judging on the basis of the history of the island, they may well date to the first or even second century BC.

SF 8. Lead weight. Similar as SF 7. H. 5.4 cm, Base 2.4x2.8 cm.
Find context: F, Loc. 7, p. 3.
For parallels and date see SF 1.

SF 9. Lead figurine of dancing man (?) with outstretched arms. H. 4.1 cm.
Find context: F, Loc. 7, p. 2.

Other small finds

Apart from the loom-weights and the lead objects the closed deposit contained a small glass pearl (Fig. 14) and a bone artefact, possibly part of a pin or an ear scoop (Fig. 15). No parallels to the glass pearl were found elsewhere on Agios Donatos. Several other ear

[43] Deonna 1938, 155-156, pl. 56.
[44] Niskanen 2009, 146, n. 8 and 152.

spoons were found in the other trenches, but none similar to this one. A rather good parallel to the glass pearl has been found in a Late Roman grave in Augst, Switzerland, but the type may well have been in use for centuries. A hair pin in Augst (from a mixed layer, 30-900 AD) likewise is close in shape and decoration to our bone artefact.[45]

SF 10. Glass pearl consisting of two black biconical parts, separated from each other by a white disc. Diam. 0.6 cm.
Find context: F2, Loc. 7, p. 7.
Cf. Riha 1990, 115, no. 2906, Tafel 72 (dated to the Late Roman period).

Fig. 14. Glass pearl (SF 10).

SF 11. Bone artefact (end of a pin or ear scoop?) with incised geometrical decoration at the end. Round section and rounded end. Length 10.2 cm.
Find context: F, Loc.7, p. 4.

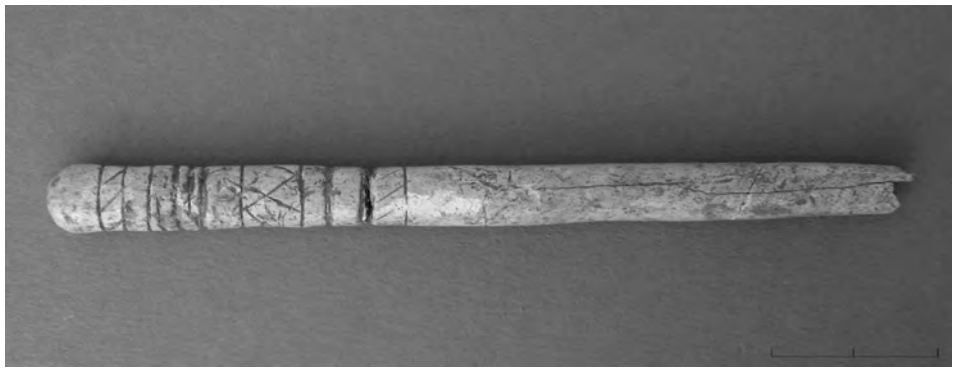

Fig. 15. Bone artefact with incised geometrical decoration (SF 11).

Date and implications

The dating of the closed deposit has proved quite difficult and in some cases no parallels could be found. However, a good estimate can be given on the basis of the pottery. The three lamps and perhaps the barbotine two-handled cup would seem to provide a date of ca. 120 to ca. 80/70 BC. The cooking pots, may, on the evidence of Butrint (cf. main period of exports of Lamboglia 2 amphorae), indicate that the assemblage belongs, like the Gravina Pit Group, to the early first, rather than to the late second century BC.

According to John Hayes's impression, based on the drawings,[46] the assemblage was 'basically Hellenistic', and the cooking pots and lamps looked more second century BC than first century BC, whereas the barbotine cup (No. 1), the two-handled jar (No. 6) and hemispherical cup (No. 3) were perhaps more first century BC in date. He nevertheless stressed the difficulties he also had in arriving at a more precise date. There

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[45] Deschler-Erb 1998, 286, no. 3402. The much later (tenth to twelfth centuries AD) bone pins from Corinth (e.g. Davidson 1952, 286, nos. 2358, 2359 and 2361, pl. 120) are also rather similar to our bone artefact, but this is probably coincidental.
[46] Personal communication.

is the possibility that the date range is in fact wider than we would wish (i.e. last quarter of the second to early first century BC inclusive), a matter that will hopefully be resolved once more deposits and sequences of the Late Hellenistic to Early Roman period are published in the region and work on the Hellenistic pottery from Butrint is concluded.

Dating the closed deposit to between the late second and early first century BC has implications not only for understanding the origins of the Roman villa on Agios Donatos, but also for our picture of the early Roman influence in Thesprotia. Written sources seem to indicate that the senatorial aristocracy of Rome invested in large land-holdings in Epirus beginning from the 70s or 60s BC and the first colonies were established only somewhat later by Caesar in Buthrotum and possibly also at Photike.[47] These dates conform rather well with the date of the wall paintings recovered from the bedroom of the villa on Agios Donatos (50-30 BC).

The closed deposit now dates the first building phase of the villa on Agios Donatos to before the mid-first century BC. The small cellar with walls constructed in *opus incertum* existed when the dump was deposited there. The fact that the thick layer of the building debris that sealed the deposit also dates to the Late Hellenistic period (it contained no clearly identifiable Imperial pottery) seems to indicate a major rebuilding of the villa at some stage in the first century BC, in connection with which the wall paintings may have been made. The *opus incertum* walls of the small cellar room as well as the closed deposit found within the room belong to the first building phase of the villa.

It is unclear whether the builders of the first phase of the villa on Agios Donatos were local aristocrats or early Roman settlers, although the fact that the walls were built in characteristic *opus incertum* may indicate that Roman settlers were involved. In that case the villa on Agios Donatos may constitute one of the earliest archaeological pieces of evidence for Roman presence in Epirus.

[47] See Bowden 2009, 169 with further references. Cicero's correspondent Titus Pomponius Atticus seems to have owned an estate at Buthrotum beginning from 68 BC (Cic. *Att*. 1.5).

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Italian sigillata from Agios Donatos

Janne Ikäheimo

Introduction

The aim of this paper is to provide an overview of Italian sigillata finds pertaining to the 2005-2009[1] survey and excavations of the Thesprotia Expedition at the site of Agios Donatos.[2] Italian sigillata was the dominant Roman red-slipped tableware during the first century AD and was able to infiltrate to fairly remote places through the extensive communication and trade networks of the Empire.[3]

The primary aim here is to describe and interpret the Italian sigillata assemblage according to usual standards adopted in Roman pottery studies. This includes a catalogue of the most common vessel forms present at the site and an overview of applied and moulded decorations present in the assemblage. The only category of evidence excluded from the article is pottery stamps, which has already been extensively discussed by the author in the first volume of the Thesprotia Expedition reports.[4]

The secondary goal of the article is to serve as an introduction to archaeological pottery evidence regarding human-artefact relationships at the Agios Donatos site. This evidence consists of few but unmistakable signs of vessel reparation and personalization (i.e. graffiti). In the concluding chapter, this evidence will be further contextualized to briefly discuss some aspects of the daily lives of the people who once used this pottery at the site.

The assemblage

Overview

The Italian sigillata assemblage of Agios Donatos comprises in total 367 sherds weighing 1.834 kg.[5] The number of diagnostic finds in this group is considerably high with 77 rim and 30 base fragments. In addition, many body sherds of Italian sigillata bear quite easily

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[1] Fieldwork also took place at Agios Donatos in 2009 and more Italian sigillata was found. As the author has not been able to review this material in person, the finds of the 2009 field season are excluded from quantitative data presented in this article. The information regarding these finds, including two fragmentary planta pedis stamps and two dolphin appliqués, is based on section drawings and photographs kindly provided by Anna Patteri and Mikko Suha. The author acknowledges here his debt to them for these services.

[2] The site of Agios Donatos is discussed in several articles published in the first volume of the Thesprotia Expedition report series; see Forsén 2009. See also Forsén *et al*., this volume.

[3] The other two major tableware classes identified at Agios Donatos are Eastern Sigillata B and Campana C, which will be dealt with in the forthcoming, third volume of the Thesprotia Expedition reports together with other classes of Roman slipped tablewares recognized in the assemblage.

[4] Ikäheimo 2009. Two new fragmentary *planta pedis* stamps were found in Agios Donatos during the 2009 field season. Due to the poor state of preservation which defies their identification from photographs taken during the field season, these examples have been excluded here from further analysis.

[5] Italian sigillata was only found at one other site surveyed by the Thesprotia Expedition. See Forsén *et al*., this volume, site E 9.

recognizable diagnostic features like rouletted decoration or complete or fragmentary clay appliqués. Body sherds with preserved point of carination or another type of abrupt change in vessel profile can also be fairly distinctive when identifying the vessel form.

Of the other Italian sigillata finds, circa 0.18 kg equalling 63 finds are flat sherds belonging to the bottoms of plates, with some examples showing one or two concentric grooves on the plate interior and others even more complex patterns of decoration, like rouletting. Some of these pieces show traces of carination point or the attachment point of a ring foot. A dozen sherds (0.026 kg) belong to the mid-section of a plate bottom, while 16 fragments (0.044 kg) can be attributed to plate carination points. Just 0.006 kg equalling no more than six sherds belong to the carination zone of small cups similar to Fig. 5.22, but showing just a simple decoration at the outmost protruding edge. Cups are also present with 25 sherds (0.039 kg) from the lower vessel body, and a single body sherd (0.001 kg) preserving carination and traces of applied volute decoration.

The assemblage also includes 13 rim sherds (0.012 kg) too small and fragmentary to be identified as to precise vessel form, and this comment also applies to two base fragments (0.001 kg). Finally, the total of 36 sherds (0.031 kg) can be only generally assigned to the group of Italian sigillata without more precise identification. The fact that this last group of finds makes up only 10 % of the total Italian sigillata assemblage reflects the long research tradition of this pottery, which has led to the creation of pinpointed vessel typology and chronology.[6]

Forms and find catalogue

The form repertoire of Italian sigillata present at Agios Donatos consists of two main groups, plates and cups. These two forms were also the backbone of the Italian sigillata production, and the production of Roman tablewares as well. Therefore, their dominance in the find material is hardly a surprise. Also from a quantitative point of view, the assemblage is fairly evenly split between the two vessel forms, and they make up most of the examples presented in the following catalogue. The catalogue is not intended to illustrate every small variation in form encountered in the assemblage, but rather to give an idea of the form and size variability of the vessels in this group.

Regarding provenance and date, all the finds are of Central Italian origin with the majority dating to the early first century AD. Some early examples may pertain even to the last decades of the first century BC. This notion is supported by the presence of small cups with hand-formed volute appliqués (Fig. 7b.22-26), while appliqués formed in separate moulds became common during the Tiberian era.[7] The use of some forms, on the other hand, like the plates with plain vertical upper wall, might have extended to the mid-first century AD or even to the Flavian era, but clear late Italian sigillata forms[8] are absent from the assemblage.

1. Medium-sized plate with vertical upper wall ending in a slightly thinned rim with pointed tip (cf. *Conspectus* forms 20.5.2 and 21.4.1). Exterior profiled with alternating ridges and grooves. Carinated transition to the horizontal lower wall. Diam. 18 cm.
Find context: A2, Loc. 9.

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[6] On the research history of Italian sigillata in brief, see e.g. Peacock 1982, 114-128; Hayes 1997, 41-64; Menchelli 2005, 155-156.

[7] *Conspectus*, 149.

[8] E.g. Mazzeo Saracino 1985; Medri 2005.

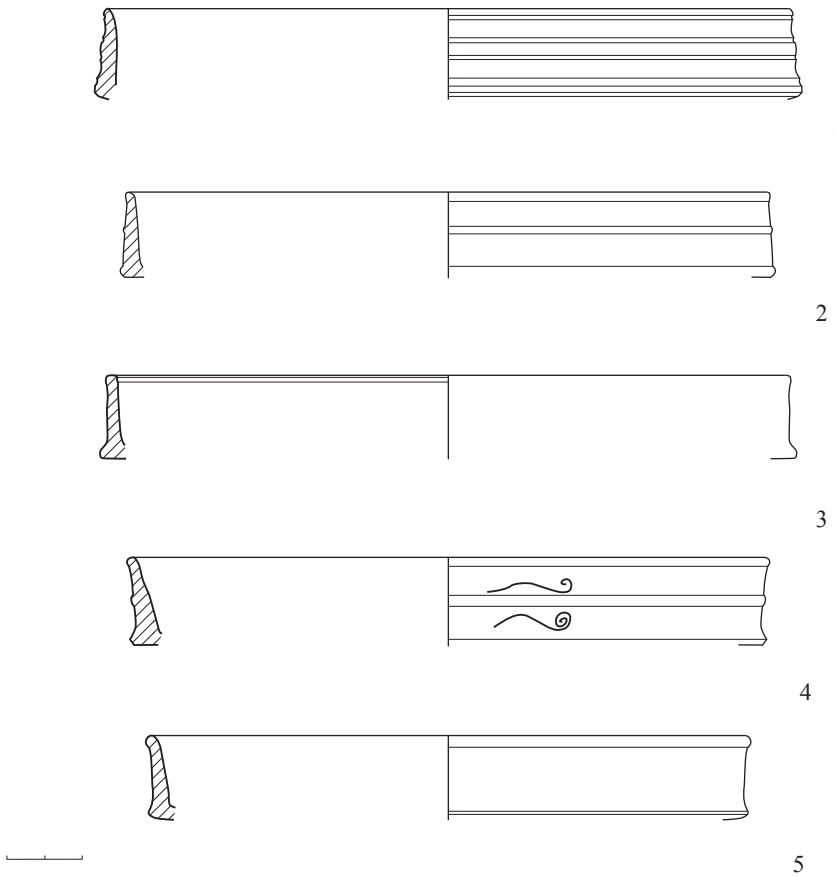

Fig. 1. Sigillata plates from A1, A2 and A5 (Nos. 1-5). Scale 1:2.

2. Medium-sized plate with vertical upper wall ending in a slightly thinned rim with rounded tip (cf. *Conspectus* form 20.5.2). Exterior profiled with two protruding ridges. Slightly protruding carinated transition to the horizontal lower wall. Diam. 17 cm.
Find context: A1, Loc. 10.

3. Medium-sized plate with vertical upper wall ending in an even rim with slightly angular tip. Plain exterior surface with partially preserved dolphin appliqué (Fig. 7a.2). Heavily protruding carinated transition to the horizontal lower wall. Diam. 18 cm.
Find context: A1, Loc. 11.

4. Medium-sized plate with slightly outward-inclining upper wall ending in a slightly thinned rim with rounded tip. Exterior profiled with two protruding ridges and a slightly protruding carinated transition to the horizontal lower wall. Applied volute decoration between the ridges (Fig. 7b.26). Diam. 17 cm.
Find context: A2, Loc. 16.

5. Medium-sized plate with slightly outward-inclining upper wall ending in a slightly thickened rim with rounded tip. Plain exterior surface with a boy's-head appliqué (Fig. 7a.5). Pointed, carinated transition to the horizontal lower wall. Diam. 16 cm.
Find context: A5, Loc. 5.

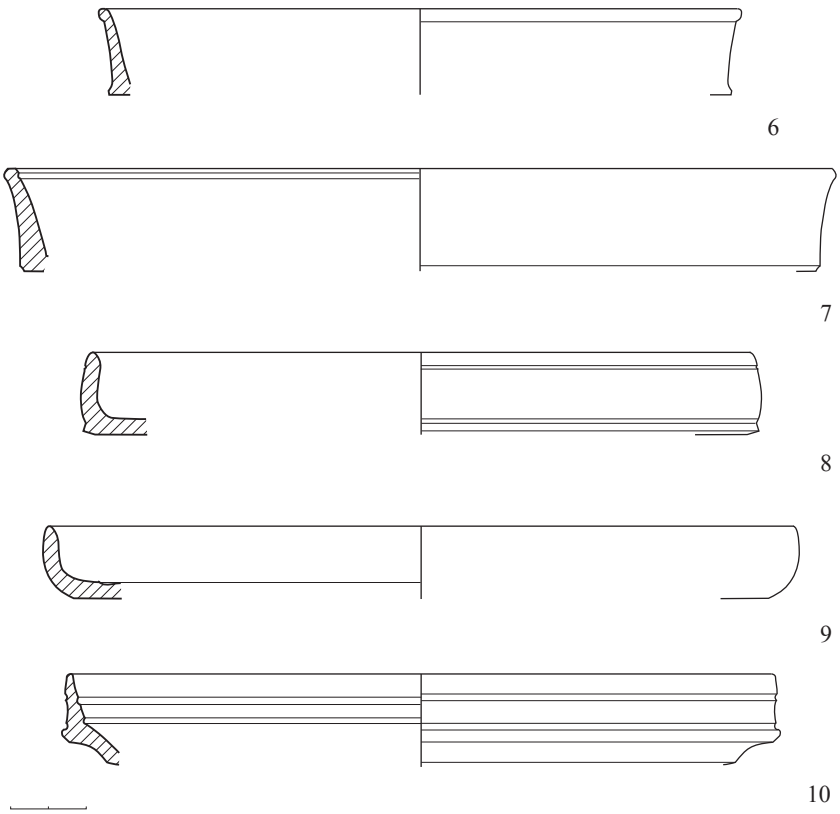

Fig. 2. Sigillata plates from A2, A4-A6 (Nos. 6-10). Scale 1:2.

6. Medium-sized plate with slightly outward-inclining upper wall ending in a slightly thickened rim with rounded tip (cf. *Conspectus* forms 20.4.4 and 21.3.1). Plain exterior surface with an appliqué showing the profile of an erote playing aulos (Fig. 7a.6). Pointed, slightly angular transition to the horizontal lower wall. Diam. 17 cm.
Find context: A2, Loc. 10.

7. Large plate with slightly outward-inclining upper wall ending in a slightly thickened rim with somewhat angular tip and an underlining groove on the interior. Plain exterior surface with angular transition to the horizontal lower wall. Diam. 22 cm.
Find context: A5, Loc. 5.

8. Medium-sized plate with slightly convex wall ending in a thinned rim with pointed tip (cf. *Conspectus* form 4.4.1). Rouletted decoration on exterior bordered by two grooves. Sharp, carinated transition to horizontal lower wall. Diam. 18 cm.
Find context: A5, Loc. 5.

9. Medium-sized plate with shallow vertical upper wall with even rim and pointed tip turning quite smoothly into horizontal lower wall (cf. *Conspectus* form 4.4.2). Plain vessel surfaces. Diam. 20 cm.
Find context: A2, Loc. 10.

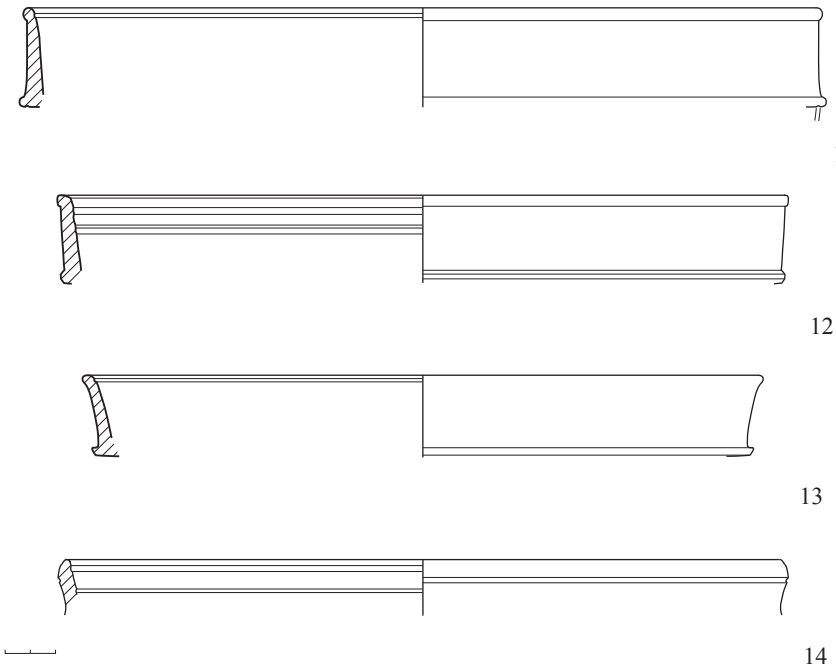

Fig. 3. Large sigillata plates from A2 and A6 (Nos. 11-14). Scale 1:3.

10. Medium-sized plate with vertical upper wall ending in a slightly thinned rim with pointed tip (cf. *Conspectus* form 21.2.1). Two grooves on both the exterior and interior. Angular, protruding carination forms the transition to inward-inclined upper wall. Diam. 19 cm.
Find context: A4, Loc. 5.

11. Large plate with tall vertical upper wall ending in a slightly thinned rim with rounded tip and an underlining groove on the interior (cf. *Conspectus* form 20.4.1). Plain exterior surface with a corn ear appliqué (Fig. 7a.17). Strongly protruding, angular carinated transition to the horizontal lower wall. Diam. 32 cm.
Find context: A6, Loc. 3.

12. Large plate with slightly outward-inclining upper wall ending in a slightly thickened rim with angular tip. Plain exterior surface with a fragmentary appliqué showing a draped youth (Fig. 7a.9); two shallow grooves on the interior surface. Slightly protruding, angular carinated transition to the horizontal lower wall. Diam. 29 cm.
Find context: A2, Loc. 9.

13. Large plate with slightly outward-inclining upper wall ending in an even rim with somewhat angular tip and an underlining groove on vessel interior. Plain exterior surface with a palmette appliqué (Fig. 7a.20). Pronounced, protruding angular carination to the horizontal lower wall. Diam. 27 cm.
Find context: A6, Loc. 4.

14. Large plate with slightly convex rim with pointed tip (cf. *Conspectus* form 18.2.1). Groove on the exterior, two on the interior rim. Diam. 29 cm.
Find context: A2, Loc. 4.

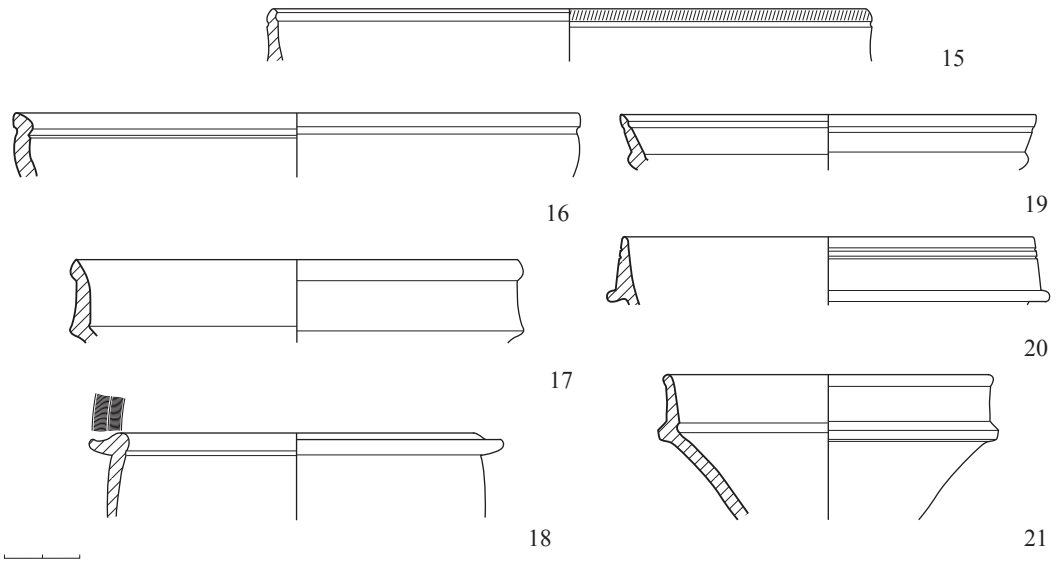

Fig. 4. Sigillata bowls and cups from A2, A4, A5 and B1 (Nos. 15-21). Scale 1:2.

15. Medium-sized vessel with vertical upper wall ending in a thinned lip with pointed tip undercut on both the exterior and interior. Rouletted decoration on exterior lip. Diam. 16 cm.
Find context: B1, Loc. 3.

16. Medium-sized bowl with a slightly convex upper wall ending in an even rim with angular lip and undercutting grooves on both surfaces (cf. *Conspectus* form 9.1.2). Diam. 15 cm.
Find context: A5, Loc. 3.

17. Medium-sized vessel with vertical upper wall ending in a rim with pointed tip thickened on the exterior. Pointed, carinated transition to lower vessel wall. Diam. 12 cm.
Find context: A2, NE-profile.

18. Small hemispherical cup with convex upper wall ending in a flanged rim with concave top and slightly thinned lip (cf. *Conspectus* form 37.1.1). Radial rouletting on the rim top. Shallow groove underneath the rim on the interior surface. Diam. 10 cm.
Find context: Square 25/14 in the survey.

19. Small vessel with outward-inclined, heavily thinning upper wall ending in a small rim with pointed tip limited by a groove on both surfaces. Protruding carination with rouletted decoration on the outermost point. Diam. 11 cm.
Find context: -.

20. Small cup with elongated, triangular rim with pointed tip and two grooves on otherwise plain exterior surface (cf. *Conspectus* form 34.2.1). Rounded protrusion on the exterior separating the rim from upper wall. Diam. 11 cm.
Find context: A4, Loc. 5.

21. Small conical cup with a slightly thickened rim with rounded lip (cf. *Conspectus* form 23.2.2). Vertical upper wall turning into inward-inclined lower wall through protruding, angular carination. Plain surfaces. Diam. 9 cm.
Find context: A2, Loc. 10.

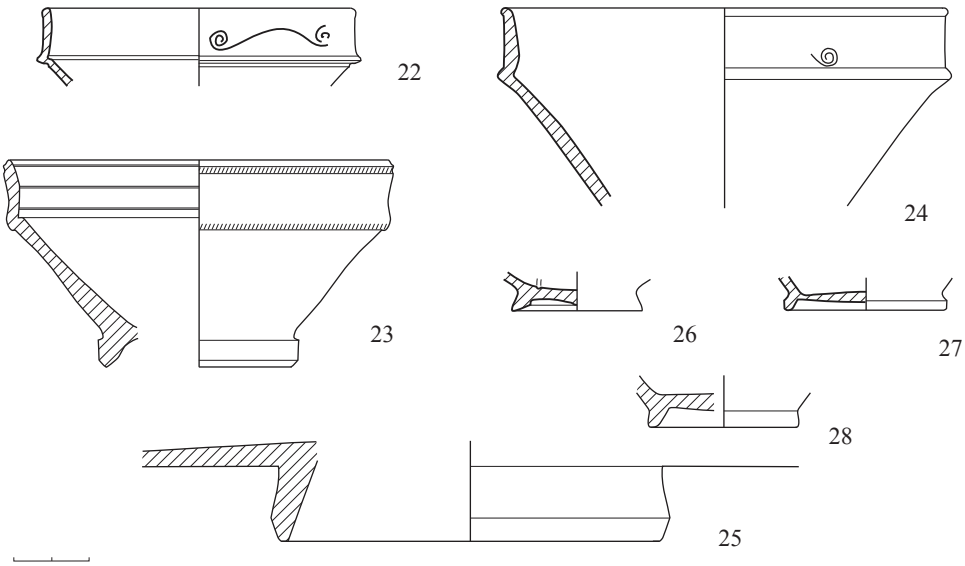

Fig. 5. Pieces of sigillata from A1, A2, A4 and D (Nos. 22-28). Scale 1:2.

22. Small conical cup with an even rim with rounded lip and vertical upper wall turning into inward-inclined lower wall through protruding, pointed carination. Applied volute decoration on upper wall (Fig. 7b.22). Diam. 8 cm.
Find context: A1, Loc. 10.

23. Small conical cup with an even rim and pointed lip (cf. *Conspectus* form 22.1.2). Vertical upper wall turning into inward-inclined lower wall through rounded, slightly protruding carination. Rouletted decoration on vessel lip and carination, three shallow but sharp grooves on inner upper wall. Diam. 10 cm.
Find context: D, Loc. 7.

24. Medium-sized conical cup with a thinned rim and slightly out-splayed pointed lip. Vertical upper wall turning into inward-inclined lower wall through slightly protruding pointed carination. Diam. 12 cm.
Find context: A4, Loc. 5.

25. Angular ring foot of a large plate (cf. *Conspectus* base form 2.7). Slightly inward-inclining angular ring foot joining the horizontal lower wall in a sharp angle. Diam. 10 cm.
Find context: A2, Loc. 9.

26. Small ring foot of a cup. Angular foot-ring with pointed tip turning into shallow bottom cone. Two letter graffito, MR (Fig. 8.4), scratched underside the vessel bottom; CN•ATEI *planta pedis* stamp (Ikäheimo 2009, 158, fig. 1a) on the top. Diam. 4 cm.
Find context: A1, Loc. 11.

27. Small ring foot of a cup. Angular foot-ring with turning into thin, substantially flat base with L•TITI *planta pedis* stamp (Ikäheimo 2009, 159, fig. 1g) on the top. Diam. 4 cm.
Find context: A1, Loc. 10.

28. Small ring foot of a cup. Rounded foot-ring. Diam. 4 cm.
Find context: survey, Square 9.

29. Small ring foot of a cup with profiled exterior. Angular foot-ring with turning into flat base. Diam. 6 cm.
Find context: A5, Loc. 6.

30. Small ring foot of a cup. Shallow angular foot ring turning into bulbous vessel bottom. L•AV *planta pedis* stamp (Ikäheimo 2009, 158, fig. 1d) on the top. Diam. 5 cm.
Find context: A2, Loc. 10.

31. Small ring foot of a cup. Shallow angular foot ring turning into bulbous vessel bottom. Two letter graffito, ΠA (Fig. 8.2), scratched underside the vessel bottom; [..](I)L *planta pedis* stamp (Ikäheimo 2009, 158, fig. 1e) on the top. Diam. 6 cm.
Find context: A1, Loc. 8.

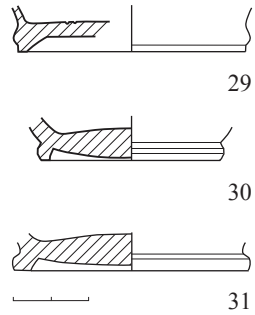

Fig. 6. Terra Sigillata from A1, A2 and A5 (Nos. 29-31). Scale 1:2.

Appliqués

Slightly over thirty sherds in the assemblage show evidence of decoration that has been applied to the vessel surface in a separate stage of the production sequence. The state of preservation of these appliqués is quite heterogeneous. An especially challenging sub-group regarding the identification of decoration is formed of sherds preserving only a small part of the appliqué, or where the appliqué has been badly worn out either in pre- or in post-depositional context. In the most extreme case, only the outline of the appliqué on the vertical upper wall indicates where it was once attached (Fig. 7a.1). On the other hand, the assemblage includes several complete appliqués, which are therefore substantially easy to identify.

The motives in the appliqués can be divided into five broad categories: human figures, animal figures, objects, vegetal or floral motives and decorative elements. Human figures include a boy's head (Fig. 7a.5), a boy playing aulos (Fig. 7a.6-7), Eros and a bow[9], a bearded man's head (Fig. 7a.12) and an appliqué showing the lower part of a draped human torso (Fig. 7a.9). Animal figures comprise a lion's head (Fig. 7a.8), a dolphin (Fig. 7a.2-4), a cock (Fig. 7a.10). Kantharos (Fig. 7a.13) and caduceus (Fig. 7a.11) – the staff of Hermes – are the two object appliqués present in the assemblage. Floral and vegetal motives show most variability as they include palmettes (Fig. 7a.14-15), rosettes with either sharp (Fig. 7a.20) or rounded petals (Fig. 7a.16), corn ears (Fig. 7a.17), and festoons (Fig. 7a.18-19, 7b.21). The only purely decorative element is a volute (Fig. 7b.22-25) that occasionally occurs also in double arrangement (Fig. 7b.26). The rest of the assemblage is composed of badly worn and/or fragmentary pieces that are virtually unidentifiable.

Most of these appliqués are attested in Roman legionary encampments along the Rhine area, which dates them to the early first century AD.[10] The significance of the seemingly wide repertoire of motives for the inhabitants of Agios Donatos will be touched upon in the concluding part of this article.

[9] See Ikäheimo 2009.
[10] E.g. Schindler Kaudelka *et al*. 2001, passim.

Fig. 7a. Sigillata appliqués (Nos. 1-20).

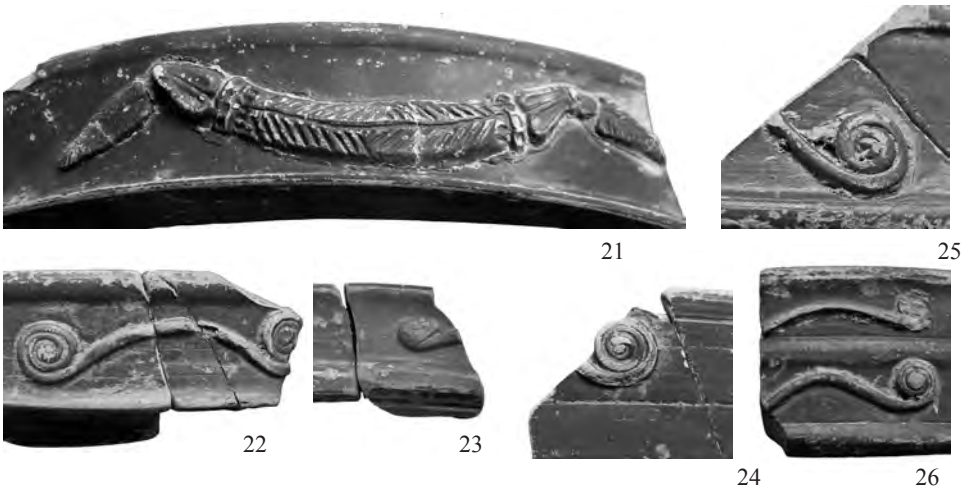

Fig. 7b. Sigillata appliqués (Nos. 21-26).

Graffiti

The Italian sigillata assemblage of Agios Donatos includes eight examples of graffiti executed *post-cocturam* (i.e. after firing) on the bottom of the vessel. Half of them are completely preserved with clearly legible markings ranging from one to three letters, while the rest are either fragmentary or ambiguous by their very nature. This leaves in several cases plenty of room for several equally probable interpretations. The existence of graffiti in both the Greek and Latin alphabets is an interesting feature regarding the remoteness of the site. This issue will be dealt with in more detail, in addition to short remarks put forward in the concluding paragraph of this contribution, in a forthcoming publication of the Thesprotia Expedition.[11]

Three out of eight examples are executed in the Greek alphabet and consist of 2-3 letters: ΚΠΑ, ΠΑ and ΙΘ (Fig. 8.1-3); all of them are very likely owner's marks. The same interpretation can be put forward for a similar short marking in Latin alphabet: MR (Fig. 8.4). The remaining four examples include a fragmentary graffito with, possibly, the upper part of an AE-ligature in Latin (Fig. 8.5), an obscure mark possibly incorporating the Greek letter Π (Fig. 8.6), the letter A or the Latin number IX or XI or alternatively an anepigraphic mark (Fig. 8.7) and, finally, a graffito (Fig. 8.8) too fragmentary to be identified at all.

The fact that these graffiti are more often found on cups than on plates corroborates their presumed use as owner's marks. The cup was certainly a personal belonging, whereas large plates were items more often utilized in collective dining. The custom of scratching initials or an anepigraphic mark intended to identify the owner refers to the use of these vessels in a context where the chance that they might have gotten mixed was substantially high. On the other hand, the custom of scratching a graffito on the underside of the vessel bottom reveals that ownership was not to be actively manifested.

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[11] The author wishes to thank Kalle Korhonen for his valuable help in the identification and interpretation of these graffiti. The full discussion of their significance will be included in a forthcoming article by Björn Forsén.

This implies that the odds of getting these cups mixed in use were not too high, while the occurrence of owner's marks in both Greek and Latin speaks on behalf of a bilingual community with equal access to resources.

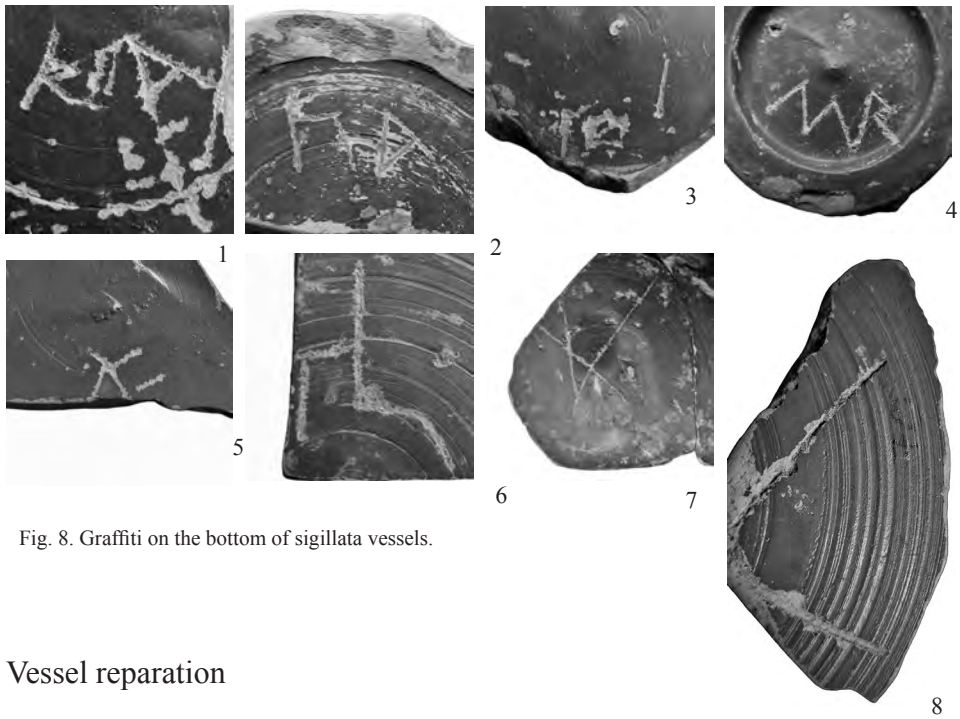

Fig. 8. Graffiti on the bottom of sigillata vessels.

Vessel reparation

The only unambiguous example of a repaired vessel is a fragment of a large plate that had been mended with a lead clamp (Fig. 9). The clamp bonded the vessel through holes drilled on the opposite sides of a crack. The reparation as a procedure has been recently described by Peña[12] and its occurrence on a large plate is hardly a surprise: it was a vessel form used in communal dining. Due to evident difficulties related to transportation, large plates were not only more expensive but, more importantly, also more difficult to replace than small cups, especially in the context of a Roman villa located in inland northwestern Greece at a considerable distance from major routes of transportation.

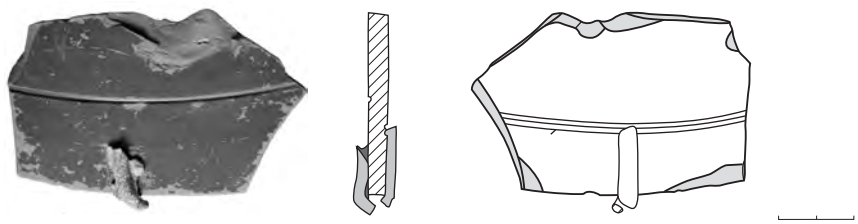

Fig. 9. Repaired vessel. Scale 1:2.

[12] Peña 2007, 232-249.

Discussion

The substantial amount of Italian sigillata recovered from the survey and excavation of Agios Donatos can be used to explore some aspects related to the nature and the type of the settlement. Firstly, this tableware bears witness to connections that this fairly remote site was able to maintain with the surrounding Roman world. Whether the pottery in question was specifically obtained by the inhabitants of Agios Donatos through the existing trade networks, or whether it was supplied to the site, may at first seem to be a difficult question to tackle. Had the site served for military defence during the late first century BC, the occurrence of imported tableware per se would represent the same phenomenon that has been observed in other Roman military encampments e.g. in Britain and Germany. But as the site of Agios Donatos had by then been turned into a Roman villa, the significance of this pottery is somewhat different.

Firstly, it is obviously quite impossible to estimate either the quality or the quantity of perishable imports that found their way to the site of Agios Donatos through trade or exchange. Based on the influx of extra-regional pottery, however, the existence of such provisions is more or less evident. Questions to be asked in this context are then: how were these decorated pots perceived by their users, and did the imagery applied to the side of a plate or a cup have any effect on them? The answers depend at least in part on how slipped fine wares were supplied to this area.

Supposing that Italian sigillata and related pottery were just another provision reaching the site from time to time with other necessities, the imagery hardly reflects personal preferences. This is not to say, however, that the imagery was completely insignificant. It may have equally provided aesthetic pleasure or food for conversation through familiar or unrecognized motives. On the other hand, these pots were not of such value or prestige that the inhabitants of the villa would have actively sought certain decorations or vessels from a particular user.

That the pottery was not totally insignificant to its users is indicated by the custom of using owner's marks on cups, as well as by attempts to mend cracked or otherwise slightly damaged vessels. It may reasonably be presumed that mending was not necessitated as much by commercial value as it was by availability and use value. The appreciation shown towards finely executed and decorated pottery is further underlined by the absence of modifications related to ownership or repair amongst all other classes of Roman pottery recovered from Agios Donatos.

The final aspect related to the presence of red-slipped fine ware pottery at Agios Donatos is its importance as a psychological signifier. A product that was markedly Italian and produced fairly near the centre of the Empire was a constant reminder of mental networks that extended even to the remotest places. To its user, a red gloss cup or a plate was of course primarily a utensil, a utilitarian item for everyday use, but on the subconscious level it signified attachment to the values of a strong political and economic power – the Roman Empire which, by the early first century AD, had been present in Epirus for a substantially long time.

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Glass from Agios Donatos

Jeanette Lindblom

Introduction

The amount of glass sherds found during the survey and excavation of test trenches of the Thesprotia Expedition is rather marginal. The only exception is the fortress on Agios Donatos (PS 25), where above all the tower (Trench A) produced a more substantial number of glass fragments. The small amount of glass found is not surprising, as glass until the first century AD was to a large degree a luxury item. It was only then that the evolution and spread of the invention of blowing glass into shapes made the production of glass items quicker and cheaper and also enabled production in larger quantities, eventually making glass a more common household item.[1] Even so, it usually occurs in much lesser quantities than e.g. pottery.

The study of the glass from Agios Donatos was made in the summer of 2007 and this report is based on the information collected up till then.[2] Glass found after that is not included.

Glass from the tower

The glass fragments found in Trench A in the tower area were mostly relatively small. Usually there were only a few fragments or even just a single piece representing the separate vessels. Around 130 fragments with some sort of diagnostic feature or distinguishable characteristic could be identified. These represent an estimated minimum number of 46 different vessels or glass items.[3] In comparison it can be mentioned that Trench B (the gate) yielded only some 15 fragments from an estimated minimum number of nine items. Neither did the trenches excavated in 2008 and 2009 (C, D, E, F, G and H) produce much glass – according to preliminary notes altogether only some 25 fragments.[4]

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[1] Cf. von Saldern *et al.* 1974, 86.

[2] I am grateful to Björn Forsén and Daniel Keller for commenting on different drafts of this chapter. All illustrations are by the author, but have been prepared for publication by Esko Tikkala.

[3] The estimated minimum number (EMN) represents the amount of vessels which with certainty can be differentiated among the assembly of fragments. This does not indicate that the material might actually represent a larger number of original vessels. But if two fragments come from the same type of vessel and they cannot exclusively be shown to come from separate items, they are only counted as one vessel. Simply put, e.g. a base and a rim in identical fabric and from the same type of vessel would have to be counted as one, even if they originally might have belonged to separate vessels, while two complete base fragments cannot possibly come from one single vessel and are counted as two separate items. For the concept of EMN of vessels and more elaborate use of the method in larger glass assemblages, see e.g. Cool and Price 1995, 9-10, and Keller and Lindblom 2008, 339-345, 349, 352.

[4] During the intensive survey only some 15 glass fragments with any diagnostic characteristics (some from e.g. PS 10 and PS 14 dating to the Late Roman period), as well as 28 fragments of glass windows from an estimated minimum number of 4 window panes (from E 10), were collected.

Most of the glass fragments are relatively small and represent only fractions of the original vessels. Even in the best cases, when several fragments could be connected or assigned to one vessel, they make up no more than an estimated tenth part of the original shape. The majority of the glass items are represented by a single fragment or only a few. This seems to suggest that the glass does not come from complete vessels which were stored in the tower, but rather represents some sort of waste material, or at least was already fragmented when the tower collapsed. Otherwise a larger proportion of each vessel might have been expected to be found.

The glass fragments in the tower were scattered throughout the trench (squares A1-A6), but larger quantities were concentrated around square A2 including the eastern part of A1, the western part of A3, and the eastern part of A4. Connecting pieces were found at least between A1, A2 and A4, as well as between A2 and A3. Therefore it seems that most of the glass must have entered the debris in the tower more or less concurrently. At least no clearly distinct differentiation can be determined among the glass material.

The glass fragments come from both open and closed vessels, or what could be called table ware and storage vessels. For the closed vessel types, the fragments indicate several smaller and larger bottles or flasks. The rim fragments often have folded rims and cylindrical necks. The fragment No. 35 indicates a very small globular flask, maybe some sort of unguentarium. Some fragments seem to come from small jars, while the handle fragment No. 33 indicates at least one small jug among the material.

The open forms seem to be present in a somewhat larger quantity than the closed forms (a very approximate ratio would be 2:1). The open vessels include fragments both from beakers or cups and bowls. There are a few bases with folded tubular rings, which probably belong to beakers. There are several fragments of ribbed bowls and some very thin mould-blown vessels with rib decoration and even lettering.

Catalogue

Separating the glass fragments found in PS 25 Trench A into an estimated minimum number of vessels gives the following catalogue.

It should be emphasized that many of the fragments are very small and therefore, while based e.g. on the glass fabric they can be separated from other fragments as belonging to different glass items, the identification of the exact type of vessel they come from is occasionally only tentative. While a part of a cylindrical neck or a small folded rim easily can be recognized as part of a flask or a bottle (or possibly a jug with a handle), a fragment of a base might belong to anything from a beaker to a bowl or a jar or a flask. A question mark has therefore been added next to many of the vessel types in the catalogue, as the exact shape in these cases has to be considered as an educated guess.

Colourless glass by nature usually has a very pale tinge which mostly leans in some slightly greenish or bluish direction. The shade of such a tinge is mentioned in square brackets [ ]. The intensity of the colour in the fabric is marked by a loose scale going from colourless through pale, light, and plain (meaning no extra brightness attribute), to deep colour at the opposite end. Where an approximation of the diameter of a vessel's rim or foot has been possible this is mentioned, as well as occasionally some other measurements which might give useful information.

1. Small fragment of colourless [blue tinge] ribbed bowl (?) with high slim ribs.
Find context: A5, Loc. 3.
Cf. e.g. Grose 1989, nos. 230, 232, 239; Weinberg and Stern 2009, nos. 45, 50, 52, 53.

2. Fragment of amber coloured ribbed bowl. Diam. ca. 8-10 cm.
Find context: A4, Loc. 4.
Cf. e.g. Caron and Zoïtopoúlou 2008, no. 22; von Saldern 1980, no. 34; Weinberg and Stern 2009, no. 41.

3. Small fragments of deep blue ribbed bowl, to which possibly belongs a flat base.
Find context: A6, Loc. 5 and N profile.
Cf. e.g. Grose 1989, nos. 234, 235, 238, and fig. 117 on p. 245; Grose 1991, pl. Vb; von Saldern *et al.* 1974, no. 253; Weinberg and Stern 2009, no. 54.

4. Fragments of colourless [greenish blue] ribbed bowl with polished rim, also polished on the outer side of the rim to the level of the ribbing. Diam. ca. 16 cm.
Find context: A1, Loc. 10; A2, Loc. 13 and Loc. 14; A4, Loc. 5 and Loc. 6, possibly a base piece from N profile.
Cf. e.g. Caron and Zoïtopoúlou 2008, no. 21; Grose 1989, no. 242 and Fig. 120; von Saldern *et al.* 1974, nos. 254-256.

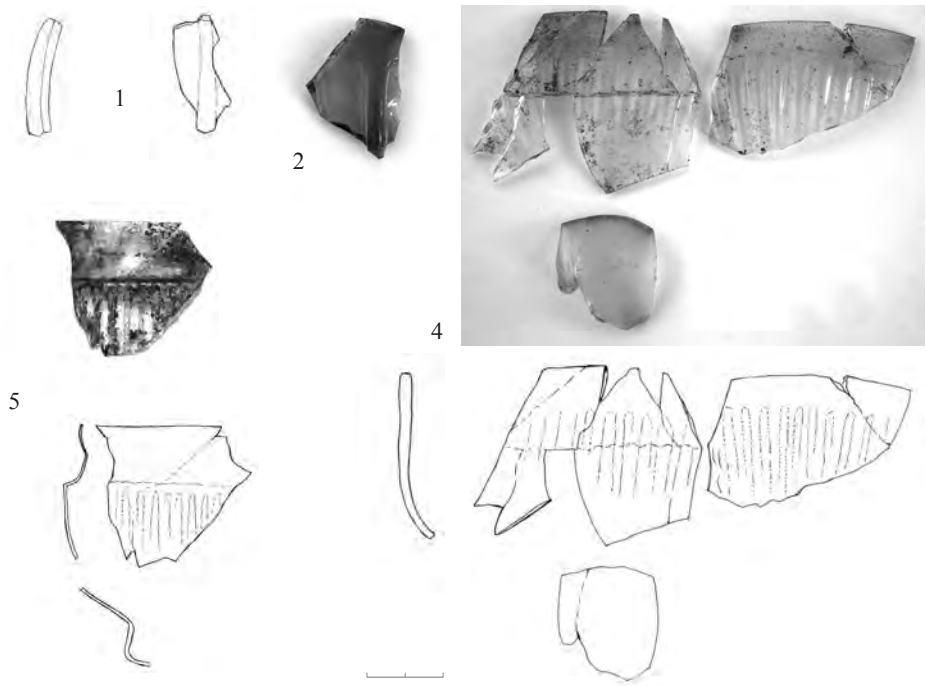

Fig. 1. Glass fragments Nos. 1-2, 4-5. Scale 1:2.

5. Fragments of mould-blown colourless finely ribbed bowl or vase (?) with profiled neck, flaring cracked off rim, and bulging base. Diam. of rim ca. 8.5 cm.
Find context: A2, Loc. 5 and base in A3, Loc. 4.
Cf. e.g. Price 1991, pl. XVId; von Saldern *et al.* 1974, nos. 450-451; Stern 1995, nos. 13-14, and Stern 2001, no. 55. Compare also Weinberg and Stern 2009, nos. 147-148.

6. Fragment of mould-blown cup or bowl (?) with flute decoration.
Find context: A5, Loc. 4.
Cf. e.g. von Saldern *et al.* 1974, no. 448.

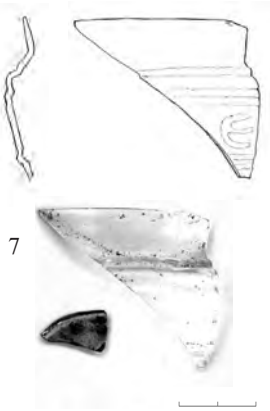

Fig. 2. Glass fragment No. 7. Scale 1:2.

7. Fragments of mould-blown colourless profiled (bulbous) cup with inscription (an epsilon visible) and horizontal ridges. Diam. ca. 8 cm.
Find context: A1, Loc. 10; A3, Loc. 4, possible base in A5, Loc. 3.
Cf. e.g. Cosyns *et al.* 2005, fig. 2; von Saldern *et al.* 1974, no. 447; Stern 1995, no. 1; cup with inscription also Weinberg and Stern 2009, no. 146; also Recent acquisitions 1996, 229, no.1.

8. Fragment of mould-blown pale olive green cup (?) with inscription (an epsilon visible) and ridge.
Find context: A4, Loc. 2.
For comparisons, see No. 7.

9. Very small fragment of colourless thin vessel with slightly profiled neck and possibly cracked off rim.
Find context: A1-A2, Loc. 1.

10. Fragments of colourless cup or beaker with cracked off flaring rim and broad and shallow wheel-cut band decoration. Diam. ca. 10 cm. Two fragments making up a colourless [turquoise blue] slightly concave base with tubular folded ring might belong to this cup. Diam. of base 3.5 cm.
Find context: A2, Loc. 14; A5, Loc. 3 and Loc. 5 , possibly also A1, Loc. 3
Cf. e.g. Caron and Zoïtopoúlou 2008, no. 90; Demierre Prikhodkine 2005, fig. 4e; von Saldern *et al.* 1974, no. 508; von Saldern 1980, nos. 46-49; Stern 2001, no. 18, and esp. no. 23.

11. Fragments of colourless cup or beaker with cracked off grounded rim (?) and broad and shallow wheel-cut band decoration (diam. ca. 8 cm, height over 6 cm). A slightly concave base possibly belongs to this same cup.
Find context: A2, Loc. 7; A5, Loc. 5, and possibly fragments in A1, Loc. 9; A2 Loc. 4 and Loc 14; base in A4-A5, Loc. 1.
For comparisons, see No. 10.

12. Fragment of colourless cup or beaker (?) with two narrow wheel-cut bands (v-shaped profile) and scratched vertical lines. Diam. ca. 8 cm.
Find context: A4, Loc. 5.
Cf. e.g. Stern 2001, no. 22; von Saldern 1980, no. 53.

13. Fragments of pale yellowish green cup or beaker (?) with both narrow and broad shallow wheel-cut bands. Diam. possibly ca. 6.5 cm. Small fragment of pale yellowish green base with thick tubular folded ring might belong to this. Diam. of base 5.5 cm.
Find context: A2, Loc. 10 and Loc. 14; A3, Loc. 2, and A4, Loc. 5, possible base in A2, Loc. 10.
Cf. e.g. Caron and Zoïtopoúlou 2008, no. 90; von Saldern 1980, no. 56; Stern 2001, nos. 17, 19-22; Weinberg and Stern 2009, nos. 97-101.

14. Fragments of light green cup or beaker (?) with shallow broad and narrow wheel-cut bands. Diam. ca. 13 cm.
Find context: A1, Loc. 8 and Loc. 10; A2, Loc. 9 and Loc. 14; possibly also A2, Loc. 11.
For comparisons, see No. 13.

15. Fragments of deep blue cup or beaker (?) with shallow but broad wheel-cut band. Diam. > 9 cm.
Find context: A2, Loc. 9 and Loc. 10; A3, Loc. 5, and possible base in A4, Loc. 4.
For comparisons, see No. 13.

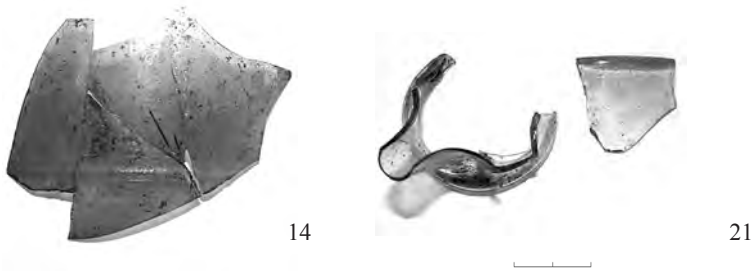

Fig. 3. Glass fragments Nos. 14 and 21. Scale 1:2.

16. Fragments of deep blue beaker (?) with several shallow and narrow wheel-cut bands. Diam. > 7 cm. The fabric is more cobalt blue than the previous one.
Find context: A 2, Loc. 10; A5, Loc. 6, and possible rim A4, Loc. 4.
For comparisons, see No. 13.

17. Small fragment of colourless [bluish] cup or beaker (?) with polished straight rim. Diam. ca. 11 cm.
Find context: A1, Loc. 9.

18. Fragments of colourless [bluish green] small jar or vase with slightly flaring triangular rim and flat base. Diam. of mouth ca. 5.5 cm, diam. of body ca. 7 cm.
Find context: A2, Loc. 9.

19. Fragment of colourless [greenish blue] vessel (bowl/plate/vase?) with attached folded foot. Diam. of both foot and vessel > 6.5 cm.
Find context: A2, Loc. 10.

20. Fragments of colourless [smoky yellow] cup or beaker with straight rounded rim and almost flat base. Diam. > 4 cm.
Find context: Rim in A1-A2, Loc. 1 and base in A1-A2, Loc. 2.

21. Fragments of pale yellowish green beaker with vertical indents, rounded slightly inward-going rim and slightly concave and bulging base. Diam. of rim ca. 10 cm and of base ca. 4 cm.
Find context: A3&A6, Loc. 1, possible rim fragment in A4-A5, Loc. 1.
Cf. e.g. von Saldern 2004, Taf. 299; Weinberg and Stern 2009, nos. 92-93.

22. Fragments of colourless [green] beaker with vertical indents and slightly concave base with tubular folded ring. Diam. of base ca. 4 cm.
Find context: A3, Loc. 2.
For comparisons, see No. 21.

23. Fragment of light yellowish green flat base with tubular folded rim of beaker or bowl (?). Diam. of base 4 cm.
Find context: A1, Loc. 10.
Cf. e.g. Stern 2001, nos. 23, 25.

24. Small fragment of colourless [blue] profiled foot with cracked off rim, from a cup, vase, plate or even a skyphos (?). Diam. of foot 7 cm.
Find context: A3, Loc. 5.
Cf. e.g. von Saldern *et al.* 1974, no. 533.

25. Small fragment of pale bluish green vessel with small knob-like base (a very round-bodied amphoriskos?). Diam. of base ca. 2.5 cm.
Find context: A2, Loc. 13.
Cf. e.g. von Saldern *et al.* 1974, no. 549.

26. Fragments of light yellowish green conical beaker with slightly inward-turning rounded rim and small flat base. Diam. of rim 10.5 cm and of base ca. 2 cm.
Find context: Rim in A1, Loc. 3 and base in A6, Loc. 5.

27. Fragment of colourless base of possible conical beaker (?). Diam. of base ca. 2 cm.
Find context: A5, Loc. 4.

28. Fragments of colourless [green] rounded slightly inward-going rim of cup or beaker (?). Diam. ca. 7 cm.
Find context: A1-A2, Loc. 1 and Loc. 2.

29. Fragment of colourless [green] rounded slightly inward-going rim of cup or beaker (?). Diam. ca. 9 cm.
Find context: A2, Loc. 11.

30. Fragments of colourless [turquoise] flask with cylindrical neck, rounded slightly flaring rim, and base with small 'kick-back'. Diam. of rim ca. 6 cm.
Find context: Rim from A2, Loc. 11 and A3&A6, Loc. 1, base in A5, Loc. 5.
Cf. e.g. von Saldern 1980, no. 175.

31. Fragment of colourless [turquoise] base with small 'kick-back' of flask (?).
Similar as No. 30, but different vessel.
Find context: A2, Loc. 13

32. Fragment of colourless [turquoise] base with small 'kick-back' of flask (?).
Similar as Nos. 30-31, but different vessel.
Find context: A5, Loc. 4.

33. Fragments of pale yellowish green jug with cylindrical neck, folded outward-turned rim and a slim relatively long handle with two ridges. Diam. of rim ca. 3 cm.
Find context: Rim in A2, Loc. 9 and handle in A1, Loc. 11.
Cf. e.g. Stern 2001, no. 30.

34. Fragment of colourless [blue] flask with cylindrical neck and folded outward-turned rim with a triangular profile. Diam. of rim ca. 4 cm.
Find context: A1, Loc. 11.
Cf. e.g. von Saldern 1980, no. 156.

35. Fragments of colourless [greenish blue] flask with cylindrical neck and folded outward-turned rim. Diam. of rim ca. 2.5 cm. A part of a very small globular body might belong with it (an unguentarium?).
Find context: Rim in A1, Loc. 10, possibly also in A1, Loc. 9, and the possible body fragment in A2, Loc. 10.
Cf. e.g. Caron and Zoïtopoúlou 2008, nos. 68-72; von Saldern *et al.* 1974, no. 551; von Saldern 1980, nos. 119, 166, 167; Weinberg and Stern 2009, nos. 128-130.

36. Small fragments of pale yellowish green flask or jug with cylindrical neck (?) and folded slightly flaring rim. Diam. of rim ca. 4 cm.

Find context: Rim in A1, Loc. 9, possible neck parts in A2, Loc. 16 and A3, Loc. 5, and possible body part in same fabric in A3, Loc. 6.
For shape cf. e.g. Caron and Zoïtopoúlou 2008, no. 48; von Saldern 1980, no. 170.

37. Fragments of colourless flask with cylindrical neck and flaring rim (actual rim missing). Diam. of rim > 2 cm.
Find context: A2, Loc. 9.
Cf. e.g. Caron and Zoïtopoúlou 2008, nos. 48, 50.

38. Body fragments of light yellow globular flask (?).
Find context: A2, Loc. 9 and A6, Loc. 5.

39. Shoulder fragment of colourless [greenish blue] flask with bulging shoulders and trapezoid body.
Find context: A4, Loc. 6.

40. Shoulder fragments of colourless [greenish blue] flask with trapezoid body.
Find context: A1, Loc. 9 and Loc. 10.
For shape cf. e.g. Caron and Zoïtopoúlou 2008, nos. 34, 37; von Saldern 1980, no. 135.

41. Small fragment of purple coloured base of vessel with opaque white spiralling thread decoration melted into the surface. Diam. of vessel > 7 cm.
Find context: A2, Loc. 9.
Cf. e.g. Weinberg and Stern 2009, no. 119, and notes 334-341.

42. Small fragment of deep blue base with circular decoration from mould-blown vessel. Diam. of base seems to be > 5 cm.
Find context: A6, Loc. 4.
Cf. e.g. Stern 1995, nos. 8-12, 49, 71-83, 139; Stern 2001, no. 51.

43. Small fragments of opaque bluish green non-blown object, flat surface with round ridge underneath, probably from dish or plate.
Find context: A1, Loc. 10 and A2, Loc. 9.
Cf. e.g. Grose 1989, figs. 135, and esp. 141-142; Lierke 1999, Abb. 135.

44. Very small fragments of opaque grayish turquoise green glass of possibly non-blown vessel (?).
Find context: A1-A2, Loc. 1 and A1, Loc. 8.

45. Very small fragment of turquoise seemingly flat object (inlay/window/base of vessel?).
Find context: A2, Loc. 9.

46. Small fragments of colourless (probably non-blown) window pane (?).
Find context: A2, Loc. 15 and Loc. 16.

Fig. 4. Glass fragments Nos. 41 and 43. Scale 1:2.

Types and dates of the glass from the tower

Though fragmented, the material is chronologically homogeneous. It clearly represents Early Roman glass types. There is neither any clear indication of Hellenistic glass, nor does there seem to be any Middle or Late Roman glass present. The only exceptions are three very small fragments of cobolt blue glass strings in different shapes (found in A2, Loc. 16 and A5, Loc. 6) not separately mentioned in the catalogue, as they could belong to a number of items. One could be part of a small handle belonging to anything from a first century AD jug or aryballos to a fourth century AD vessel.[5] Blue glass strings occur on glass items in several different periods. These three fragments can therefore not with certainty be attributed to any specific period. In general terms, the glass from the tower falls into the period between the first century BC and the early second century AD, but, considering some of the individual more special types, a tentatively narrower framework might be suggested.

The ribbed bowls begin to be produced in the late Hellenistic and early Roman period, occurring in the eastern Mediterranean exactly in the framework mentioned above, that is, from the first century BC to the early second century AD.[6] Fragments found on the Athenian Agora are mostly from the Augustan period or later, and in the east the production of ribbed bowls seems to stop at the end of the first century.[7] The types were general and widely spread, which makes it difficult to determine the provenance of production. This is true for much of the glass types from this period, where glass production spread throughout the Roman provinces and shows very homogeneous characteristics.[8] The fragments found at Agios Donatos (Nos. 1-4) show similarities with vessels which usually are considered of eastern Mediterranean or possibly Italian production and mostly are dated to the first century AD.[9] The blue and amber coloured pieces (Nos. 2-3) can be associated with Roman production from the Augustan period and the mid-first century, after which they seem to cease to be produced. The natural coloured types continue to the end of the first century, where especially the fragments with close-set ribs and the rim grounded on each side (No. 4) seem to belong to a typically eastern Mediterranean sub-type.[10]

Monochrome non-blown glass vessels imitating ceramic or metal table ware (No. 43) belong to the same chronological period. The types made of coloured translucent glass, which are relatively homogeneous, have a distinctively western distribution with regard to sites where they are found, while the production seems to centre much around Italy. The coloured opaque glass, though also typical for Italy, is in addition occasionally connected with the eastern Mediterranean. The opaque types are the earlier, and their production seems to fade out when reaching the middle of the first century AD, gradually being replaced by types made in translucent glass, first coloured, which were in use

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[5] Cf. e.g. Caron and Zoïtopoúlou 2008, no. 37 (first cent. jug) and Stern 2001, no. 14 (first cent. aryballos) and the small fourth cent. amphoras in Stern 2001, nos. 98-100.
[6] Lierke 1999, 51; von Saldern 2004, 188, 190.
[7] Weinberg and Stern 2009, 33.
[8] von Saldern *et al.* 1974, 86; von Saldern 2004, 190-191; Grose 1989, 244-247.
[9] Cf. eg. Grose 1989, nos. 230, 232, 239; von Saldern *et al.* 1974, nos. 249, 250, 253-255, 257.
[10] Grose 1989, 245-246; von Saldern 2004, 190-191; Weinberg and Stein 2009, 33-36.

during the first three quarters of the first century AD, and then colourless, the production of which started in the mid-first and continued in the second century.[11]

A third vessel type among the find material more or less falling into the same period are the free-blown cups and beakers with ground rims and wheel-cut bands (Nos. 10-16), which appear from the Augustan era and continue to the end of the first century AD. The majority of these types of cups and beakers come from western sites. Findings in the eastern Mediterranean might therefore be considered as imports from the west. The type with a solid or folded ring base, though similarly mostly found on western sites, is more generally known from eastern Mediterranean, as well as from Israelic and north Pontic, sites. The high point of their use seems to fall in the three first quarters of the first century AD. Three beakers connected with burials in Samothrace are, for instance, dated to between the second quarter and the mid-first century. This type of vessels also represents the new technique of glass blowing, which made them easier to mass-produce, cheaper, and therefore also spread and used in larger quantities.[12]

The so-called 'embedded thread' vessels usually in the shape of small bottles or flasks also belong to the first century AD. Parallels from Greece to the fragment found in the tower (No. 41) with opaque white thread spiralling the vessel and melted into the surface are often dated early in the century and the type is considered typical for the first three quarters of the first century AD. They are considered to be either Italian or from the eastern Mediterranean.[13]

The fashion of creating indents as decoration on the vessel seems to start in the second quarter of the first century AD. It then continues in different versions until the fourth century and even later, but in the beginning it is especially used for beakers. This type of vessels seems to have been popular especially in the east.[14] The beakers with indents and tubular folded base rings (Nos. 21-22) have parallels from the Athenian Agora dated to the second half of the first century AD.[15]

After the technique of blowing vessels into a decorated mould was created at some point around the beginning (maybe in the second quarter) of the first century AD, it quickly spread to the entire Roman Empire. The technique made it possible to relatively easily and quickly produce decorative glass items in larger quantity and was popular in the first century, but the use ebbed out before the end of the century. It recurs in later centuries in different shapes and is also used in Byzantine and Islamic glass production.[16] The fragments of mould-blown vessels found in the tower at Agios Donatos (Nos. 5-8, 42) clearly represent the early production belonging to the first century. The blue base fragment (No. 42) could come from anything like a small carinated bottle, a hexagonal or cylindrical jug, or a pyxis. Typical for these are, though, that they usually originate from the Syro-Palestine area and chronologically fall between the second quarter and the end of the first century.[17] The best parallel for No. 6 is also considered to originate

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[11] Grose 1989, 254-256; Grose 1991, 1-2; Lierke 1999, 55; von Saldern *et al.* 1974, 86; von Saldern 2004, 182-185.
[12] Dusenbery 1967, 46, nos. 39-41; Stern 2001, 45-47; Weinberg and Stern 2009, 49-50.
[13] Weinberg and Stern 2009, 59.
[14] von Saldern 2004, 351-352.
[15] Weinberg and Stern 2009, 47-48, nos. 92-93.
[16] Price 1991, 56-57, 64, 71-75; von Saldern 2004, 233-26; Stern 1995, 65-66.
[17] von Saldern 2004, 254-261; Stern 1995, 74-75, 83-85, and e.g. nos. 49, 72, 76, 79.

from Syria (or possibly Italy) and to have a first-century date.[18] The profiled ribbed bowl or vase (No. 5) belongs to the first century group of mould-blown vessels often with a variate Syro-Palestine, Italian or Pontic provenance and sometimes even more closely dated to the second and third quarter of the first century.[19] Finally the bulbous cups with mould-blown inscription (Nos. 7-8) are considered a Syro-Palestine type representing the mid-first century. Two fragments of this type of cups have been excavated in Belgium in clearly datable layers predating AD 70. [20]

Taking into consideration that the material from the tower at Agios Donatos seems to compose a relatively homogeneous deposit, the following chronological conclusions can be drawn. It clearly belongs to the first century AD, but a narrowing of the time frame is possible. Though the ribbed bowls occur in the early first century, some of the pieces from Agios Donatos seem to belong to types typical for both sides of the middle of the century. Both the cast vessels imitating ceramic or metal table ware and the vessels with wheel-cut bands mostly seem to predate the last quarter of the century. Also the coloured flasks with trailing more likely belong to the first half of the century than later. On the other hand, mould-blown vessels seem to become common only from the second quarter of the century, while the production probably ceases during the final quarter. The production of bulbous mould-blown cups with inscription seems to concentrate to the middle of the century. Similarly the beakers with indented decoration only occur from the second quarter of the century and become more common during the end half of the century. All in all, this seems to indicate that the material from the tower falls somewhere into the mid-century, or in the second and third quarter of the first century AD. As for the provenance, at least some of the finer or more special items were imports, probably either from Italy or the Near East.

The glass and the stratigraphy of the tower

The dating of the glass material mostly fits with the general chronology of the stratigraphy in the tower.[21] The lower levels of the squares A1-6, that is, Loci 17-18, were, based on stratigraphy and other material, dated to the late third to second century BC. As they did not contain any glass fragments, there is no conflict with this material and it fits the general picture. Most of the glass fragments came from the framework of the levels represented by Loci 4-16, which, also based on other evidence, were dated to the first century AD. Only a few fragments were found in Locus 3, which anyhow is considered a mixed level and they should therefore not present any problem if dated to the first century AD. Most of the few fragments from the levels corresponding to Loci 1-2 are vague in their character, stemming from relatively general vessel types, such as beakers and cups, which were in use from the first century onwards through the second and third century AD, to which these levels are dated based on other evidence.

There are only a few fragments posing some problems or questions for Loci 1-2. Among them are fragments from A3&6, Loc. 1 and A3, Loc. 2, which belong to beakers

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[18] von Saldern *et al.* 1974, no. 448.
[19] E.g. Price 1991, 64-71; von Saldern *et al.* 1974, nos. 448-451; Stern 1995, nos. 13-14, Stern 2001, no. 55.
[20] Cosyns *et al.* 2005, 180; von Saldern *et al.* 1974, 88, no. 447; von Saldern 2004, 248-249; Stern 1995, no. 1.
[21] For the stratigraphy of the tower, see Forsén *et al.*, this volume.

with indents on the side (Nos. 21-22), as well as at least one fragment in A4, Loc. 2 which is from a mould-blown cup with inscription (No. 8). At least the later one belongs to a vessel with a first-century date, and also the two beaker fragments belong to a first-century assembly rather than later. But on the other hand these early fragments may very well just have become mixed into the later layers, as is proven to have happened e.g. with three fragments from A3, Loc. 2 belonging to a vessel with a wheel-cut band (No. 13) which actually fit together with a fragment from A2, Loc. 14. There are two other pieces, belonging to a rounded rim (No. 30), which actually fit together, one from A3&A6, Loc. 1, the other from A2, Loc. 11, clearly indicating that some material from at least A3, Loc. 2 and A3&A6, Loc. 1 belongs together with the first century AD material found further down in the trench.

Glass from Trench B (the gate)

For comparison, the few items that somehow could be identified from Trench B (the gate) on Agios Donatos are:

- Fragment of light yellow mould-blown vessel with horizontal band and vertical fine flute decoration (compare Nos. 6-8, though this one has straight walls).
- Fragments of colourless dish (?) with tubular ring base (?).
- Fragment of colourless [turquoise] concave profiled foot with cracked off rim. Diam. of foot ca. 7 cm.
- Fragments of colourless [greenish blue] beaker (?) with rounded rim and flat base. Diam. of rim ca. 6 cm.
- Fragments of colourless [turquoise blue] square flask with flat base, cylindrical neck and rounded (possibly folded) outward-turned rim. Diam. of rim ca. 4 cm.
- Fragments of colourless [turquoise blue] globular flask (?).
- Fragment of yellowish green vessel.
- Fragments of pale blue vessel.
- Fragment of colourless [green] window pane (or base of a vessel?).

Of these not much can be said other than that they mostly seem to represent glass from the first centuries of the Christian area. The only fragment which can be dated more precisely is the one of the mould-blown vessel with fine rib decoration with horizontal band and vertical fine flute decoration, which clearly belongs to the first century AD.

Conclusion

To summarize, only the material from the tower (Trench A) at Agios Donatos (PS 25) rendered any significant amount of glass fragments and such pieces which could more clearly be identified and dated. This material seems to come from a relatively homogeneous collection of vessels probably datable to the second and third quarters of the first century AD. The vessels represent relatively standard and typical types in use during this period. In general, the glass from Agios Donatos seems to come from vessels that are neither earlier nor later than the first Christian centuries. No pieces datable to Late Antiquity were noted among the glass from Agios Donatos.

Based on the fragmentary state of the material from Trench A, it seems unlikely that these items, though representing a chronologically very narrow period, were stored as complete vessels in the tower. They more probably represent some sort of debris of already broken material. On the other hand, the connection between several of the pieces indicates that this material came into the archaeological layers more or less simultaneously at some stage before the final collapse of the tower.

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A Tower of Meals: Trenches A and F of Agios Donatos

Vivi Deckwirth

Introduction

The archaeological site known as PS 25 is an Early Hellenistic fortress located on a spur on the west side of the Paramythia mountain range. The spur forms a low hill (ca. 220 masl) known as Agios Donatos of Zervochori, with a broad view over the Kokytos valley to the south, west and north. Archaeological excavations conducted by the Thesprotia Expedition took place at the site in 2006-2009.[1] The aim of this article is to focus on the osteological fauna remains of Trench A from the excavation in 2007.[2] Trench A is located inside the only tower of the fortress and was excavated in 2006 and 2007.[3] The osteological fauna material from the excavation in 2006 at the site has already been presented and discussed by Niskanen in the first volume of the *Thesprotia Expedition*.[4] Beside Early Hellenistic finds and faunal remains, Trench A produced Roman coins, fibulae and other metal objects, as well as glass and terra sigillata pottery,[5] thus indicating an extensive re-use of the fortress in Early Roman times.

The first article discussing the osteological fauna material compared the composition of the bones recovered in 2006 at PS 25 and at the Kokytos valley bottom site of Mavromandilia, also known as PS 36, providing a comparison of the subsistence of the Early Roman period with the Early Iron Age.[6] The analysis showed a difference between the sites in the species diversity and their relative abundance. PS 25 showed, for example, a higher percentage of sheep and pig bones than PS 36, but cattle was more abundant at PS 36, which also had the only identified horse bones.[7]

In this article I am going to compare the faunal composition of the various stratigraphical layers, identified in the 2007 excavation, of Trench A. The find material of diverse metal objects and pottery, as well as the locating of a *cocciopesto* floor, allows the identification of distinct stratigraphical layers from the late second and third century AD (Loci 1-2), the first century AD (Loci 4-16) and the late third to second century BC (Loci 17-18). Because locus 3 represents a mixed layer,[8] the results of the osteological analysis of that material have been omitted from this presentation and discussion. The comparison of the faunal composition of these time periods will provide us more information on the subsistence economic aspects of Thesprotia and, especially, the Kokytos valley, during a

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[1] See e.g. Forsén and Reynolds, this volume.

[2] A more extensive article on the fauna osteological material from the field seasons 2007-2010 of the Thesprotia Expedition at PS 25 and at the valley bottom sites PS 29 and PS 12 is in preparation by the author of this article for the third volume of the Thesprotia Expedition.

[3] See e.g. Suha 2009; Forsén and Reynolds, this volume.

[4] Niskanen 2009.

[5] For the terra sigillata pottery see Ikäheimo 2009 and Ikäheimo, this volume.

[6] Niskanen 2009.

[7] Niskanen 2009, 146-147, esp. fig. 1.

[8] B. Forsén, personal communication; Forsén and Reynolds, this volume.

time span from the Hellenistic to the Middle Roman period. An important reference site in this matter is the archaeological hill site of Kassope, located near the coast, in southern Epirus. The site is dated between 360-30 BC and its osteological fauna material has been presented in the dissertation of Friedl[9] and subsequently discussed by Boessneck.[10]

Identified taxa and their relative abundance

Most of the fragments from Trench A (76.2%) derive from the layer of the first century AD (Loci 4-16). The layers of the late second to third century AD (Loci 1-2) and of the late third to second century BC (Loci 17-18) represent 22.8% and 1.0% of the bones, respectively (Fig. 1). The layers of the late second to third century AD and that of the first century AD have a more abundant species diversity than that of the late third to second century BC. However, the number of the recovered and identified fragments is very small in the lowermost stratigraphical layer, making the interpretation of its remains difficult, especially as the aim of this article is a comparison of the faunal composition between the identified periods of time. The number of bone fragments from the lowermost layer can hardly be considered as representative or suitable for making reliable comparisons. However, loci 7-9 from Trench F at Agios Donatos date to the late second to early first century BC,[11] and would thus provide a further time-bound sample for the observation of possible changes in the animal-based subsistence. Trench F is located circa 55 metres southwest of Trench A, on the east side of the apse of the small chapel of Agios Donatos.[12] It was excavated in the field seasons of 2008 and 2009.

The total number of analyzed bone fragments for this article from Trench A is 1846 pieces (excluding locus 3 with 391 fragments).[13] Of these, 531 fragments (28.8%) are assigned to the mammalian animal class only, without further identification to anatomical position, genus or species level, and six pieces (0.3%) unidentified as to animal class, genus, species and anatomical position. 838 fragments (45.4%) were identified only as being mammalian of origin, but allowed also the determination of their anatomical position. If possible, these fragments have been further subcategorized as belonging to a big-, middle-, small- or very small-sized mammal, in order to gain at least some more benefit from them. Some of the bones allowed even a further identification to order level, such as a middle-sized cloven-hoofed animal (*Artiodactyla*), or even to the suborder *ruminantia*. There were also plenty of shells recovered from Trench A during the excavation in 2007, as well as from Trench F, but unfortunately they have been stored apart from the bones and so far neither been counted nor analyzed further.[14] Subsequently, they have been omitted from the presentation of the absolute and relative proportions of the different animal taxa in this article (Fig. 1). This should be kept in mind when

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[9] Friedl 1984.
[10] Boessneck 1986.
[11] B. Forsén, personal communication.
[12] Forsén and Reynolds, this volume.
[13] A minor part of the bone fragments from trench A were analysed by Markku Niskanen and the major part, as well as those from Trench F, by the author of this article.
[14] B. Forsén, personal communication.

making interpretations. A fine exotic addition in Trench A is the presence of two pieces of a tortoise shell (0.1% of all fragments).

The total amount of analyzed fragments from loci 7-9 of Trench F is 336 pieces. Of these, 97% (326/336) are mammalian and 2.7% (9/336) are bird bones (Fig. 1). Only one fragment was unidentifiable as to animal class and anatomical position. There were also bird bones in the material from Trench A, representing 1.8% (34/1846) of all fragments there.

The identified animal taxa had some minor variation in their relative abundance in the different stratigraphical layers (Fig. 1). The size and other state of preservation of the bone fragments from the lowest layer in Trench A (i.e. the late third to second century BC) allowed no identifications at all to genus or species level. However, all fragments (19 pieces) from there could be identified as mammalian in origin, some of them belonging to middle- or big-sized ruminants (5 pieces). These include teeth of middle- and big-sized ruminants, and one shaft piece of a metatarsal bone of a big-sized ruminant. Other identifications as to anatomical position consisted of three long bone shaft fragments. Also in all the other layers of Trenches A and F (i.e. from the late second/early first century BC through to the third century AD) the mammalian category is the most abundantly represented (97.0-97.8%), followed by birds (1.6-2.7%). Tortoises were identified only in the layer of the late second to third century AD of Trench A.

It is remarkable that there are no fish bones in any of the layers from Trench A or F. In the osteological material from the excavation in 2006 there was identified only one vertebra of a large trout-size-category fish.[15] Due to their structure they, as well as bird bones and shells, are less likely to be preserved in archaeological contexts. Since the whole soil material from Trench A was sieved during the excavations in 2006 and 2007,[16] this under-representation might be due to insufficient familiarity of the excavators with the respective animal remains (recognition).

The best-preserved bones in the osteological material are those with a compact structure, like metapodia, phalanges and tarsal bones, as well as teeth. The three first-named bone types also mostly allow an accurate identification to genus level, if the important morphological features are well enough preserved, and provide good samples for measurements for size estimations, as well as for possible sexing.[17] The state of preservation is of special interest when differentiating two species with very close osteomorphological resemblance to each other, for example sheep (*Ovis aries*) and goat (*Capra hircus*). The most accurate identification is based on the presence of as many morphological features as possible. Unfortunately, there usually are not enough features preserved, thus leading to the designation of a fragment as belonging to the category of *ovicaprids* only. The identified different genera and their variation in time will be discussed more properly in the following.

Cloven-hoofed animals

Middle- and big-sized cloven-hoofed animals (*Artiodactyla*) are represented in the material by various ruminants and the genus pig (*Sus*). Quite many fragments could be

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[15] Niskanen 2009, 152 and fig. 1.
[16] B. Forsén, personal communication. However, the mesh size is not known.
[17] Berteaux and Guintard 1995.

	Trench A						Trench F	
	Including teeth			Excluding teeth			Including teeth	Excluding teeth
	Late 2nd to 3rd cent. AD	1st cent. AD	Late 3rd to 2nd cent. BC	Late 2nd to 3rd cent. AD	1st cent. AD	Late 3rd to 2nd cent. BC	Late 2nd to early 1st cent. BC	
Mammalia	409 (97.4%)	1376 (97.8%)	19 (100%)	367 (97.1%)	1235 (97.6%)	15 (100%)	326 (97.0%)	317 (96.9%)
Aves	7 (1.6%)	27 (1.9%)		7 (1.9%)	27 (2.1%)		9 (2.7%)	9 (2.8%)
Testudines	2 (0.5%)			2 (0.5%)				
Pisces								
Indet. to taxa	2 (0.5%)	4 (0.3%)		2 (0.5%)	4 (0.3%)		1 (0.3%)	1 (0.3%)
Total	420 (100%)	1407 (100%)	19 (100%)	378 (100%)	1266 (100%)	15 (100%)	336 (100%)	327 (100%)
Total	1846 pieces			1659 pieces			336 pieces	327 pieces

Fig. 1. The absolute and relative proportions of the different animal taxa identified from the distinct stratigraphical layers in Trench A (Loci 1-2, 4-16 and 17-18) and Trench F (Loci 7-9). Indet. = indeterminable.

	Trench A						Trench F	
	Including teeth			Excluding teeth			Including teeth	Excluding teeth
	Late 2nd to 3rd cent. AD	1st cent. AD	Late 3rd to 2nd cent. BC	Late 2nd to 3rd cent. AD	1st cent. AD	Late 3rd to 2nd cent. BC	Late 2nd to early 1st cent. BC	
Bos	2 (2.6%)	33 (10.2%)		1 (2.5%)	27 (14.1%)		2 (8.0%)	1 (6.2%)
Sus	8 (10.2%)	102 (31.5%)		4 (10.0%)	50 (26.0%)		5 (20.0%)	2 (12.5%)
Ovis	2 (2.6%)	86 (26.5%)		2 (5.0%)	48 (25.0%)		1 (4.0%)	1 (6.2%)
Capra		4 (1.2%)			4 (2.1%)		1 (4.0%)	1 (6.2%)
Ovis/Capra	33 (42.3%)	36 (11.1%)		13 (32.5%)	14 (7.3%)		4 (16.0%)	4 (25.0%)
Cervus		19 (5.9%)			19 (9.9%)		5 (20.0%)	5 (31.3%)
Lepus		14 (4.3%)			14 (7.3%)			
Mesoruminantia	31 (39.7%)	28 (8.6%)	3 (60.0%)	18 (45.0%)	14 (7.3%)	1 (100%)	4 (16.0%)	2 (12.5%)
Megaruminantia	2 (2.6%)	2 (0.6%)	2 (40.0%)	2 (5.0%)	2 (1.0%)	1 (100%)	3 (12.0%)	
Total	78 (100%)	324 (100%)	5 (100%)	40 (100%)	192 (100%)		25 (100%)	16 (100%)

Fig. 2. The absolute and relative proportions of the different identified mammalian genera and the suborder of ruminants from the distinct stratigraphical layers in Trench A (Loci 1-2, 4-16 and 17-18) and Trench F (Loci 7-9).

identified as belonging to the animal suborder ruminants (*Ruminantia*), but due to their poor state of preservation could not be accurately assigned further to the genus *Ovis/Capra*, *Bos* or *Cervus*. However, because of their relative amount in the analyzed material, I have also taken this category into account for the evaluation of the analysis results for this article (Fig. 2). The results confirm the importance of the middle-sized ruminants, especially the category of ovicaprids, as the major part of the animal-based subsistence from the late second/early first century BC till the late second to third century AD. The anatomical distribution suggests a processing of whole carcasses, and the fragments also contain some immature individuals.

Ovicaprids

Sheep (*Ovis aries*) and goat (*Capra hircus*) are difficult to distinguish from each other if the osteomorphology is not well preserved.[18] The reliability of an accurate identification rises with the amount of preserved distinct morphological features. The state of preservation of some of the fragments allowed a distinction between sheep and goat (Fig. 2). The results suggest that sheep was more common than goat during all periods in question. A similar result is observable in the osteological material of Kassope.[19] The category of ovicaprids is also there the most important one, before pig, cattle and red deer, respectively. The identified bones of ovicaprids from Trench F contain tarsal bones, proximal or distal long bone pieces, one glenoid fossa of the shoulder blade as well as one rostral mandibular fragment. Trench A has furthermore metapodial and hyoid bone fragments, phalanges, vertebrae, as well as abundant teeth. The anatomical distribution indicates the processing of whole animals. The material in Trench F consisted only of bones from adult individuals, whereas the layer of the first century AD in Trench A also had some fragments of young animals.

Cattle

The distinction between bone fragments of cattle (*Bos taurus*) and red deer (*Cervus elaphus*) can be difficult due to the fragmentary and otherwise poor state of preservation. However, though both species are very similar in skeleton size and shape, the bones of red deer are generally more slender and the attachments for muscles are more strongly formed, thus giving some indication of origin.[20] In uncertain cases the identification as a big-sized ruminant seems adequate for the purpose of this article.

The importance of cattle seems to keep its place behind the ovicaprids and pig from the late second/early first century BC onwards till the late second to third century AD (Fig. 2). Their relative abundance is highest during the first century AD, but shows a drop with time (together with pig) for the benefit of the ovicaprids. In the layer of the late second to third century AD there was only one fragment (distal femur) of an immature individual, which indicates the use of young animals. The anatomical distribution of the fragments from the other layers indicates the processing of whole adult animals. Quite many of these bones were from the distal parts of the extremities, which do not have much meat on them, but contain fat-rich bone marrow.

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[18] Boessneck 1969; Payne 1985; Pohlmeyer 1985; Prummel and Frisch 1986.
[19] Boessneck 1986, Tabelle a.
[20] Prummel 1988.

Deer

The genus *Cervus* is presented by 19 fragments in the layer of the first century AD and by 5 fragments in the layer of the late second/early first century BC. The other layers that were analysed did not contain any identifiable fragments. Most of the identified fragments (14 pieces) of the first century AD derive from antlers, indicating the presence of red deer (*Cervus elaphus*) and a smaller deer species. This could be the fallow deer (*Dama dama*), which is present in the Bronze and Iron Age contexts at Kastanas in Macedonia[21], and possibly also with one astragalus at Agios Donatos in the excavation material of 2006 from Trench A.[22] Red deer is represented at PS 25 during the first century AD also by fragments of the shoulder blade, a metapodial and a second phalanx as well as a piece of the mandibula with a few teeth. All these fragments belong to an adult individual. Red deer had already been identified in Trench A excavation material of 2006 with antler fragments and a second phalanx,[23] and now similar remains (two antler fragments and three phalanges of adult individuals) have been recognised in Trench F in the late second/early first century BC. Two of these phalanges showed pathological features described in more detail below. When comparing the relative proportions between the different species and at different periods of time, it is interesting to see that the genus *Cervus* in the late second/early first century BC is right behind the ovicaprids, and more abundant than pig or cattle, whereas in the first century AD their importance has dropped behind pig and cattle (Fig. 2).

Pigs

Bones and teeth of the genus pig (*Sus*) are present in the layers of the first and the late second to third century AD, as well as in the layer of the late second/early first century BC (Fig. 2). They are relatively most abundant in the first century AD, but always situated in importance after the category of ovicaprids and before cattle. The identified fragments represent almost all anatomical parts of the body: pieces and teeth of the upper and lower jaws, fragments of the shoulder blade, metapodials, phalanges, as well as pieces of the long bones of the front and hind legs (radius, ulna and femur) and pelvis. In Trench A the composition of the recovered teeth (deciduous and permanent) indicates the presence of adult and young individuals. Young animals are represented also by fragments of the upper and lower jaws as well as metapodials and phalanges. Adult individuals of both sexes are also present in Trench A, as indicated by the distinct canini. The length of the boar tusks varies from 29 to over 95 mm[24], thus indicating also the possible presence of wild pig. For the differentiation of wild and domestic pig in fragmented archaeological material, the size of the molar area (esp. M_3) and the tusk are the most useful criteria.[25] The material from Trench F is scarce, consisting only of three pieces of teeth as well as two tarsal bones. All of them belong to adult individuals.

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[21] Becker 1986.
[22] Niskanen 2009, 151.
[23] Niskanen 2009, 151.
[24] This tusk measures 95 mm, but has a broken-off tip: M. Niskanen, personal communication.
[25] E.g. Bökönyi 1973, 1974 and 1984; Hillson 1986, 91; Davis 1987.

Birds and fishes

Bones of birds (*Aves*), as well as those of fish (*Pisces*), are most likely under-represented in the material due to their less durable structure and size. However, also without proper excavation methods (e.g. very fine-meshed sieves)[26] and some knowledge of how they look, the bones of these animal classes tend to have a lesser recovery rate. In contrast to the one fish vertebra from 2006, there are no fish bones at all in any of the layers from Trench A or F excavated in 2007 and 2008-2009 (Fig. 1). Considering the previous identification and the fact that, for example, a river runs as close as in the valley bottom, it seems highly probable that fish was also part of the subsistence at Agios Donatos during the time periods in question, but does not show itself in this recovered material. Considering the various taphonomical factors affecting the bones of a sample after the killing of an animal, it should be kept in mind that the absence of a species in an archaeological sample does not directly exclude its existence or usage as part of the subsistence in a given area *in toto*.

There were no identified bird bones in the layer of the late third to second century BC (Fig. 1). Of all the identified bird bones, 62.8% (27/43 pieces) derive from the layer of the first century AD, whereas only 16.3% (7/43 pieces) are from the layer of the late second to third century AD and 20.9% (9/43) from the layer of the late second/early first century BC. The precise identification of bird species from bones faces problems, since there are many species which are similar in their osteological morphology and size.[27] In the analysed material, most identified pieces were fragments of long bone shafts without any preserved features to allow a more accurate classification. However, some pieces could be identified as fragments of a femur, a tibia, a tarso-metatarsus and the proximal synsacrum (frontal part of the fused caudal vertebra column) of a chicken-sized bird. Especially the tibia and the tarso-metatarsus confirmed the presence of domestic fowl at the site during the first century AD. Other anatomical parts present were fragments of the coracoid (part of the pectoral girdle), humerus and radius, but their state of preservation allowed no accurate identification of either size or species. However, the anatomical composition of the fragments indicates that birds were probably handled as whole carcasses at the site. There was also one fragment of a long bone indicating the utilization of immature individuals. The bone material from the layer of the late second/early first century BC in Trench F contained nine bird bone fragments, representing 2.7% of all animal bones from the layer. The anatomical composition was similar to that of Trench A, with most fragments deriving from long bones, affirming the presence of domestic fowl (7/9 pieces) also during this period of time. One of the fragments was a tarso-metatarsus with a spur, thus indicating the presence of a male. All identified fragments in the material from this layer seem to belong to adult individuals. An intriguing find from 2008 are some egg shell fragments from Trench F. However, they have not yet been further analyzed.[28]

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[26] As already mentioned, a sieve was used only during the excavations in 2006 and 2007.
[27] E.g. Cohen and Serjeantson 1996.
[28] B. Forsén, personal communication.

Dogs

The osteological material of the first century AD from Trench A had three fragments of phalanges, which are possibly dog (*Canis familiaris*) in origin. Two of them had unfused epiphyses, thus indicating the presence of an immature individual. A maxillary fragment of a rather small-sized domestic dog was already identified in the excavation material of 2006 from PS 25.[29] At the site of Kassope different sizes of dogs are known, but the most common type there is that of a slender spitz kind of dog.[30] There were no identified fragments of dog in the analyzed osteological material of the other layers from Trenches A and F at Agios Donatos.

Exotics

Both Trench A in 2007 and Trench F in 2008-2009 produced shells in large quantities. Unfortunately, they have not yet been counted nor further analysed,[31] and thus are omitted from Fig. 1, which presents the absolute and relative proportions of the different taxa in the animal-based subsistence at Agios Donatos. However, Niskanen reports[32] the preliminary results of the analysis of the shells recovered at the excavation in 2006 from PS 25. David E. Reese has identified them as *Cerastoderma glaucum* (cockle), *Hexaplex trunculus* and *Haustellum brandaris* (sea snail species, both previously known under *Murex* sp.) as well as various *Helix* species (land snail). Some of them are also present at Kassope, being used there as food as well as a source for the colours of purple red and purple blue.[33]

Fig. 3. Two fragments of a tortoise (*Testudines*) shell from the layer of the late second to third century AD in Trench A.

Two pieces of a tortoise (*Testudines*) shell in the layer of the late second to third century AD in Trench A represent another exotic species in the material from 2007 (Fig. 1 and 3). There were no such identifications among the bones of 2006, nor in Trench F. However, at Kassope there are, in addition to shell pieces, also fragments of bones bearing butchering marks, thus indicating their utilization to enrich the cooking.[34] Still, there are so far no identified bones of the order *Testudines* in the refuse fauna at Agios Donatos. So the shell fragments should be interpreted with caution and cannot be taken as definite evidence for using tortoises as a food resource at this site.

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[29] Niskanen 2009, 147.
[30] Boessneck 1986, 138-139.
[31] B. Forsén, personal communication.
[32] Niskanen 2009, 146, esp. note 8.
[33] Boessneck 1986, 140 and Tabelle e.
[34] Boessneck 1986, 139 and Tabelle a.

Noteworthy is also the identification of the genus *Lepus* in the material of the first century AD. There were none in the other layers of Trench A (or in the material from the excavation in 2006), nor in Trench F. But as already mentioned, this does not exclude their possible usage also during other times. Almost all the identified fragments were from long bones of the front and hind extremities. The presence of a fragment from the proximal shoulder blade confirms the handling of those parts with most meat. The genus *Lepus* is also present at Kassope.[35]

Butchering marks and pathological features

Butchering and cutting marks are evident on some fragments of vertebrae, scapulae and long bone shaft pieces, proximal and distal ends as well as rib bones and phalanges of adult and young animals. The locations of the marks indicate a predetermined mode of cutting to dismember and further divide the carcasses, to make the handling easier and to use as much as possible of them. For example, the utilization of the fat-rich spine and bone marrow is finely indicated by some vertebrae split in half.

Pathological features were identified only on two bones deriving from the layer of the late second/early first century BC in Trench F. Both of them are phalanges and belong to red deer. One showed minor extra bone formation (*exostoses*) near the lateral distal condylus, and the other a more marked modification of the whole phalanx due to inflammation of the articular face and the bone structure beneath (*arthritis* and *osteitis*/*osteomyelitis*).

Conclusions and discussion

Based on the various find materials it is possible to distinguish three layers in Trench A at PS 25, representing the late second to third century AD, the first century AD as well as the late third to second century BC. However, the osteological material from the latter layer was very scarce and allowed no identifications beyond animal class, except a few fragments of middle- and big-sized ruminants. Thus, in order to expand the comparison of the faunal composition of the subsistence also into the pre-Christian era, the osteological material from loci 7-9 in Trench F, dated to the late second to early first century BC, was included in this study as well.

The fauna osteological remains of Trenches A and F at PS 25 show moderate differences in their animal composition and more variation in their relative proportions in the different periods of time examined here. The category of ovicaprids is the most abundant in all periods examined, and furthermore, sheep seem to be more plentiful than goat. This is consistent with the material from Kassope, dated between 360-30 BC, and the Early Roman material from the excavation at Agios Donatos in 2006.[36] However, at the Early Iron Age site PS 36 cattle is more abundant than the ovicaprids, and pig represents only a minority there, together with horse.[37] It is interesting to notice that there

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[35] Boessneck 1986.
[36] Boessneck 1986; Niskanen 2009.
[37] Niskanen 2009.

are so far no remains of any equids among the bones from PS 25. The relative importance of cattle and pig seems to reverse permanently at some stage during the middle of the first millennium BC,[38] with pig already being more abundant than cattle in the material dated to the late second/early first century BC at PS 25.

It is noteworthy that the composition of the fauna in the material of the late second/early first century BC has changed also in another respect. The importance of cervids in the subsistence has risen, and poses the second animal category after ovicaprids in the subsistence economy. Pig and cattle come only behind these species. This shift to a more wild-mammal-based subsistence towards the end of the pre-Christian era is also present, and more evident, in the material from Kassope, where the relative proportion of wild animals can be followed more continuously from the fourth till the first century BC.[39]

During the first century AD the relative proportions of the fauna compositions change once again. The category of ovicaprids is still the most abundant, after which come pig and cattle, respectively. Cervids, on the other hand, now represent only a minor part and are subsequently missing from the material of the late second to third century AD. However, as already stated, the fact that a species is non-existent in an archaeological fauna sample does not imply that it was not exploited at all during the period in question. This concerns also the category of fish. Although all the soil from Trench A at PS 25 was sieved in 2006 and 2007, there was only one vertebra of a large trout-size-category fish recovered in 2006. Due to various taphonomical factors, bones of fish and birds, as well as shells, are usually under-represented in archaeological samples. This explains also the low amount of preserved bird bones, allowing only the identification of domestic fowl in the layers of the first centuries BC and AD. The animal class of mollusca was left out from the interpretation of the results, since they have not yet been counted or analysed. However, there were plenty of them recovered during the excavations in Trench A, as well as Trench F. A good equivalent for this is again Kassope, with various kinds of shells identified.[40]

The results of this examination of the fauna osteological material from the excavations of Trenches A and F at PS 25 add to and confirm the previous observations on the animal-based subsistence in the Kokytos river valley and those at the nearby site of Kassope. They also are in accordance with ancient literary sources stating that Epirus had a strong animal husbandry-based economy from the Archaic period into Roman times.[41] The shift in the animal species observed could be linked with the economic situation of the first century BC described by Hernandez.[42] Epirus then traded secondary products (wool, skins, milk and cheese) for grain. However, in my opinion, the trade could also include animals like sheep and goats *in toto*, and thus would present itself as a declining proportion of these animals in the faunal remains, with other animal sources (e.g. wild mammals) more abundant. Further possible environmental, political and other social backgrounds causing the noticed shifts in the relative proportions of the various species have already been discussed by Niskanen in his article concerning the finds from PS 25

[38] Niskanen 2009, 152.
[39] Boessneck 1986, 138 and esp. Tabelle 136.
[40] Boessneck 1986.
[41] Hernandez 2010, 65-80.
[42] Hernandez 2010, 79-80.

and PS 36 in 2006.[43] Additional knowledge of the changing animal-based subsistence patterns in Thesprotia will be gained through the analysis of the remaining osteological material from the excavations by the Thesprotia Expedition at PS 25 as well as at the sites of PS 12 and PS 29.

[43] Niskanen 2009, 152-153.

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The Coin Finds

Tuukka Talvio

During the field work in 2004 to 2007 a total of 24 coins were found by the Thesprotia Expedition: six of them during intensive field survey and 18 during trial excavations. Another 25 coins were found during the excavations of the Greek Archaeological Service at the sites Darda and Sevasto, to which members of the Thesprotia Expedition were given publication rights. 37 of these coins were made available for study and they constitute the numismatic find material on which this chapter is based.[1]

Most of the 37 coins are local Hellenistic bronze coins from Epirus and the neighbouring regions, but there is also a coin of Bithynia from Asia Minor and another – with the portrait of Cleopatra – from Alexandria. Six of the coins are Roman. Among them are a Republican denarius and a base silver antoninianus of Aurelian (270-274). Many of the coins are unfortunately badly preserved, and ten of them are so corroded that they have not been identified.

The largest find group consists of eighteen coins from the site of Agios Donatos (PS 25), which is an Early Hellenistic fortress, inside of which a Roman villa was built in the first century BC. Almost all the coins from PS 25 are Hellenistic and date from the early third to the first century, but there is also a coin from the fourth century BC and a Roman as or dupondius from 180-183 AD.

The second largest group comes from Darda, a site identified as a Middle and Late Roman farmstead. Originally the number of coins found at Darda was given as seventeen, but owing to problems with the conservation, only four coins have been identified so far, dating from the 270s to 330 AD. Four unidentified coins have also been available, some of them possibly also from the Constantinian period or later.

There are eight coins from Pano Pigadi of Sevasto (PS 15), from the excavation of a Hellenistic house, which probably is part of a village of that period. Seven of them have been identified, six dating from the third to the first century BC.

From the excavation of another Late Classical to Early Hellenistic house (PS 29), which also might be part of a small village, there is a coin of the Molossoi, dating from the fourth century BC. It is one of the two coins from the fourth century BC in the find material, the other being a coin of Korkyra from PS 25.

The two coins from the Late Roman basilica of Zervochori (E 5) are both so corroded that they have not been identified. There should also be two other coins from this site, but as they are not among the conserved material, their condition is probably very poor.

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[1] The 37 coins include only the ones seen by the present writer. As will be noted in the commentary on the finds from Darda, the number of coins found there was originally given as 17; however, only 8 of them have been conserved and 4 of these are so corroded that they have not been identified. Likewise there should be 4 coins from (E 5) but only two are available, both of them unidentifiable. All illustrations are by the author and prepared for publication by Esko Tikkala.

Catalogue

Macedonia

1. Obv. Head of Athena wearing Corinthian helmet r. Rev. Pan erecting a trophy. Cf. SNG Cop. 1205-9. 3.79 g. The identification is based on photos taken before conservation (the reverse motif is now unrecognizable).
Sevasto (3847).
Reign of Antigonos Gonatas, 277-239 BC.

Illyria

Apollonia

2 . Obv. Laureate head of Apollo l.; behind two monograms, other details not visible. Rev. ΑΠΟΛΛΩ NIATAN; obelisk of Apollo Agyieus; all in wreath. Cf. SNG München 321; SNG Cop. 409 (same monograms). 8.03 g, 0°.
PS 25, G4, Loc. 1, P. 3 (3831).
End of the fourth / beginning of the third to middle of the first century BC.

3. Obv. Head of Artemis wearing stephane l., behind head ONOMOKΛHΣ. Rev. ΑΠΟΛΛΩ NIATAN (only partly visible); tripod; all in wreath. Cf. SNG Cop. 407. For the dating see SNG Cop. München 326. 16.47 g, 270°.
PS 25, G4, Loc. 1, P. 3 (3839).
End of the fourth / beginning of the third to middle of the first century BC.

Epirus[2]

Ambracia

4. Obv. Laureate head of Apollo r. Rev. A M B P; Zeus with aegis and thunderbolt, on l. monogram. Cf. SNG Cop. 31; for the monogram see SNG Evelpidis 1772. 5.11 g, 315°.
PS 25, G1, Loc. 1, P. 3 (3832).
End of the fourth / beginning of the third to first century BC.

5. Obv. Radiate head of Apollo r. Rev. A M B P; Zeus with aegis and thunderbolt. Cf. SNG Cop. 32-4. 3.99 g, 45°.
PS 25, G4, Loc. 1, P. 3 (3836).
End of the fourth / beginning of the third to first century BC.

[2] I am grateful to Efterpi Ralli of the Numismatic Museum in Athens for helping me with the chronology of this series.

6. Ambracia? Obv. Badly corroded (head of Heracles?). Rev. sitting male figure (Apollo holding bow?) l. Cf. SNG Cop. 30, BMC 15-17.
PS 25, G1, Loc. 1, P. 3 (3833).
End of the fourth / beginning of the third to first century BC.

7. Obv. Laureate and veiled head of Dione l. Rev. A M B P; obelisk of Apollo Agyieus; all in wreath. Cf. SNG München 510-11; Franke 1961, pp. 323, 329, pl. 67. 4.72 g, 90°.
Sevasto (3848).
Third to first century BC.

8. As last but Dione's head r. 4.16 g, 180°. Cf. SNG Cop. 23.
Sevasto (3849).
Third to first century BC.

9. As last but rev. badly corroded. 3.34 g, 0°.
Sevasto (3850).
Third to first century BC.

10. Ambracia? Obv. Laureate head of Apollo r.? Rev. as above? Cf. Franke 1961, pp. 323, 329, pl. 67; SNG 24 (head l.). 4.97 g, 180°.
Sevasto (3846).
Third to first century BC.

11. Ambracia? Obv, Helmeted head r., rev. as above? Worn and corroded. 4.28 g, 180°.
Sevasto (3851).
Third to first century BC.

Buthrotum

12. Obv. [NERO CLAVDI]VS CAES[AR]; laureate head r. Rev. EX CON • D [C C I B[3]]; bust of Aesculapius r., in front, staff. Cf. RPC 1411. 4.85, 270°.
PS 25, D, Loc. 1, P. 1 (3876).
Reign of Nero, 54-68

Cassope

13. Obv. Uncertain inscription (ΑΠΟΛΛΑ?); head of Dionysus wearing ivy-wreath r. Rev. ΚΑΣΣΩ ΠΑΙΩΝ; amphora; all within wreath (the wreath and the lower part of the text barely discernible). Unusual style. Cf. SNG München 538; SNG Cop. 48. 4.43, 270°.
PS 25, A2, Loc. 10, P. 3 (3829).
C. 215-195 BC?

[3] Colonia Campestris Iulia Buthrotum.

Molossoi


14. Obv. ΜΟΛΟΣΣΩΝ (mostly illegible) around the rim of a round shield on which thunderbolt. Rev. Thunderbolt within wreath (indistinct). Franke 1961, p. 101, pl. 9-11; SNG München 539. 3.60 g.
PS 29, A4, Loc. 1, P. 1 (3830).
C. 360-330/325 BC.

League of the Epirotes


15. Obv. Head of Artemis wearing stephane r. Rev. ΑΠΕΙ ΡΩΤΑΝ; spearhead; all in wreath. Franke 1961, pp. 209 ff, pl. 42; cf. SNG München 585-90. 7,81 g, 225°.
PS 25, A5, Loc. 6, P. 4 (3828).
233/2-168 BC.


16. Obv. Head of Zeus wearing oak-wreath l. Rev. ΑΠΕΙ ΡΩΤΑΝ; thunderbolt; all in wreath. Franke 1961, pp. 225 ff, pl. 45-52; cf. SNG München 593-5. 6,41 g, 45°.
Sevasto (3845).
148 to second half of the first century BC.


17. Rev. as last, obv. badly corroded. 6.38 g, 45°.
PS 25, A2, Loc. 18, P. 5 (3825).
148 to second half of the first century BC.

Corcyra


18. Obv. K O; volute crater. Rev. Σ Ω; bunch of grapes. Cf. SNG Cop. 165; SNG München 656. 4.84 g, 0°.
PS 25, A2, Loc. 9, P. 3 (3854).
Fourth century BC.

Corcyra*?*


19. Obv. wholly obliterated. Rev. forepart of galley r., traces of inscription. Cf. SNG München 677-84. 7.78 g.
PS 25, G4, Loc. 1, P. 2 (3835).
Roman dominion, c. 229-48 BC?

Bithynia


20. Obv. Head of Dionysus wearing ivy-wreath r. Rev. [Β]ΑΣΙΛΕΩΣ [ΠΡ]ΟΥΣΙΟΥ; centaur Chiron playing lyre r., on r. monogram ΛΦ. Cf. SNG Cop. 640. 6.71 g, 0°.
PS 25, A2, Loc. 9, P. 1 (3826).
Reign of Prusias II, c. 183-149 BC.

Egypt

Alexandria

21. Obv. Bust of Kleopatra diademed r. Rev. ΚΛΕΟΠΑΤΡΑΣ ΒΑΣΙΛΙΣΣΗΣ (partly illegible); eagle l. on thunderbolt, on l. double cornucopiae, on r. M. Weiser 1995, 184; cf. SNG Cop. 422-4. 10.14 g, 180°.
PS 25, A2, Loc. 16, P. 3 (3827).
Reign of Kleopatra VII, 50-31 BC.

Rome

Republic

22. Denarius. Obv. Head of Ceres wreathed with corn r.; the inscription before the head (C MEMMI C F) obliterated. Rev. C MEMMIVS (only partly readable) on r., on l., IMPERATOR. A captive with hands tied behind back kneeling at the foot of a trophy. RRC 427/1. 2.44 g, 0°. The coin is heavily corroded and looks like bronze: a plated forgery that has lost its silver coating?[4]
PS 25, A2, Loc. 6, P. 2 (3840).
C. Memmi C. f., 56 BC.

Empire

23. Dupondius or as.[5] Obv. CRISPINA AVGVSTA; draped bust r. Rev. [IVNO LV]C[INA] S C; Juno, veiled and draped, standing l., holding patera and sceptre. RIC III, 680. 10.06 g, 315°.
PS 25, A1-2, Loc. 2, P. 3 (3838).
Crispina, 180-183?

24. Post-reform antoninianus. Obv. IMP C AVRELIANVS AVG; radiate and cuirassed bust r. Rev. SOLI INVICTO; Sol standing l. between two captives, r. hand raised and l. hand holding globe, treading down one of the captives, on l. star; mint-mark illegible but letters XX visible in the exergue. This variety of the Soli invicto type with a star has been assigned to Ticinum and dated to 274 (Göbl 1993, 'Synchrontabelle'). Weight and die axis not recorded. Not illustrated.
Darda (2800).
Aurelian, 270-275

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[4] I wish to thank Michel Amandry of Paris and Carmen Arnold-Biucchi of Cambridge, Mass., for their comments on this coin.

[5] Dupondii originally had a golden colour, being struck in brass (orichalcum), while asses were struck in copper. This coin has a thick green patina which prevents the identification of the metal.

25. AE 3. Obv. [D N] VAL LICIN LICINI[VS NOB C]; laureate bust wearing imperial mantle and holding mappa, globe and sceptre, l. Rev. IOVI CONSERVATORI; Jupiter standing l., chlamys across l. shoulder, holding Victory on globe; other details indistinct. Possibly RIC VII, Cyzicus 11, dated to 317-320. 1.78 g, 0°. Not illustrated.
Darda (3023).
Licinius II, caesar 317-324.

26. AE 3. Obv. CONSTAN TINVS AVG (mostly illegible); laureate head r. Rev. D N CONSTANTINI [MAX AVG]; VOT XX within wreath; mint mark illegible. This issue has been dated to 318-324 (RIC VII, p. 58). 2.38 g, 0°. Not illustrated.
Darda (2813).
Constantine I, 307-337.

27. AE 3. Obv. CONSTAN TINVS AVG; laureate head r. Rev. PROVIDEN TIAE AVGG; camp gate with two turrets. This issue has been dated to 324-330 (RIC VII, p. 49). Mint mark, weight and die axis not recorded. Not illustrated.
Darda (2855).
Constantine I, 307-337.

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The Middle to Late Roman Find Assemblage from Darda

Jeannette Forsén, Paul Reynolds and Anna Patteri

Along the Kokytos valley floor a large number of Late Roman settlements as well as two basilicas have been found. Most of the settlements are farmsteads, but some have the character of small villages.[1] Only a handful of these sites have their origin during the Middle Roman period,[2] which is a period that is usually poorly represented in the valley when compared to the Late Roman period. One of the aims of the Thesprotia Expedition has been to try to shed more light on the historical periods that are less well known in the Kokytos valley, such as the Middle Roman period. Therefore the small farmstead Darda (E 12), one of the few sites known in the valley that have produced a find assemblage stretching from the Middle Roman period into the beginning of the Late Roman period, seemed worth looking at in more detail.

The farmstead and the grave

Darda is located in the southwestern part of the valley, some 150 m only to the northeast of the Kokytos, on a low ridge between two ravines flowing into the river. The site was found and partly excavated in 2000-2001 by the Greek Archaeological Service in connection with the agricultural improvement projects sponsored by the European Union (including building an irrigation system and creating larger fields). This chapter is based on the excavation report in combination with a study of the pottery and small finds from the site.[3] A total of 17 coins were found in the excavation, but they are not included in this chapter. Four of them that had been conservated are included in Talvio's chapter in this volume.

The excavated area was gridded into 3x3 m squares covering most of the building and all finds were collected according to this grid system (Fig. 1). The surroundings of the building were also investigated with the help of four 0.60 m wide trial trenches (ΔΤομή 1-4), all sunk parallel with the walls of the farmhouse. ΔΤομή 1-2 were located on the northwestern side, ΔΤομή 3 on the northeastern side and ΔΤομή 4 on the southeastern side

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1 E 18, PS 7, PS 14, PS 10, E 8, PS 33, PS 32, PS 16, PS 27, E 4, E 23, PS 38, PS 39, PS 41, PS 42, E 6 and E 13. See also Forsén *et al*., this volume.

2 To this category belong, apart from Darda, also E 18, PS 32, PS 16, PS 41, E 6 and E 13.

3 Lappa, Svana and Nikolaou 2001; *ArchDelt* 56B (2001), in press. The excavation took part in November to December 2000 (under the direction of Konstantina Lappa), in February to March 2001 (under the direction of Irini Svana) and in November 2001 (under the direction of Eleni Nikolaou). Anna Patteri, who was given the rights to the site for her master thesis, initially studied the pottery and created the illustrations for this paper, while Jeannette Forsén and Paul Reynolds brought the pottery analysis to its conclusion with invaluable help from Björn Forsén, here gratefully acknowledged. The authors owe many thanks likewise to Georgios Riginos, Ourania Palli and Kassiani Lazari from the 32nd Ephorate for Prehistoric and Classical Antiquities for giving us permission to study this assemblage and for facilitating that study. Many thanks are also due to Patricia Francis for correcting our English and to Esko Tikkala for making Fig. 1 on the basis of originals supplied by the Greek Archaeological Service.

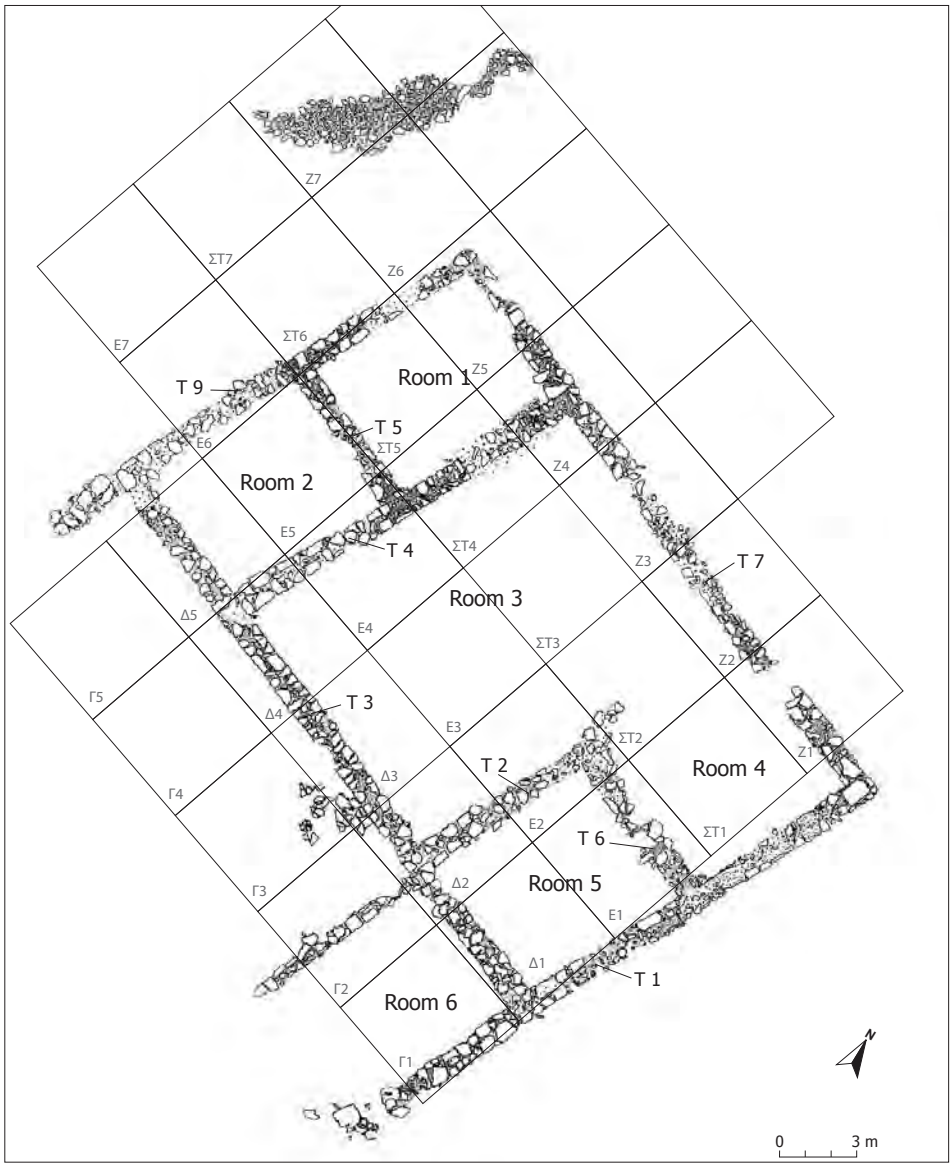

Fig. 1. Ground plan showing the location of the rooms and walls of the farmstead, the cairn and the excavation grid system.

of the building (the exact location of these trial trenches is not marked on the general map of the site, Fig. 1).

Five rooms and the beginning of a sixth belonging to the farmstead were uncovered in the excavation. The size of the five rooms comprises 16.3x10 m, with a large room (inner dimension 9.0x6.7 m) located in the middle (Room 3) and flanked by two rooms on the northwestern and southeastern sides (inner dimensions of the rooms ca. 4.3x3.6-3.8 m; Rooms 1-2 on the northwestern side and Rooms 4-5 on the southeastern side). The building once continued towards the south where at least the outlines of a sixth room

(Room 6), probably of the same size as the four other small ones, could be traced (Fig. 1). The walls of the building are built of roughly worked limestone blocks of medium size mixed with mortar and have a width ranging between 0.5 and 0.6 m.

The inner part of the building was covered by an irregular layer of collapsed roof tiles mixed with some mortar. A similar layer, consisting of fragmentary roof tiles, small stones, mortar and signs of fire was also found outside the building along its northwestern side, extending roughly a meter away from the wall. This debris probably originates from the wall, part of which must have fallen towards the northwest. Inside the building a floor level consisting of beaten soil mixed with gravel was found in all rooms except for Room 4 and the southeastern part of Room 3, where no gravel was found mixed into the floor layer.

The walls of the building as well as the remains of the collapsed roof tiles were found at a depth of only some 15-20 cm below the surface and have therefore partly been disturbed by later agricultural work. The only clear door opening that could be found leads from Room 3 into Room 1 and has a threshold covered with stone slabs. No clear remains of doors to the other rooms were found, but openings in the walls in Room 4 together with the fact that the floor level in this room differed from that of the other rooms may indicate that the entrance to the building was in the southeastern corner through Room 4 and into the large central Room 3, from where one presumably could reach the other smaller rooms.

About 3 m to the north of the building there is a low, southwest to northeast orientated, 4x1 m cairn consisting of small pieces of limestone mixed with fragments of roof tiles. Below the cairn a simple pit grave with an inhumation was found. The head of the deceased was placed towards the northeast resting on a small stone and covered by a slab. A preliminary study of the skeleton indicates that the deceased was an adult man. The grave contained no finds except for a plain rectangular belt buckle that was found next to the pelvis. Single graves have also been found next to other Middle and Late Roman farmsteads that have been excavated in the Kokytos valley.[4]

Pottery and other finds

The pottery and other finds listed in the catalogue are divided into three groups on the basis of find context, i.e., finds from Room 3, from Room 1 and from outside the building. Taken as a whole the pottery found in Room 3 contains mostly reddish yellow or red fabrics, but grey (Nos. 3, 4) ware is also present. The cooking pots and casseroles of the third to fifth centuries, in chert-rich fabrics, can be paralleled with local-regional products found in both Butrint and Nikopolis. Similar finds, notably the typical fifth century triangular rimmed cooking pots that occur equally in Nikopolis and Butrint, occurred in the later levels of the Roman villa of Agios Donatos and on other sites surveyed by the Thesprotia Expedition. The amphorae (Nos. 26 and 27), plain ware jar and base (Nos. 9 and 10) are probably close regional imports. The occasional very pale brown or light brown ware (Nos. 2, 9) may also be regional imports, in this case for a storage jar and a small closed vessel. Room 3 contained six cooking-pots, one storage-jar, three amphorae,

[4] See Forsén *et al*., this volume, sites E 7, PS 16, E 4, PS 41, E 6 and E 13.

one cup and one small closed vessel. The earliest in date is the two-handled cup (No. 1) dated to the mid-third century and the latest in date are five fifth-century vessels (Nos. 3-7).

The pottery found in Room 1 differs from that found in Room 3 mainly in that we have here a more diversified assemblage originating from Ephesus (No. 16) and possibly Phocaea (No. 14) in Asia Minor, Tunisia in North Africa (No. 19), as well as Butrint in southern Albania (No. 20). There are in all four amphorae (Nos. 15-17, 19), one cooking-pot (No. 18), one 'collarino beaker' (No. 14) and one lid (No. 20). The cooking-pot (No. 18) finds a good parallel among the cooking-pots published from Dyrrachion in Albania of late Roman date[5] and this is true also for three other cooking-pots: one from Room 3 (No. 8) and two from outside the farmhouse proper (Nos. 22 and 24). Again, as in Room 3, the pottery seems to date from the third to the fifth centuries AD.

Sherds of at least four different vessels of Tunisian African Red Slip Ware (ARS) were found outside the walls of the farmhouse. One of these, the base of a large dish, is illustrated (No. 21). Other fine ware is represented by a couple of jugs (Nos. 28, 29). Quite a few amphorae were also documented in find contexts outside the walls of the house, although they may originate from inside the house (see further below). There are several Tunisian amphorae, including five fragments of a Tunisian cylindrical amphora (LR or fifth century AD) and one combed Late Roman Amphora 2 sherd from ΔΤομή 3. The latest amphora in the assemblage is a Late Roman 2 amphora dated to the sixth century AD, which was found in square H4 together with a Tunisian amphora handle. At least three examples of the ubiquitous 'Nikopolis cooking-pots' were found outside the house, one is illustrated (No. 23), and two other cooking-pots (Nos. 24, 25) have good parallels among the Albanian Dyrrachion cooking-ware.[6] Pottery from Ephesus is represented by a LRA 3 body sherd found in ΔΤομή 3, which may be contemporary with the other Late Roman material. The earliest of the amphorae in date is a thin-walled amphora of mid-third to mid-fourth century date found in square Γ6 and such a date can also be suggested for the ARS (No. 21) large open bowl found in ΔΤομή 3.

The find contexts of the sherds found outside the farmhouse, which are not illustrated were: two ARS sherds, including one rim, from ΔΤομή 3, top soil, 5.11.2001. From H4 came: a grey 'Nikopolis variant' cooking pot, fifth century; a cooking pot rim possibly sixth century; a red ware, concave handle, fifth to sixth century AD. From find context Γ6, top soil, 9.11.2001 came one sherd of a large dish, ARS 50A of mid-third to mid-fourth century date. And finally from Z6, top soil, 5.11.2001 came: part of amphora No. 17 in the catalogue, see below (fourth to fifth century AD); and a cooking pot, of very pale brown ware (third century AD).

That the pottery excavated by the Greek Archaeological Service at Darda has been redeposited more than once is clearly shown by the fact that four sherds representing two vessels (Nos. 6 and 19) have widely separate find contexts: one sherd of No. 19 was found in square Z5 and another one in Z6. Again one sherd of No. 6 was found in square E4 and part of the same vessel in Δ4.

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[5] Guiducci and Montana 2007.
[6] Guiducci and Montana 2007.

Catalogue[7]

Room 3

1. Two-handled cup, flat base, plain vertical strap-handles (Fig. 2). H. 6.7 cm. Fine ware, reddish yellow ware (5YR 6/6), unevenly fired with a reddish brown core (5YR 4/3). Powdery, smeary ware. Plain.
Find context: Δ2-Δ3, KEP 2, removal of destruction layer, 20.12.2000.
Cf. Forster 2001, 158, fig. 4.11:a (H.9.4, handle section different).
Date: Mid-third century AD.

2. Small closed vessel, wheel ridged and with a flat base (Fig. 2). Outer diam. of base 5.3 cm. Fine ware, very pale brown (10YR 7/4), interior fired gray (10YR 6/1). Many brown, grey and white grits < 1 mm in size. Plain.
Find context: Δ2-Δ3, KEP 2, removal of destruction layer, 20.12.2000.
Cf. Robinson 1959, 65 K69-70 (mid-third century) or K106 (third to fourth century).
Date: Third to fourth century AD.

3. Small cooking pot with triangular rim, 'Nikopolis variant'. A form common in both Nikopolis and Butrint in fifth century contexts (Fig. 2). Outer diam. 12.3 cm. Grey ware (10YR 5/1). Many angular white grits (probably chert) less than 2 mm in size. Plain.
Find context: E4, destruction layer, 23.1.2001.
Date: Fifth century AD.

4. Cooking pot, out-turned rim, with ribbed, vertical strap-handles (Fig. 2). Medium-coarse ware, unevenly fired grey (2.5Y 6/1), with a dark grey core (2.5Y 4/1). Abundant angular white grits less than 1 mm in size.
Find context: Δ2-Δ3, KEP 2, removal of destruction layer, 20.12.2000.
Cf. Reynolds 2004, 205, fig. 13.78.
Date: (Late fourth) to fifth century AD.

5. Cooking pot, out-turned rim (Fig. 2). Reddish yellow ware (7.5 YR 6/6), unevenly fired with a dark brown core (7.5YR 3/3).
Find context: Δ2-Δ3, KEP 2, removal of destruction layer, 20.12.2000.
Date: (Late fourth) to fifth century AD.

6. Cooking pot with out-turned rim and two vertical ribbed handles (Fig. 2). Outer diam. 17 cm. Reddish yellow fabric (5YR 6/6) unevenly fired with a gray core. Abundant angular white grits less than 2 mm in size. Plain.
Find context: Δ4 and E4, destruction layer, 23.1.2001.
Date: Late fourth to early fifth century AD.

7. Cooking pot, out-turned rim, with ribbed, vertical handle with moulding on one side (Fig. 2). Coarse ware, reddish yellow (5YR 6/6), unevenly fired with a reddish brown core (5YR 5/4). Abundant minute white grits.
Find context: Δ2-Δ3, KEP 2, removal of destruction layer, 20.12.2000.
Cf. Reynolds 2004, 205, fig. 13.78.
Date: (Late fourth) to fifth century AD.

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[7] Catalogue entries without comparanda are dated by Paul Reynolds.

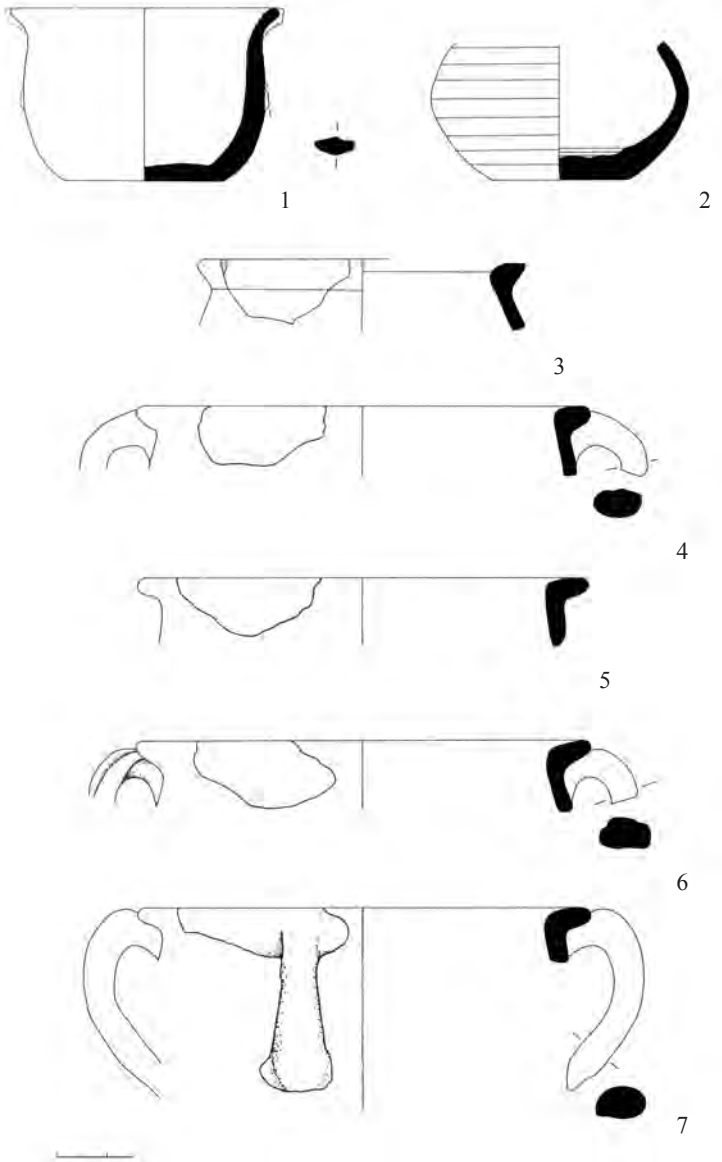

Fig. 2. Fine ware and cooking pots from Room 3 (Nos. 1-7). Scale 1:3.

8. Casserole (Fig. 3). Outer diam. 23.5 cm. Reddish yellow ware (7.5YR 6/6) unevenly fired with a brown core.
Find context: ΣΤ3-ΣΤ4, KEP 3, removal of the destruction layer, 21.12.2000.
Cf. Guiducci and Montana 2007, 547, fig. 1:9.
Date: Late third to early fourth century AD.

9. Large storage vessel (Fig. 3). Inner diam. ca. 17 cm. Handmade? Soapy orange-buff ware with occasional 2 mm chert.
Find context: ΣΤ3-ΣΤ4, KEP 3, removal of the destruction layer, 21.12.2000.
Date: Sixth century AD?

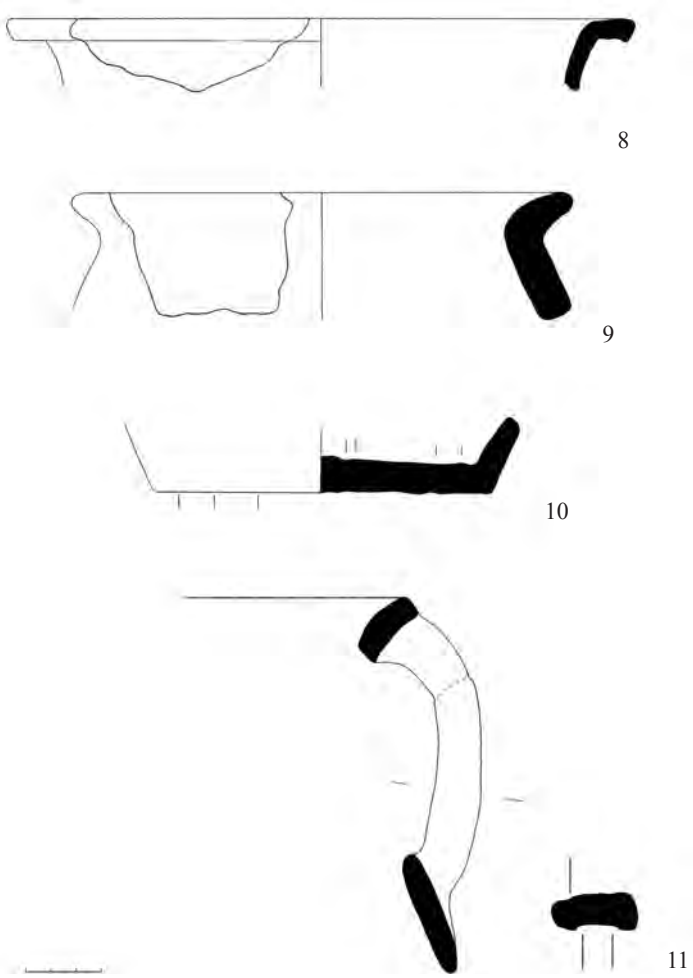

Fig. 3. Casserole and storage vessels from Room 3 (Nos. 8-11). Scale 1:3.

10. Flat base of jar (Fig. 3). Outer diam. 12.6 cm. Plain Ware. Fine ware, reddish yellow (7.5YR 7/6) evenly fired. Powdery, smeary ware.
Find context: Δ2-Δ3, KEP 2, removal of destruction layer, 20.12.2000.
Cf. Robinson 1959, 105, M228, pl. 27 (early fourth century), or, 112, M300, pl. 30 (early fifth century).
Date: Fourth to sixth century AD.

11. Amphora rim and handle with slightly grooved mid-section and back of handle folded into two bands (Fig. 3). Fine ware, reddish yellow (5YR 6/8) evenly fired. Some angular white chert less than 2 mm in size. Powdery, smeary fabric.
Find context: ΣT3-ΣT4, KEP 3, removal of the destruction layer, 21.12.2000.
Date: Fifth or sixth century AD?

12. Cross-bow fibula, bronze (Fig. 4). L. 6.5 cm. W. 4.1 cm. Pin missing. ΘE 6281.
Find context: Δ2-Δ3, KEP 2, removal of destruction layer, 20.12.2000.
Cf. Riha 1979, 147-149, type 6.5.5, Taf. 38:2738.
Date: Fourth century AD.

Fig. 4. Cross-bow fibula and iron key from Room 3 (Nos. 12-13).

13. Iron key (Fig. 4). L. 5 cm, Diam. 1.2 cm. Long flat shaft with immovable ring. ΘΕ 6174.
Find context: ΣΤ2, next to the wall dividing Room 3 from Room 4, 16.11.2001.
Cf. Davidson 1952, 138, pl. 70, nos. 968-969.
Date: Roman.

Room 1

14. A 'collarino beaker' (Fig. 5). Diam. 8.5 cm. Fine ware. Reddish yellow ware (7.5YR 7/6), evenly fired. Plain. Probably Phocaean.
Find context: Z4, in the corner between walls T4 and T7, just above the destruction layer, 21.2.2001.
Cf. Reynolds forthcoming, Late Roman thin-walled wares, esp. Triconch 3264.5.
Date: Fifth to sixth century AD.

15. Small amphora/jug (Fig. 5). Fine ware, evenly fired reddish yellow (7.5YR 7/6). Some angular, white grits less than 1 mm in size. Powdery, smeary ware. Plain.
Find context: Z4, in the corner between walls T4 and T7, just above the destruction layer, 21.2.2001.
Cf. Reynolds forthcoming (cf. Triconch 3325.101).
Date: Fourth to fifth century AD.

16. Ribbed body sherd of an early (second or third century AD) version of the (Ephesian) LRA 3 amphora type (11 fragments) (Fig. 5). T. 0.4-0.6 cm. Fine ware, evenly fired red (2.5YR 5/6). Abundant silvery mica inclusions. Matt black slip on exterior and dusky red (slip?) on interior (2.5YR 4/3).
Find context: Z4, in the corner between walls T4 and T7, just above the destruction layer, 21.2.2001.
Date: Second to third century AD.

17. Amphora toe (Fig. 5). Fine ware, evenly fired reddish yellow (5YR 7/8). Powdery, smeary ware. Plain.
Find context: Z4, in the corner between walls T4 and T7, just above the destruction layer, 21.2.2001.
Cf. Reynolds 2004, fig. 13.37.
Date: Third to fourth century AD.

18. Cooking pot, with folded band rim and lid-seat (Fig. 5). Diam. 15 cm. Red ware (2.5YR 5/6), evenly fired.
Find context: Z4, in the corner between walls T4 and T7, just above the destruction layer, 21.2.2001.
Cf. Reynolds forthcoming, Late Roman cooking pots, especially Triconch 5302.52 or Dia 172.18; Guiducci and Montana 2007, 547, fig. 1:5.
Date: Late fifth (early sixth century) AD.

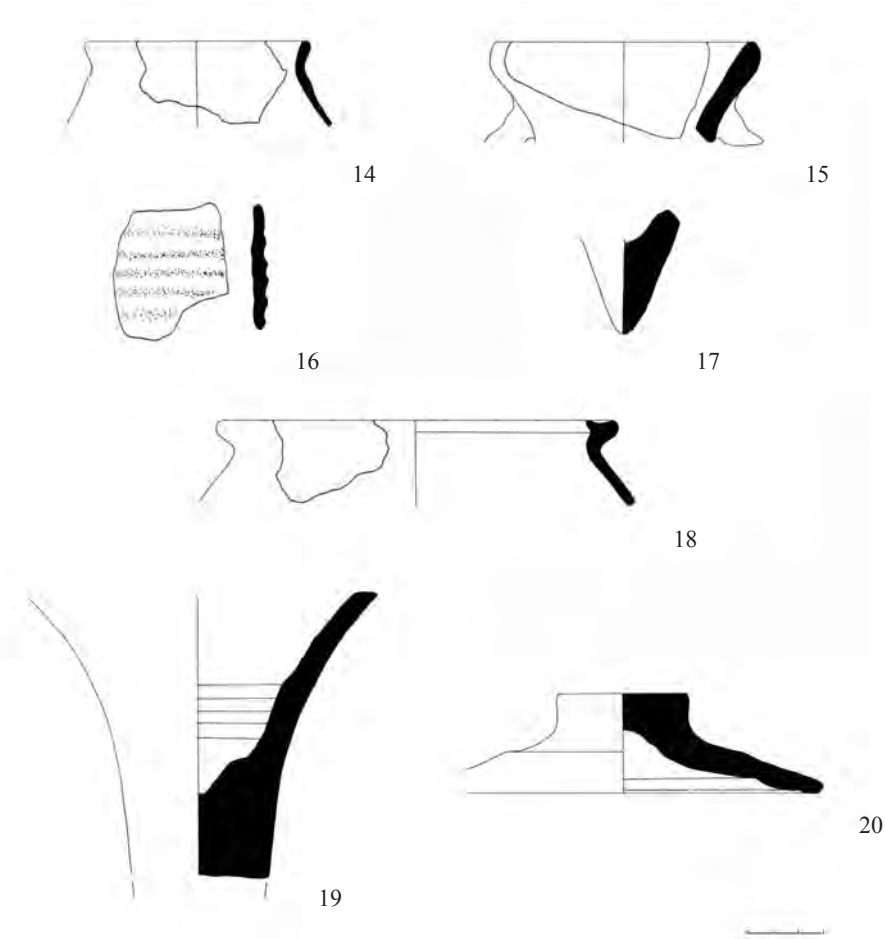

Fig. 5. Pottery from Room 1 (Nos. 14-20). Scale 1:3.

19. Amphora toe (Fig. 5). Red ware (2.5YR 6/8) evenly fired. Some angular white grits less than 7 mm in size. Probably Tunisian.
Find context: Z5, cleaning of destruction layer, 20.2.2001.
Cf. Keay 1984, 184-194, 210, fig. 88:1, Keay 25, variant 1, 394 (last quarter of third to mid-fifth century AD, "little doubt Tunisian").
Date: Fourth to (fifth century) AD.

20. Lid (Fig. 5). Diam. 15 cm. Red ware (2.5YR 6/8) evenly fired. Many angular white grits less than 3 mm in size. String-marks on knob.
Find context: Z5, cleaning of destruction layer, 20.2.2001.
Cf. 'Diaporit plain ware', Butrint.
Date: Fourth to fifth century AD.

Outside the building

21. Large dish with a flat base (Fig. 6). Fine ware, evenly fired, red (2.5YR 5/6). Late ARS 50A.
Find context: ΔΤομή 3, top soil, 5.11.2001.
Cf. Hayes 1972, 68 fig. 12, 72 nos. 46-55, 73 earlier part of the fourth century (Hayes).
Date: Mid-third to ca. 350, or, maybe 300-350 AD.

22. Cooking pot, concave-grooved rim face, small lid seat and vertical wall. Late in the grooved rim series (Fig. 6). Diameter: 15-17 cm. Grey ware (7.5YR 5/1) unevenly fired with a red core (2.5YR 5/6). Many angular white grits less than 3 mm in size. Plain.
Find context: Z6, top soil, 5.11.2001.
Cf. Reynolds 2004, 227 and fig. 13.74/76.
Date: Second half of third or mid- to late third century AD.

23. Cooking pot with triangular rim, convex face, 'Nikopolis variant' (Fig. 6). Outer diam. 18.8 cm. Yellowish red ware (5YR 5/6) evenly fired. Many angular white grits less than 1 mm in size. Possibly matt reddish brown slip on exterior (5YR 5/4).
Find context: Γ6, top soil, 9.11.2001.
Date: Fifth century AD.

24. Large 'grooved rim' cooking pot, concave rim face (Fig. 6). Outer diam. 26.6 cm. Fine ware, evenly fired, reddish yellow (7.5YR 7/6). Powdery, smeary fabric.
Find context: Γ6, top soil, 9.11.2001.
Cf. Reynolds 2004, fig. 13.317; Guiducci and Montana 2007, 547, fig. 2:15.
Date: Third century.

25. Casserole, pinched, concave rim face (Fig. 6). Outer diam. 19 cm. Dark red ware (2.5YR 4/6). Abundant angular white grits less than 1 mm in size. Traces of soot on exterior.
Find context: Γ6, top soil, 9.11.2001.
Date: Third to fourth century AD.

26. Small amphora/jug (Fig. 6). Reddish yellow ware (7.5 YR 7/6) unevenly fired with a red core (2.5YR 6/8). Some angular white grits less than 1 mm in size. MRA 1, hard fired.
Find context: H4.
Cf. Reynolds 2004, fig. 13.64.
Date: Fourth or fifth century AD.

27. Small amphora/jug (Fig. 6). Reddish yellow ware (5YR 6/6) evenly fired.
Find context: Γ6, top soil, 9.11.2001.
Cf. Reynolds 2004, fig. 13.64.
Date: Fourth or fifth century AD.

28. Flagon or jug (for table) (Fig. 6). Outer diam. 13.2 cm. Fine ware, unevenly fired, reddish yellow (7.5YR 7/6), with a reddish yellow core (5YR 6/6). Plain. Two ribbed shoulder fragments.
Find context: ΔΤομή 3, top soil, 5.11.2001.
Cf. Robinson 1959, 105, M225, pl. 27 (early fourth century).
Date: Probably fourth century AD.

29. Jug base (Fig. 6). Outer diam. 3.8 cm. Red ware (2.5YR 5/6) evenly fired. Many angular white grits less than 1 mm in size.
Find context: Γ6, top soil, 9.11.2001.
Cf. Sackett (1992), 252 U49, pl.192 (post 250 AD).
Date: Post 250 AD.

30. Lid with broad knob (Fig. 6). Diam. (knob) 5.3 cm. Red ware (2.5YR 5/6) evenly fired. Many angular white (chert) grits less than 1 mm in size.
Find context: ΔΤομή 3, top soil, 5.11.2001.
Date: Middle to Late Roman.

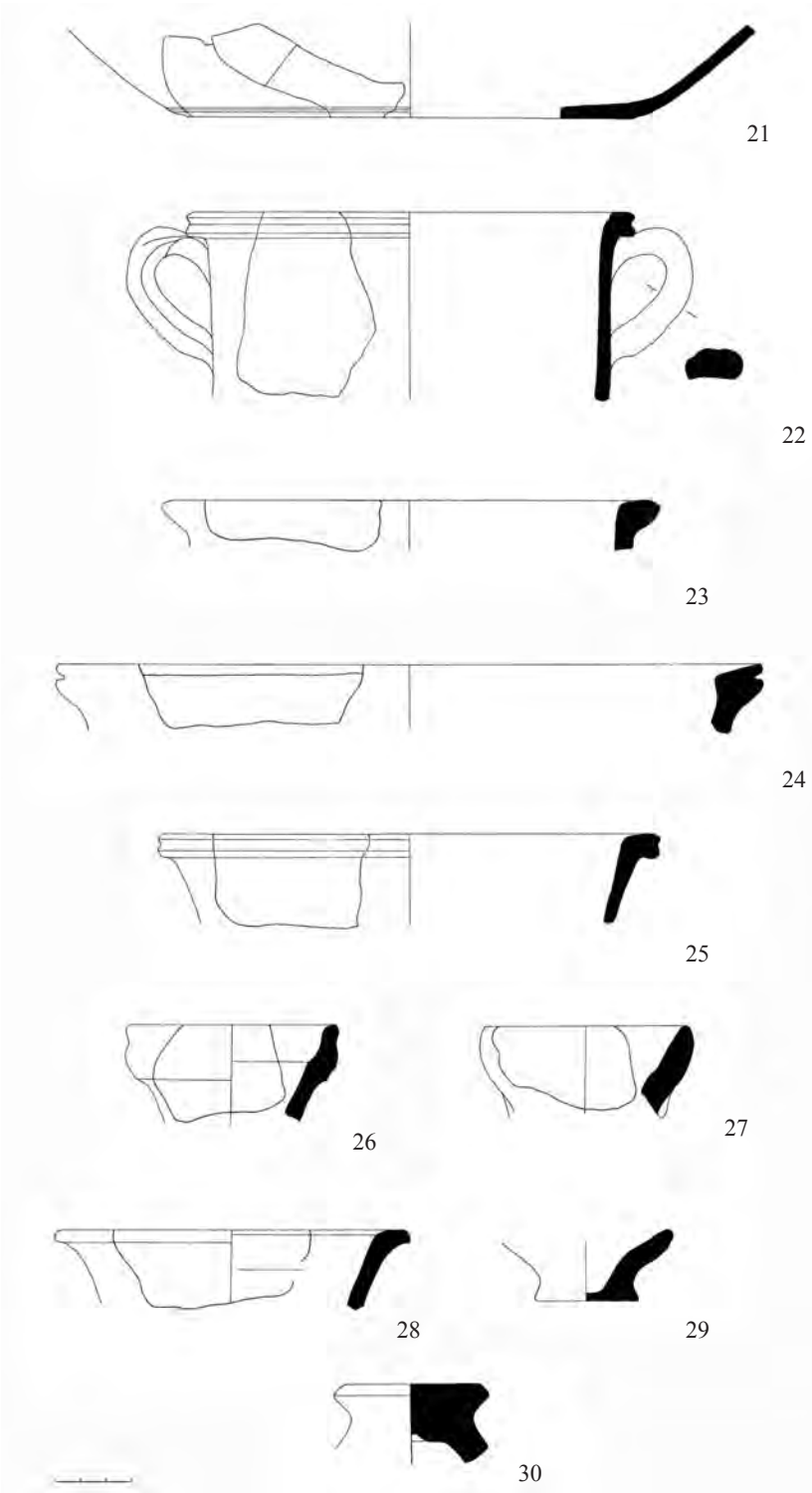

Fig. 6. Pottery from outside the building (Nos. 21-30). Scale 1:3.

Concluding remarks

Some of the finds were found in the top soil outside the building (Nos. 2, 19-21 to the northeast of the building, Nos. 23-27 to the southwest of the building and No. 28 to the north of the building) possibly moved from their original locus through later agricultural activities. More interesting for our purposes are the two find assemblages originating from Room 1 and Room 3.

Room 3 was the richest in finds. A total of 11 of the sherds in the catalogue were found here as well as the cross-bow fibula (No. 12) and nine coins, out of seventeen in total, which were found in the excavation. Among the catalogued sherds from Room 3 there were as many as six cooking pots (Nos. 7, 3-6, 8) and one local-regional amphora (No. 11). This assemblage should be compared with that from Room 1, which yielded only one coin and one cooking pot (No. 18), but four (Nos. 15-17, 19) of the total seven amphorae sherds. However, it should be noted that in addition to the only catalogued amphora in Room 3 (No. 11) fragments of two additional Tunisian amphorae were found (not catalogued), in squares ΣΤ3-ΣΤ4 as well as one large ceramic tessera. Other fragments of amphorae were found in the excavation and recorded in squares Η4, Ζ6, Γ6 and in the trial trench ΔΤομή 3. It should be noted that squares ΣΤ3-ΣΤ4 are located in the part of Room 3 that leads to Room 1, and squares Η4 and Ζ6 are located just outside the building next to Room 1. Thus most of these fragmentary amphorae could feasibly have originated from Room 1 as well.

The concentration of fragments of amphorae in and next to Room 1 compared to the concentration of cooking pots in Room 3 seems to indicate that Room 1 was used as a place for storage, whereas the large central room (Room 3) may have been the place for cooking and social life (which also might explain the presence here of the large number of coins and the cross-bow fibula). Room 4 again, on the basis of the openings in the walls, taken together with the different type of floor and the presence of an iron key among the finds in square ΣΤ2 (No. 13) near the wall between Room 3 and 4, most likely served as a kind of hallway. The function of the remaining rooms is unclear, although one could assume that at least Rooms 2 and 5 may have been bedrooms.

The farmstead seems to have been founded at some time during the third quarter of the third century AD – the earliest finds which can be dated with certainty are a coin minted by Aurelian (270-275) and some sherds dating to the mid-third century or somewhat later (Nos. 1 and 24). Fine wares are relatively rare, represented by a few sherds of early to mid-fourth century African Red Slip Ware (e.g. No. 21) and a late Roman 'collarino beaker' (No. 14). Most of the finds date to the fourth and the fifth centuries, with only one sherd that can be unequivocally dated to the late fifth or sixth century (No. 18; the jar no. 9, and amphora No. 11 may also be rather late in date). Thus, a more definite date for the abandonment of the house cannot be given, but it may have been deserted in the early sixth century. This fits well with the general historical picture of the region, which is characterized by increasing insecurity during the second half of the sixth century AD.[8]

[8] See e.g. Chrysos 1997a, 163-165; Chrysos 1997b, 182; Bowden 2009, 179.

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Vittoria dei veneziani sui Turchi in Albania

History of an Event

Mika Hakkarainen

Among the paintings parading Venetian military triumphs in the *Sala dello Scrutinio* of the Palazzo Ducale, there is one on the eastern wall which does not tell much even to an expert of the history of the Republic, to say nothing of an incidental visitor. This rather modest painting with the title *Vittoria dei veneziani sui Turchi in Albania* by Pietro Bellotti (1625-1700)[1] is hanging just to the left of Andrea Vicentino's monumental *La battaglia di Lepanto*. In Umberto Franzoi's presentation of the pictorial decoration of the Palazzo, *Il palazzo ducale di Venezia*, this painting is given the longer title *Vittoria dei veneziani sui Turchi in Albania e demolizione del castello di Margariti*.[2] The man in cuirass, who stands in the foreground, surrounded by imprisoned Turks and by Venetians pulling down a fortress (Fig. 1), is supposed to be Francesco Corner (1521-1584), who was *provveditore generale di Corfu* from 1570 to 1572.

Bellotti's work is actually a copy of an earlier version by Domenico Tintoretto. The Palazzo Ducale had been damaged partly by fire in December 1577 and a new inner decoration was planned especially for the *Sala del Maggior Consiglio* and *Sala dello Scrutinio*. The decision to order a painting of the capture of Margariti was already part of the original iconographic program drawn up by Girolamo Bardi soon after the fire, at latest at the beginning of the 1580s.[3] Domenico Tintoretto was commissioned to make the painting. Later, when the painting had been spoiled by moisture, Pietro Bellotti painted the copy of it in 1663.[4]

Bellotti's painting refers to an event in Epirus opposite to the island of Corfu during the War of Cyprus (1570-1573) soon after the Ottoman fleet had been beaten by the united forces of the Holy League in the battle of Lepanto (modern Naupaktos) on 7 October 1571. At the end of November the Venetian forces in Corfu under the command of provveditore Corner crossed the channel of Corfu and attacked the fortress of Margariti, some miles inland beyond the Parga mountains, which surrendered after a short siege and was pulled down.

The siege and destruction of the fortress of Margariti was, along with the victory at Lepanto, one of the rare successes of Venetian arms during the dramatic war, in which

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[1] Palazzo Ducale, Sala dello Scrutino, Inv. TS 1o p.n. 113. Fig. 1 has been supplied by Archivio Fotografico dei Musei Civici Veneziani and reproduced with kind permission of the Fondazione Musei Civici di Venezia. Figs. 2-3 have been reproduced by Kari Timonen, National Library of Finland.

[2] Franzoi 1983, 347-348. See also Pallucchini 1981, 285.

[3] "Sopra il secondo Balcone che quarda piu accosto la corte si dovera dipinger la presa di Margariti fatta da Franc.o Corner", in Girolamo Bardi's iconographic program for Sala dello Scrutinio published by Wolters 1966, 305.

[4] Boschini 1664, 54. For some reason the painting has in the Greek research tradition been attributed to Antonio Vassilacchi called Aliense (1557-1629), a Greek painter from the island of Melos active in Venice for most of his career; first by Moustoksidou 1843, 160-180, and still by Chasiotis 1970, 106 and by Manoussacas 1974, 232.

Venice lost Cyprus. The knowledge of it spread soon to Venice and Italy, as well as to the whole of Europe, especially through semi-official *avvisi* already before the end of the year.[5] A quite astonishing achievement was a work of the Venetian publisher Giovanni Francesco Camocio, *Isole famose*,[6] which seems to have been issued already in the same year, in which there are even two plates describing the siege of Margariti (Figs. 2-3). But, in spite of all the publicity and the conspicuous place that the Margariti commemorative painting received in the Palazzo Ducale, the episode itself remained finally a rather insignificant event without any noteworthy glory or further consequences in the context of the war. However, on the local level of the Ionian islands and the Epirotic coast, the attack on Margariti had far more meaning, which needs special clarification. Below is examined how it was recorded in historiography as well as in official reports by Venetian commanders and officials on Corfu.

Historiography

The importance of a public image of the past as well as of contemporary events for any political organization was realized in Venice earlier than elsewhere. Therefore the Serenissima strove consciously to build up an image of itself and its policy,[7] because, as Paolo Sarpi put it in 1608, "Non ci é forse cosa piú necessaria, quanto manifester al mondo la veritá delle cose passate; piché li nostri avversarii, seguendo l'uso ed esempio de' suoi maggiori, giá hanno fabbricato scritture false, stampate, ma tenute per mettere in luce dove lí par necessario, ed a poco a poco".[8]

Since the beginning of the sixteenth century the Republic had considered it necessary to nominate special state historiographers, whose task it was to create an official picture of past events. By reason of their position as official historians they had access to the *Cancellaria secreta* (or the *Secreta*), the archives of the Republic and the official reports sent to the Senate.[9] For the period of the War of Cyprus, one work is especially relevant to the present topic. Paolo Paruta (1540-1598) was appointed state historiographer in 1579, in succession of Luigi Contarini. Besides the history of the Republic covering the period from 1513 to 1551,[10] he was commissioned to compose a history on the war, *Guerra di Cipro* (1570-1572), which however was not published until 1599, one year after his death.[11]

The War of Cyprus began formally when Sultan Selim's demand to surrender Cyprus, which was brought before the Collegio by Kubad chaus on 27 March 1570, was rejected.[12] The Venetian fleet under the command of Girolamo Zane, *capitano generale*

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[5] Turcica, no. 1470 (p. 281) "La Gran Rotta e Franchasso fatto novamente a la fortezza de Malgaritta nouamente stampato in ottaua rima" and no. 1480 (p. 284) "Zeytung. Welcher gestalt di Statt Malgaritin (nit weyt von Corfu gelegen) durch der Venediger Kriegsvolck, den Türckischen Feinden abgetrungen, vnd biß auff den boden verbrennt vnnd eben gemacht worden ist."

[6] Camocio 1571.

[7] On defining as well as defending the political values and identity of the Republic, see Bouwsma 1968, 95-231.

[8] Paolo Sarpi, Lettere 27.5.1608, in Sarpi 1931, I, 15.

[9] Cozzi 1963-1964, 215-294; Gaeta 1981, 1-91; Benzoni 1996, 757-788.

[10] *Istoria Veneziana* was published posthumously in 1605.

[11] *Storia della Guerra di Cipro*, Venezia 1599. Here I have used Paruta 1828, a later edition of the work.

[12] On the prelude to the war and the course of events during it, see the most accurate Setton 1984, 923-1104.

Fig. 1. Pietro Bellotti's painting *Vittoria dei veneziani sui Turchi in Albania* in the Palazzo Ducale, Sala dello Scrutinio.

da Mar, weighed anchor soon after that (30 March), but did not arrive in Corfu until 23 June; Zane was given orders to wait for the fleet of the Holy League. Ottoman forces landed on Cyprus on 1 July. The siege of Nicosia began 24 July 1570 and the town fell seven weeks later. Attempts to bring help to the island during the navigation season 1570 were for various reasons unsuccessful.[13]

Meanwhile in Corfu, where Zane had arrived, casualties caused by plague were enormous. More than 20,000 men were lost, when Zane's escader reached the island.[14] Therefore the need for initiative and success was seen as more than necessary. Eyes were turned to the adjacent coast of Epirus. Very likely on the initiative of Sebastiano Venier, the then *Provveditore Generale di Corfù*, and of the Corfiots themselves, it was decided to direct military activity against Ottoman strongholds on the coast or not far from the coast. One of them was Margariti, a village and fortress some miles inland east of Parga, the most important strategic outpost of the Republic on the coast. The operation, which was thought to be short and easy, was led by Sforza Pallavicino, *Governator General* of the Republic's land troops, a Lombardian mercenary condottiero.[15]

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[13] Setton 1984, 923ff.

[14] Paruta 1828, 73-74

[15] Paruta 1828, 74-75: "Però fu deliberato d'espugnare il Castello di Malgariti, luogo per sè stesso ignobile, ma per lo sito suo opportune ad altri acquisti, e accommodato ad una tale impresa, quale allora si disegnava, cioè facile, e di breve tempo perocchè da implicarli in cose lunge, …."

Troops were disembarked during the night between 3 and 4 July in the small port of Nista in the bay of Plataria. The aim was to proceed from the bay towards the northeast to Margariti along the old Roman route, known since Late Antiquity.[16] After having reached the place with scouts and conducted reconnaissance of the district, however, the enterprise was considered too risky by Pallavicino and he withdrew the troops to Nista and further on back to Corfu. The enterprise ended with an open quarrel in the port of Nista in the midst of Venetian commanders and seems to have caused a lot of turmoil, judging from the attention Paruta gives it in his text.[17]

Pallavicino found it necessary to send a detailed report on the course of events to the Signoria in April 1571, in which he justified his decisions. To sum it up, he claims to have been misled by local Venetian officials and Greeks concerning Margariti's location, which was farther away than he had been given to understand and the fortress stronger than described. Besides, the way leading to the place was not good enough to transport artillery needed in the siege. Pallavicino also pleaded Sebastiano Venier's presence and familiarity with circumstances. The other commanders of the enterprise reproached him for cowardice, and Pallavicino them for blaming him for the failure.[18] Paruta, who as state historiographer had access to the Secreta, seems to have been familiar with Pallavicino's report, as he describes the event and reasons for its failure from his viewpoint, although at the same time noting that through this failure his credibility as military commander had suffered a serious blow.[19]

After the glorious day in Lepanto in October 1571 the issue of Margariti was taken up again. The fleet of the Holy League had retired from Lepanto to Corfu in order to reorganize the forces, to share the spoil, and to negotiate for the next move. The negotiations ended, however, with an internal quarrel between Sebastiano Venier, who had led the Venetian fleet at Lepanto as *capitano generale da mar*, and Don John of Austria, formal commander of the Holy League, and with the Spanish and papal forces sailing back to Italy. In order to keep up morale and exploit the favourable situation, Sebastiano Venier sent the bailo of Corfu, Francesco Corner, and Paolo Orsini to reattempt the storming of Margariti. Orsini together with Prospero Colonna had replaced Pallavicino as commander of land troops.

This new attempt to take Margariti is recorded surprisingly briefly by Paruta, although it was successful. He simply notes that the garrison of Margariti surrendered not due to the besieger's efforts, but rather under the effect the battle of Lepanto had made on the Turks. Because the fortress was considered too difficult to keep, it was pulled down.

> ...fu da' capitani risolto di tentare l'espugnazione di Malgariti. Furono dunque a questa mandate trenta galee, sotto la scorta di Marco Quirini con sei mila fanti, con li quali vi si condussero Francesco Cornaro Proveditore di Corfù, Prospero Colonna, e Paolo Orsini, e altri capi di guerra. Ma i nemici non più per le forze, che per l'opinione della recente vittoria, alla venuta de'nostri sè gli arresero quasi subito; sicchè

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16 Soustal 1981, 90-91.

17 Paruta 1828, 75-78: "questa così subita ritirata potesse scemare molto di riputazione a quella forze"

18 *ASV* Capi da querra, b. 7, 27.4. 1571: "che alcuni hanno pubblicato molte cose aliene dalla verità in pregiuditio mio".

19 Paruta 1828, 77. "E perchè ogni minima azione era a questo tempo dal Mondo osservata, tutto volto a vedere i progressi di tanto apparato di querra, il Pallavicino, benchè fosse in grande concetto di valore e d'isperienza militare, con fatica presso molti puotè di questo fatto giustificarsi".

> impadroniti del sito con non molta fatica acquistarono la Fortezza, la quale giudicandosi, che non si potesse senza grandissimo incomodo, e spesa mantenere, fu per comune parere distrutta.[20]

A slightly different picture of the event is provided by non-Venetian historiography or memoirs, such as by Ferrante Carracciolo and Anton Maria Graziani. The critical tone is explained partly by the withdrawal of the Republic from the Holy League and the peace with the Sublime Porte without consulting the allies Spain and the Pope. Ferrante Caracciolo (d. 1596), count of Biccari, a Neapolitan nobleman, who had participated in the battle of Lepanto in Spanish service, describes in his *Commentarii delle guerre fatte co'Turchi* the course of the whole war, not only of the battle at Lepanto. As a Neapolitan and loyal to Spanish viewpoints, his way of seeing the Venetian efforts and achievements sounds openly ironic.[21]

The unfortified *borgo* was taken fairly easily and the fortress was put under siege. It took three days to transport artillery from the coast to the village. After a bombardment the fortress was assaulted, which ended without success although with heavy casualties; 150 men were lost. Caracciolo reveals that after this disorganized and unsuccessful assault, it was found 'politically correct' to accede to the Turkish request that the fortress would surrender against free exit for the garrison. Caracciolo may have received his information of the Margariti affair from an eyewitness, like Prospero Colonna:

> per espugnarlo Margaritò si tenne tre giorni, nel quarto che arrivarono tre pezzi d'artigleria fù battuto poco, I nostri didero disordinato assalto, dove si difesero cento venti Turchi valorosamente, ma la notte si resero à patti, che ne uscissero armati con iscimitarre solamente, & à tredici di novembre i nostri v'entrarono vincitori, de quali morirono in questa fattione da cento cinquanta con alcuni Capitani, & Alfieri, havendo in tutto ciò che si fece Prospero mostrato valore, e giuditio.[22]

The fall of Margariti thus does not seem to have been as glorious for Venetian arms as Bellotti's painting and its position in Sala dello Scrutinio give us to understand.

Likewise Anton Maria Graziani (1537-1611), secretary of the Cardinal and the papal nuncio Giovanni Francesco Commendone, did not belong to the admirers of Venier nor of the Venetians and their efforts during the war. The picture of the event he creates in *De bello Cyprio* does not flatter the Venetian operations led by Venier:

> …and thus this Famous Fight no other Fruit but the retaking of Sopoto, and the Castle of Margariti, whence the Turks fled, as soon as Paul Jourdain (Orosini) appeared near the Walls at the head of Four Thousand Men. He raised it to the ground. Several Captains of the Venetian Galelies publicly complained of Venieri's conduct, and accused him of obscuring the Brightness of the late Victory by his slowness and imprudence.[23]

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[20] Paruta 1828, 301. Marco Querini was the *capitano in Golfo*, commander of the Venetian fleet in the Adriatic Sea (called golfo di Venetia by the Venetians), Francesco Corner had been appointed commander of the island of Corfu after Venier was promoted to *capitano generale da mar*. Prospero Colonna and Paolo Orsini finally had replaced Sforza Pallavicino in May 1571 as *governator general* of the troops in the fleet.

[21] Carracciolo 1581, 55: "Trovandosi il Veniero armato à Corfu, spinto dall'ardire, che sogliono tenere i vincitori, inuiò vn mese dopò la vittoria all'assalto di Margaritò".

[22] Carracciolo 1581, 55.

[23] Graziani 1630/1687, 266-267.

Figs. 2 and 3. The Siege of Margariti as depicted in Giovanni Francesco Camocio's *Isole famose, porti, fortezze, e terre maritime sottoposte alla Serenissima Signoria di Venetia, ad altri Principi Christiani, et al Signor Turco* from 1571.

Official records

A still more nuanced picture of the course of events can be derived from the communication held by Venetian officials towards the Collegio, that is, from official reports sent by them to Venice. Sebastiano Venier informs the Collegio in a letter dated 3 March 1571 that Albanians from villages surrounding Margariti had several times requested him to send galeers and troops against the fortress. These requests had led him to plan the operation.[24] His letter of 22 November is a very brief announcement of the event: the defenders surrendered after heavy fighting and the garrison was allowed to leave with their arms;

> Resistette tre giorni la fortezza; il quarto i veneziani piantarono tre pezzi di artigleria e cominciarono a battere le mura. Corsi all'assalto, i nostri perdettero centocinquanta soldati con alcuni capitani e alfieri, ma i difensori dopo fiera resistenza si arresero a patti e furono lasciati partire coll'onore delle armi.[25]

A couple of weeks later, on 15 November, Francesco Corner, under whose command the enterprise was pursued by Venier, sheds for his part more light on the issue in the report sent to the *consiglio dei dieci*. Corner gives to understand that during the night after the assault, while he was away from the encampment with other Venetians, the Turks of Margariti contacted Paolo Orsini and Prospero Colonna, commanders of the field troops, and offered the surrender of the fortress on condition that the garrison would be given free exit with their arms. Orsini and Colonna accepted the request, which was made without consulting Corner, who was the highest-ranking representative of the Republic and formally the commander of the troops.

Orsini had argued, for his decision, that the besiegers' situation was awkward and even critical: "Turkish reinforcements could show up at any minute, the will to fight inside the fortress was high, and besides ammunition was running short". Part of the reasons expressed by Orsini were virtually the same ones as Pallavicino's a year before. Corner's point of view was the opposite: "there was no fear of any cavalry attack because of rough terrain, more supply was coming from the galleons, and Corner was convinced that the resistance would have crumbled soon after heavy bombardment. Accepting the surrender was a flagrant violation of the Republic's honour and against the besieger's expectation of destroying the enemy, which was not worthy of mercy".

> che essendo io cosi vicino, non si dovea mai fare questa risolutione senza mio consentimento, con offesa della dignità publica et con dispiacer universale di tutti li soldati, li quali pieni di ardire non volevano che li fugisse dalle mani un numero di Turchi di tanta braura et indegni di ogni pietà.[26]

"il Castello di Malgariti, luogo per sè stesso ignobile"

As Paruta notes in his *Storia della Guerra di Cipro*, "il Castello di Malgariti, luogo per sè stesso ignobile, ma per lo sito suo opportuno ad altri", the fortress of Margariti was without any greater significance, but it was not unimportant as to its geopolitical position

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[24] *ASV* Secreta, Annali della Republica, anno 1571, 3 Marzo.
[25] *ASV* Secreta, Annali della Republica, anno 1571, 7 Novembre.
[26] *ASV* Capi del consiglio di dieci, Lettere di rettori, b. 300.

for the local affairs in Epirus and the Ionian islands. Venetian officials in Corfu and the Corfiots themselves, not to mention the inhabitants of Parga on the coast, were very well aware of it.

The island of Corfu was of vital importance both for the Venetian trade route to the Levant and for the control of the access to the Adriatic – to the *Golfo di Venezia* as the Venetians used to call the sea. In spite of the heavy fortifications and the support of the Greek population of the island, its position was extremely vulnerable, because the island was not able to feed its population and garrisons. One year's crop was insufficient to maintain it. Corfu, as well as the other Ionian islands, was heavily dependent on the supply of corn brought from the mainland, that is, on the trade with the Ottoman *terra ferma*. Corfu's position had become more vulnerable since the Ottoman empire extended its power to Epirus in the fifteenth century and organized its administration there. Ioannina was taken in 1430 and Arta in 1449.

In order to secure Corfu against the growing Ottoman power in Epirus, the Republic aimed at seizing outposts and bridgeheads on the coast. Through them the corn supply for the Ionian islands could be organized at the same time as the sailing in the Channel of Corfu was controlled.[27] In all capitulations from the fifteenth till the end of the eighteenth century, the Sublime Porte recognised the Venetian possessions on the coast, of which the most important were Butrint, Parga and Phanari.[28] Venetian officials never tired of emphasizing their importance for the Republic and the island of Corfu. Butrint and Phanari were important for logging, as were Butrint's fisheries for food supplies. Parga was the military outpost, eye and ear of the Republic in Epirus. The significance of Butrint was described in the following way by Marchio Michiel in 1559 in his *relazione*:

> Quanto alle cose di Butintrò, io essistimo quel luogo di grandissimo importanza non solamente per rispetto delle peschiere, delle quali si cava più di doi mille ducati all'anno, ma per molte altre cause, come sono tratte di formenti et altre biave, carne, legne et altre cose necessarie alla fortezza.[29]

The following year, a Corfiot delegation described the geopolitical location of Parga to the Collegio in Venice as follows:

> Di grandissimo importantia, Serenissimo Principe, et Ill.ma Signoria, è stato sempre, et piu che mai al presente è il luoco della Parga, si per gli avvisi, che di che continuo si ha dell'armata Turchesca, et di tutto quello si opera in terra ferma, come anco per la gran quantità di legname da quel luogo si traze, per esserli vicino il bosco famosissimo del fanaro, dove si attrova ogni sorte di legname, et massime per far navilli, fregate, barche, et ogn'altra cosa che necessariamente bisogna all'armata di Vostra Serenità…[30]

Demarcation establishing borders between Ottoman and Venetian territories in Epirus took place for the first time in connection with the peace treaty of 1478.[31] Details

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[27] Especially important was the coast from the Palormo (now in Albania) until Phanaro (the delta of the Acheron River), called 'riviera d'Albanesi' or *Paracalamo* by the Venetians: Donato Malipiero's relazione in 1553, *ASV* Collegio, b. 62. One of the kazas of the sancak of Delvino was also called *Parakalamo*; see Balta *et al*., this volume.

[28] On the Venetian bridgeheads on the coast, see e.g. Hakkarainen 2009.

[29] *ASV* Collegio, Relazioni di Ambasciatori, Rettori ed altre cariche, b. 84.

[30] *ASV* Senato Mar, Reg. 35, c. 20, published by Sathas, V, 313.

[31] Stefano Magno, in Sathas V, 219-220. On the border commission see Gilliland Wright and MacKay 2007.

concerning the organization of Ottoman rule in Epirus need further study, but it seems that the sancak of Delvino, the administrative district which covered the *terra ferma* opposite to Corfu, and its kazas, had been established at the latest in the beginning of the sixteenth century. The first preserved register dates to the year 1551.[32] *Castello di Margariti*, under the jurisdiction of the sancak of Delvino, later the center of the kaza, appears for the first time in Venetian documentary sources during the 1550s. In 1558, a Corphiot delegation appealed to the Senate for financial support to the population of the island. Since the Ottoman siege of the town and the looting of the island in 1537 the food supply had deteriorated and there had been a continuous lack of seed grain. The normal trade routes from the *terra ferma* had been disturbed by the Turks and Albanians from two new fortresses in Sopoto and Margariti, from where the Turks aimed to control the trade.

> sono stati fabricati da Turchi doi Castelli in terra ferma qui vicino, cioè Sopoto, et Margariti, per li quali hanno dominata tutta l'Albania, però non si può trazer con facilità , ma prohibiscono et non voleno che si possi cavar ditta biava, per il che stiamo alla discretion loro.[33]

Next year, on 17 March 1559, the bailo and provveditore di Corfu Marchio Michiel left his relazione, i.e. the final report of his term in office, to the Senate in which he notes "Si ha veduto quanto mal è accaduto per l'edification delli castelli di Soppotò et Margariti".[34] He refers to Turkish plans to construct a fortress in Butrint opposite to the Venetian base and reminds the Senate of the situation in Sopoto and Margariti, where similar constructions had caused problems for the Venetian subjects and interests. The Corphiot delegation in 1560 bemoaned that the situation had not changed and the threat from those fortresses to the corn supply from the mainland was current:

> Noto è a V.S., etc. la necessità et penuria grande di biave, che havemo havuto noi fidelissimi servitori di V.S., poi che sono stati fabricati doi castelli qui vicino, cioè Margariti, et Sopotho, et morirsi da fame.[35]

Margariti is situated some miles northeast from Parga, on the other side of the Parga mountains. The place became the centre of raids against Venetian possessions on the coast, when the sancak bey of Delvino, Oscur Scurogli, constructed a fortress outside of the village[36] obviously in connection with the reorganization of the sancak Delvino. This might have happened soon after the Ottoman-Venetian War of 1537-1540. Margariti was clearly meant to be a counterforce to Parga.

> Nel qual luoco (scil. Parga) vi sono anime 900 incirca et è di molta importantia , sì per gli avisi che vengono da quella parte come per il sito et fedeltà di quelli popolo; li quali si mostrano prontissimi di

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[32] See Balta *et al*., this volume. In the tax register of 1491 Delvino was still a vilâyet of the sancak of Vlora; see Todorov and Velkov 1988.
[33] *ASV* Senato Mar, Reg. 34, c.20, published by Sathas V, p. 302.
[34] *ASV* Collegio, Relazione di Ambasciatori, Rettori ed altre cariche, b. 84, ff . 22r-46r; f. 42v.
[35] *ASV* Senato Mar, Reg. 35, c.20, published by Sathas V, p. 312. "…avvenne che dopo l'assedio (scil. 1537), et poi che si hanno fabricato qui vicino doi castelli, cioè Margariti, et Sopotho, le cose di esso luogo (Parga) sono molto astrette" (p. 313). On the same occasion an application was made to raise the salary paid for the capitaneo of Parga, which was granted and the salary was hiked up, from six ducati to eight per month.
[36] *ASV* Consiglio dei dieci-capi. Lettere dei rettori b.292 nr. 39, 27.3. 1568. The letter concerns the appointment of Baiasit Sguroli, son of Oscur, as sancak bey of Delvino.

> esponer per questo Serenissimo Dominio il sangue, gli figlioli et la propria vita et solamente desiderano di esser serrati da una parte, accioche in tempo di notte all'improvisa da nemici per fossero svalleggiati, essendo che sono lontani miglia se solamente dal castello nuovo de Margariti, dove habitano molti Turchi et più de ottanta spachi.[37]

Weekly reports, dispacci, sent from Corfu to the Senate in Venice give an even more detailed picture of the tension in the district. In April 1557 the bailo of Corfu reported that the commander of Margariti had made raids on Parga and even as far as the island in order to steal young boys.[38] In the beginning of the year 1564 the bailo Agostin Sanudo asked the bailo of Constantinople, the Venetian representative in the Sublime Porte, to intervene. To the great surprise of Sanudo his efforts led to the discharge of the commander in Margariti, and even to the returning of property that had been robbed from the Pargiotes, as well as to a call for avoiding border skirmishes with Venetian subjects. This did not last long, however, because already in August the bailo again reported further violent clashes between Pargiotes and Ottoman subjects from Margariti.[39]

On the basis of the Venetian reports, the raids on Venetian outposts and even on the islands were part of the local Ottoman policy. It was certainly motivated by the desire to weaken the presence and influence of the Republic on the coast, but also by the locals' frustration due to the fact that their access to the coast and ports was hindered by the Venetian presence there. The aim of the voivode of Margariti was, as the bailo noted in 1565, to win control over the profitable and, for Corfu, vital corn trade.[40]

Epilogue

Clashes between Ottomans and Venetians intensified on the coast of Epirus after the open declaration of war in 1570.[41] Margariti was only one of the targets for the numerous attacks launched by Venetians and Corphiots on the Ottoman coast opposite the island of Corfu. The war raged on both sides of the Channel. Sebastiano Venier and Emanuel Marmora attacked Sopoto, a port and fortress close to the bay of Palermos north of Corfu.[42] Parga seems to have been the first victim of Ottoman military activity; it was sacked and destroyed. After the operations in Valona and Sopoto, Venier sent Paolo Orsini to Parga to restore it, but the mission proved too risky and Orsini withdrew soon; the Turks immediately occupied the place again and destroyed what had been erected.[43] A new attempt to restore the fortress of Parga was made under the command of Pietro Lantza[44] and Angelo Paradiso da Lorena. Lantza's fame as a hero of the guerrilla war has been

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[37] Relazione of Giovanni Antonio Foscarini, ASV Collegio (Secreta), Relazione di Ambasciatori, Rettori ed altre cariche, b. 84.
[38] *ASV* Senato, Dispacci rettori, Corfu b. 1.
[39] *ASV* Senato, Dispacci rettori, Corfu b. 1.
[40] *ASV* Senato, Dispacci rettori, Corfu b. 3.
[41] Already in the autumn of 1570 the Emir of Bastia had been taken captive by Francesco Sphendonis, a Greek mercenary in Venetian service; Sathas IX, 739.
[42] Paruta 1828, 71ff.
[43] Marmora 1672, 340.
[44] Ioannou 2000, 277-299.

emphasized by the Greek research tradition.[45] Between the more organized operations led by the Venetian commanders against Sopoto and Margariti, from where the corn supply to Corfu was disturbed, there seems to have been continuous guerrilla war by Greeks and Turks/Albanians.[46]

However, like the victory in Lepanto, which Braudel calls "une victoire sans consequences",[47] the war in Epirus and the fall of Margariti did not change anything in the geopolitical area, as the Corphiot historian Andrea Marmora notes one hundred years later: "ó Dio non volle per le nostre colpe la gloria del Cristianesimo; ó per suoi occulti giuditij permise tanti sconcerti, che i Venetiani, pensando da vero a'casi loro, si determinano alla pace, qual sequì nel settantatre con la cessione del Regno di Cipri, e del Castello di Sopoto; restando altre frontiere nel termine, ch'erano prima di cominciare la guerra".[48] Venice broke away from the Holy League and the war was concluded with the treaty on 7 March 1573. Venetian attempts to solve the big issue concerning the maintenance of Corfu failed. They failed also in trying to eliminate the new Ottoman fortresses of Sopoto and Margariti, which would have been important to occupy in order to control the corn trade. Sopoto had to be ceded to the Turks and Margariti was rebuilt soon thereafter; so the *mal* of which Marchio Michiel spoke in his relazione ten years before the war began would remain there until the end of the Republic.[49]

Memory of the *vittoria* in Margariti, however, was immortalized in painting by Domenico Tintoretto and Pietro Bellotti, and received a prominent place in the Sala dello Scrutinio, next to Vincentino's *Lepanto*. If the figure in the middle of the painting is Francesco Corner, it is not far-fetched to think that the decision to memorialize Margariti was governed by him or his influental family. Corner's later career in the service of the Serinissima was remarkable. After the war and having returned from Corfu, he was chosen three times one of the six *savi del Consiglio*, whose function was to present foreign affairs to the Senate. He was thrice elected to be one of the six *consigliere ducale*, who supervised and controlled the doge's pursuit of policies. As *consigliere* his duty was to crown Sebastiano Venier doge in 1578. Corner's career culminated three months before his death (30 October 1584), when he was appointed *procurator di San Marco* (*de supra*), the highest honour a Venetian nobleman could be rewarded for his services.[50]

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[45] Marmora 1672, 353.

[46] Letters by Francesco Corner and Alvise Zorzi in mss Morosini-Grimani 516, ff. 43-53 and 56-82 Museo Civico Correr published by Yotopoulou-Sikilianou 1982, 93-206.

[47] Braudel 1990, III, 254.

[48] Marmora 1672, 357.

[49] Hakkarainen 2009.

[50] On Francesco Corner see Baiocchi 1983, 195-197. The *procuratori di San Marco*, together with the doge, were the only life-long positions in the administrative structure of the Republic. *Procuratori de supra* administered the property belonging to the Basilica of St. Mark, as well as its maintenance.

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Dedicated to Halil İnalcık

The Ethnic and Religious Composition of Ottoman Thesprotia in the Fifteenth to Seventeenth Centuries

Evangelia Balta, Mustafa Oğuz and Filiz Yaşar

Introduction

The Ottoman conquest of today's southern Albania and Epirus began at the end of the reign of Murat I (1362-1389). The Ottoman presence increased with the dissolution of the Despotate of Epirus and the capture of Ioannina in 1430 by the beylerbey of Rumeli, Sinan Paşa. The fall of Arta followed in 1449. Research has shown that the conquest was part of an organized plan. The Ottomans made their first appearance as mercenaries serving the Christian rulers in the region, employed to fight their Albanian neighbours. Gradually the mercenaries assumed control as lords of these same lands, even chasing off the Venetians from their coastal territories.[1]

In 1418, Argyrokastro, seat of the Albanian clan known by the name Zenebiş, fell into Ottoman hands and was made the capital of the *sancak* of Arvanid in the *eyalet* of Rumeli. This newly-founded eyalet incorporated territory from the region of Kroya as well as the valley of the Kalamas river, as we know from the contents of the fiscal register dated 1431.[2] Among the administrative regions recorded in this source are included the *nahiye*/*vilayet* of Vagenetia with 29 villages and 2 agricultural districts (*mezra'a*), which belonged in the sixteenth and seventeenth centuries to the *kaza*s of Aydonat and Parakalamo. The vilayet of Vagenetia was a landholding (*hass*) of the sancakbey Ali Bey. A comparison of toponyms in the chrysobull of 1361 and the *timar* record of 1431 (*Arvanid defteri*) reveals that the nahiye of Vagenetia covered a smaller area than had the Byzantine province of the same name.[3] However, it has been demonstrated that the geographical area of Vagenetia was greater than that designating the 29 villages of the nahiye with the same name, since listed after the timars in the nahiyes of Himara, Velegradoi and Muzak (Muzakia) are timars with incomes derived from villages in Vagenetia.[4] Altogether, the Arvanid defteri mentions 49 villages and *mezra'a*s accompanied by the designation *tabi'-i Vayonetya*, denoting that they had belonged, before the Ottomans, to the *theme* of Vagenetia. These villages were located mainly in the regions of Delvine and Philiates, and less commonly in those of Margariti and Argyrokastro.

The Arvanid tax register of 1431 confirms this chaotic recording of timars which does not conform to the administrative division of the nahiyes. Limiting our observations

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[1] Nicol 1984, Zachariadou 1988, 195-210.

[2] İnalcık 1954.

[3] Asdracha and Asdrachas 1992, 239-246.

[4] İnalcık 1954, 3-4, 6-23, 27-28. Examples are the villages of Phiniki, Sideri, Sagiada, Konistpoli, Doliani, Kontzka, Agios Vlasis, Mazaraki, Plesivitsa, Mengouli, Michalogianni, Kokkinolithari, Pigadoulia, Rachova and Gardiki.

to this region alone, we observe that the villages of Vagenetia are recorded in timars belonging to the nahiye of Sopot (Sopotos). Igoumenitsa, which according to the chrysobull of 1361 was a village belonging to the theme of Vagenetia, is noted in the tax register of 1431 as belonging to the timar of Sunkur, which is not recorded under the name of a region, but rather the name of its lord.[5] We agree with the view expressed by Michalis Kokolakis, who argues that the overall picture conveyed by the Arvanid tax register of 1431 is labyrinthine. We would only add that the Ottoman source conveys such a picture not only for the sancak of Arvanid, but for the wider region which, despite the dissolution of the Despotate of Epirus, had not fallen under the full control of the Ottomans.[6] It was essentially a marchland (*uc*). Notes made in the margin of the Arvanid tax register bear witness to resistance in certain villages to the presence of Ottoman registrars,[7] and we also know that in the fifteenth century the sancak of Arvanid experienced various uprisings, the most serious of which was led by Georgios Kastriotis, known as Iskenderbey.[8] The additional fact that many timars were granted in 1431 to local notables, or their estates were converted into timars, means that the presence of Ottoman authority was reasonably fragile in this early period and required the support of alliances with the region's economic and political players, whether tribal or ecclesiastical leaders, such as the metropolitans of Kanina and Belgrade, to whom timars were also granted.[9]

The situation gradually changed in the following years, as is apparent in the tax registers from the mid-sixteenth and early seventeenth centuries. Control over the area had been secured and the Ottomans had made their presence felt in the conquered territories, for which reason we no longer find Christian timar holders (*sipahi*), who had been present in the fifteenth-century registers. The name of the former theme, Vagenetia, passed into the Ottoman registers by the end of the fifteenth century, particularly in the head tax register dated 1488 for the *vilayet-i Viyanite nam-i diğer Delvine*, recorded as having 4,668 households (*hane*) and 130 widows (*bive*).[10] In the following years, the Byzantine toponym Vagenetia disappeared and was replaced by the name Delvine. However, the conquest of Vagenetia was complete by the middle of the second half of the fifteenth century. The conquest of Agios Donatos (which eventually became known as Aydonat) is dated to the reign of Sultan Mehmet II, the Conqueror, while the region of Margariti was conquered much later, since the castle was built in the first half of the sixteenth century.[11]

In the present study, we report the results of our research into this region according to sixteenth- and seventeenth-century sources housed in the *Başbakanlık Osmanlı Arşivi*

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[5] Asdracha and Asdrachas 1992, 245.

[6] Kokolakis 2003, 116.

[7] "Karye-i Luzat, tâbi'-i Kurelaş bu köy hâindir, üç dört kez adam gönderdük, gelmediler, sonra süvarsi ardımızca gelip Kara Ferîd'e yazdırdı", see İnalcık 1954, 21.

[8] İnalcık 1968, 1079-1082; Ashcom 1953, 16-29; Puchner 1985, 139-215; and Yochalas 1994.

[9] İnalcık 1951, 118-138. Highly illuminating information concerning the Christian sipahi of the area is found in the following note in the Arvanid defteri: "İspahi gâvurlar imiş, timardan düşmüş, bu vilâyetin gâvurları 'âsî oldukları vakit bunlar doğruluk etmişler, ol sebepden Sancak beğleri müsellem edip kendi bitilerin vermişler, amma Sancak-beği Lala Şahin evden eve birer filorilerin alırmış, sonra Aydın beğ gelicek ol dahi almış, amma sonra mezkûr süvariye gene vermiş, bu il hâin olub Sancak beğleri bunlara biti verince bu köyü yiyen dört süvari düzer, onu müşterek tasarruf ederlerdi deyu kadı tanıklık verdi"; see İnalcık 1954, 12.

[10] Barkan 1964, 96; Todorov and Velkov 1988.

[11] Psimouli 2006, 73.

(the Prime Minister's Ottoman Archive in Istanbul), henceforth *BOA*.[12] Based on material from sixteenth- and seventeenth-century Ottoman fiscal registers, we have reconstructed the network of settlements in the kazas of Aydonat, Parakalamo and Mazaraki, which in subsequent centuries were known, respectively, as Paramythia, Philiates and Margariti /Margaliç. These kazas constitute, along general lines, the boundaries of the modern prefecture (*nomos*) of Thesprotia. At the same time our aim was also to investigate the ethnic and religious composition of the region's population in the first years of the Ottoman conquest. It is our belief that the previously unknown historical material in the Ottoman sources brought to light here will facilitate a historiographically informed approach to the subject of the Tsamides (the Chams), the Albanian-speaking Muslims who constituted a pronounced feature of southwestern Epirus after the eighteenth century.[13] The evidence provided in these sources concerning the region's inhabited space and the population's ethno-religious composition in the sixteenth and seventeenth centuries was decisive for the changes which followed in the later period. Thanks to the Ottoman fiscal registers it is possible to check older views in the historiography concerning mass conversions to Islam in this region which occurred until at least the early seventeenth century.

The tax registers of the sancak of Delvine in 1551 and 1613

The history of Paramythia, Philiates and Margariti in the sixteenth and seventeenth centuries can be teased out mainly from two detailed tax registers in which are recorded by name the leaders of the households under taxation and the various taxes levied on the settlements. The register known as *TT* 273 is dated to H. 958 (1551) and corresponds to the census of the sancak of Delvine, which was divided into the kazas of Delvine and Aydonat, which in turn were subdivided into the nahiyes of Parakalamo, Kurvuleş, Aydonat and Mazaraki. This census records the situation which prevailed in the region after the Ottoman-Venetian war, which ended with the naval battle of Preveza and the victory, as we shall see below, of the Ottomans.

The *TT* 608 register is also a census of the sancak of Delvine dated H. 1022 (July/ August 1613),[14] which included the kazas of Delvine, Kurveleş and Aydonat which belonged to the nahiyes of Parakalamo, Kurveleş, Aydonat and Mazaraki. The register known as *MAD* 3727 from H. 1020 (1611-1612) in which were recorded the *has* of the high-ranking Ottoman officials also included the incomes of the areas of Parakalamo and Aydonat.[15] The summary register (*icmal defteri*) *TT* 747 from H.1036 (1626-1627) which also recorded information about the liva of Delvine, among others, noted *zeamet*s and timars in the above-mentioned nahiyes which, in most cases, had the same income as that noted in *TT* 608, despite the difference of a decade. Both *TT* 608 and *TT* 747 record the

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[12] Mustafa Oğuz collaborated in this research from its inception. In 2009 and 2010, Raif İvecan, Ayşe Kavak and Nurdan Şafak took part in the archival research. Filiz Yaşar (graduate student at Hacettepe University) assisted in the final stages of processing the material.

[13] Balta, Yilmaz and Yaşar 2009, 245-273.

[14] In the register, the date is listed thus: "Sûret-i mufassal-ı Sultâni ki nakl olundı. Tahrîren fî evâhır-i şehr-i Cemâziyelâhır sene 1022."

[15] *MAD* 3727 Parakalamo nahiyesi, pp. 7, 39, 50, 75, 80; Aydonat nahiyesi, pp. 8, 39, 52, 75, 80, 112, 121, 155, 176, 178.

situation in the region after the uprising led in 1611 by Metropolitan Dionysios of Larissa and Trikka had been suppressed.

Register *TT* 273 often refers to a previous register which seems to have covered the period between it and the one dated 1431. In other words, it would have been contemporary with the census taken between 1520 and 1530, if we judge from the published registers *TT* 367 and *TT* 1078, which are concerned with the neighbouring geographical area, the livas of Avlona and Ioannina.[16]

Basing ourselves on registers *TT* 273 and *TT* 608, we drafted a catalogue of settlements in the three nahiyes listing the demographic size and productive activities of each. This information has been processed and presented in the tables found in the appendices accompanying this study, and the following observations organized under main headings derive from the information found in the tables. The lists of settlements also reveal the territorial boundaries of the nahiyes of Aydonat, Parakalamo and Mazaraki. The relevant sections of H. Kiepert's map (*Carte de l'Épire et de la Thessalie*) on which we have located the villages in question is reproduced as Fig. 1.

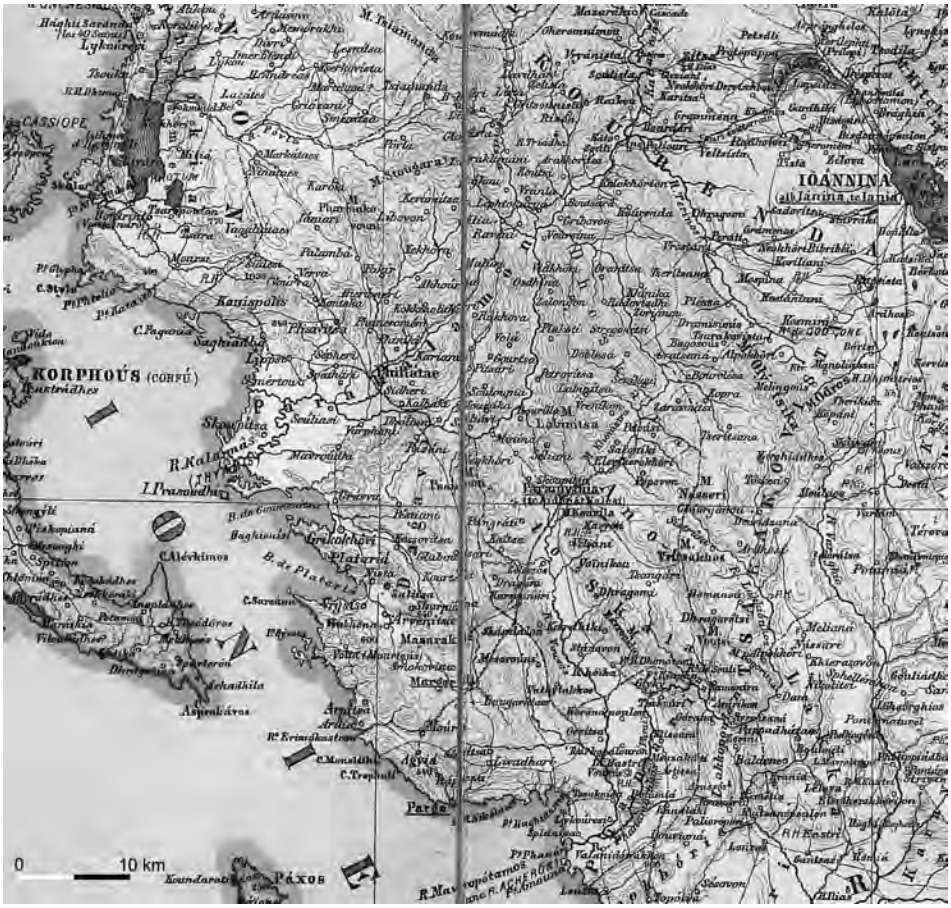

Fig. 1. *Carte de l'Épire et de la Thessalie, Die griechisch-türkischen Grenzgebiete mit Angabe der griechischen Sprachgrenze*, dressée par H. Kiepert, Berlin 1897.

[16] 367 *Numaralı*.

Toponyms were identified on the basis of nineteenth-century names, as suggested by Aravantinos in the second half of his Chronicle, and in the Ottoman statistics of 1895 published by Michalis Kokolakis.[17] The identification of some toponyms was simplified by their presentation with a double name. For instance, the village noted as Markopoulos in the 1613 census was accompanied by its Slavic name Glavitsa (*Markopulo nam-ı diğer İglaviça*),[18] which eventually dominated and was the name by which it was known in the nineteenth century. By observing the names of individuals taxed in this village as recorded in both *TT* 273 and *TT* 608, in other words in 1551 and 1613, it becomes clear that the majority of the baptismal names continue to be Duka, Miço, Leka, Kosta, Gin, Gön, Todor, Nikola, Franko, Andriya, etc. However, completely absent from the list of notables in the seventeenth century are names such as Fragopoulos, Fragoulis, Radinos, Kephalinos, Giorgopoulos, Maramenos, Kalogieras etc., which had been used by the inhabitants of this village fifty years earlier. Does, then, the dominance of the Slavic toponym Glavitsa suggest a change in the ethnic composition of the population? It would seem so, if we deem as indicators of ethnic change the developments observable in the personal names noted in the two lists.

The village of Belesi/Sevasto appears with both its names in the mid-sixteenth century and in the early seventeenth. In the nineteenth century the name Sevasto was dominant and Belesi remained in use in the other village of the same name in Aydonat. The village of Mazates/Stanovo became known as just Stanovo (modern Mandrotopos). The village of Sendeli/Lefterochori preserved its second name, Lefterochori, throughout the seventeenth century as well. In the nineteenth century, villages for which a double name (of which one was a personal name) had been previously used tended to adopt just one since changes had occurred in the political and demographic landscape, dislocating the authority of old patriarchal families with feudal ties. A typical example is that of the village known as Pantelis Seliani, which was recorded in seventeenth-century head tax registers as Seliani (modern Agia Mavra). On the other hand, it is significant that the villages of Zagori Epano and Zagori Kato are noted in two registers, as well as *TT* 747 with their qualifying names in Greek. Other items of interest are the changes undergone by the name for the village known as Agios Vlasis, which translated into Albanian was rendered as Souvliasis in the nineteenth century, to be reconverted later to present-day Agios Vlasis.[19] In all likelihood, the change in toponyms hints at a change in the ethnic composition of the village's population. The village of Kokkinolithari in the fiscal register of Arnavid dated to 1431 appears two centuries later, in 1613, translated into Turkish as Kızılkaya. There were some Muslims among the inhabitants, as can be understood from the *resm-i çift* and *resm-i bennak*,[20] which was noted in the register. Kızılkaya is also recorded in the head tax register we investigated,[21] and also in the Christophoros Philetas catalogue published by Aravantinos, but in the nineteenth century it is once again recorded as Kokkinolithari.

With regard to the large number of Slavic toponyms in Epirus, Johannes Koder has drawn the conclusion that the majority date – and in some areas exclusively – from

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[17] Aravantinos 1957; Kokolakis 2003.
[18] *TT* 608, pp. 196-197.
[19] The etymology offered by N. Karampelas is incorrect; see Karampelas 2009, 201, n. 201.
[20] Taxes assessed according to the land possessed by a rural Muslim household.
[21] *MAD* 14635; *MAD* 18242; *KK* 2663; *MAD* 1451.

the period of the Slavic invasions. Older toponyms were preserved, in his view, when Slavicization did not bring with it new forms of organization sufficiently radical to produce a new way of naming the landscape.[22]

The nahiye of Aydonat

The nahiyes took its name from the citadel of Aydonat which served as its administrative centre. Built near the ruins of the Byzantine town of Agios Donatos, the fortress was known already from the early Byzantine period[23] and controlled the pass toward the Ionian Sea. In the mid-sixteenth century the nahiye included 87 settlements with 5,411 taxpayers.[24] The overwhelming majority of the settlements also occur in the salname of 1895, listed under the kaza of Paramythia, as the nahiye of Aydonat had been renamed. But some of the villages of Aydonat are included in the nineteenth century in other administrative districts, as for example the village of Glyki inscribed in the kaza of Margariti, Malouni in the kaza of Philiates, and Stegopoli in the kaza of Argyrokastro. If we exclude the few cases of villages for which the reading of the names is uncertain (such as the village of Kontaratoi), there were in the nineteenth century no villages whose names referred to personal names, such as Xenopoulos, as had been attested in the fifteenth and sixteenth centuries. Without systematic research into all the tax registers it is not easy to understand whether these villages were deserted, or had in the meantime changed their names.

In the mid-sixteenth century, the tax-payer population in the densely populated nahiye of Aydonat was exclusively Christian. There were many villages, as is evident from the number of taxable inhabitants. The larger villages were:

Villages	Taxpayers (*neferan*)
Aydonat	538
Ozdina	331
Tsourila	317
Souli	244
Artses	217

These are followed by seven villages with more than 100 households, such as Choïka, Vrosina, Dragoumi[25] and others. Also counted were 17 settlements with more than 50 households, in other words with a population of approximately 180-200 souls. Small villages were in the minority. Aydonat and Ozdina were recorded as towns. Aydonat consisted of the following seven neigbourhoods: Paramythia (Paramişa in the Ottoman source), Agia Paraskevi, Morphi, Morphopoulos, Xenopoulos[26], Çeşme (meaning fountain). The last should no doubt be identified with the neighbourhood in which was located the fountain described by Evliya Çelebi.[27] Spyros Mouselimis mentions two

[22] Koder 1982, 13, 22 and Sariyannis 1989, 63-73.
[23] Chrysos 1997, 155, 167.
[24] *TT* 273, pp. 137-212, see Appendix Ia.
[25] Dragoumi paid taxes of 13,000 aspers to its sipahi from 1613 until 1737/38; see *Cevdet Timar* 5211.
[26] There is also a village known as Xenopoulos in *TT* 273, pp. 140-141.
[27] Evliya Çelebi 2003, 293b.

fountains in Paramythia, one known as Dourouti and the other as Kanali.[28] It is worth noting that in the mid-sixteenth century no neighbourhood in Aydonat bore the name of the mosque of Sultan Bayezid Veli to which Evliya refers in his account.[29] The neighbourhood of Paramythia owed its name to the church of the Panagia of Paramythia (known as the Paregoretria, or Comforter).[30] From the name of this 'great church' the kaza's capital later took its name, most likely in the eighteenth century, because throughout the seventeenth century the city continued to be known as Aydonat, as is shown in the head tax registers (Fig. 2).[31]

Fig. 2. Maliyeden Müdevver 15207. Record of the head tax of 856 households/hane in 81 villages of the kaza of Aydonat (22. Ca.1096 / 26.4. 1685).

Ozdina is known today as Pente Ekklesies and certainly did not acquire its new name by chance. In register *TT* 273, five of the town's neighbourhoods bear the names Sotira, Agio Nikola, Taxiarchi, Panagia, Agio Dimitri.[32] These correspond to the names of the town's churches, which were declared as *vakıfs* with incomes from agricultural produce (cereals, olives, wine etc.), for which they were taxed a flat sum each year. Their real estate was recognized and registered under the category of *vakıf* lands as long as they were not part of state land holdings, as was the rule for all conquered regions. This leads us to suggest that the churches under consideration enjoyed certain privileges from their Byzantine past which were recognized by the Ottomans, hence their assets were included in the category of *vakıf* lands. Our source also specifies that it is the first time they are recorded (*haric ez defter*), in other words, the first time they paid tax.

In Ozdina, as also in the village of Dragoumi, there were *müsellem*, that is to say, *reayas* who offered military service in exchange for tax exemption. According to a note in the register's margin, the *müsellem* of Ozdina, who served in the citadel of Riniasa (today

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[28] Mouselimis 1973, 583.

[29] Evliya Çelebi 2003, 293a and Ayverdi 1982, no 3027. A neighbourhood bearing the name of the mosque's founder, who was clearly Sultan Bayezid, appears in a register dated to 1847; see *Cevdet Dahiliye* 7842.

[30] Oikonomou 1964, 43, 90-92; Pasali 1996-97, 369-394.

[31] *KK* 2663; *MAD* 1521; *MAD* 15207; *MAD* 15205; *MAD* 6851.

[32] On the churches of Ozdina, see Soustal 1981, 219.

Riza),[33] were taxed just like other *reayas* because during the course of the census they did not produce the firman which authenticated their right to tax exemption.[34] The tax paid by the fourteen *müsellem* of Ozdina was recorded separately from those of the town's other *reayas*, as was the tax of 720 aspers paid by the five *müsellem* in Dragoumi.

The village of Sendeli/Lefterochori, which was called a *derbent*, a fortress commanding a mountain pass on the road between Aydonat and Yanya (Ioannina), enjoyed special treatment with regard to its taxation. The inhabitants paid only ten aspers *ispence* (tax of 25 aspers per non-Muslim *hane*) and gave a kile (measure equal to 20 okas) of wheat and barley as a tithe, but normally paid the exceptional taxes allocated to them. Taxes were collected by the *zeamet* İskender.[35]

In 1551, two monasteries are recorded in the nahiye of Aydonat. One is Agios Dimitrios, situated on the border of the village of Radovitzi, which paid a fixed annual sum (*ber vech-i maktu*) of a 50 aspers tithe in cereals. This was the famous monastery of Agios Dimitrios Dichounis, located between Paramythia, Kerasovo and Radovitzi, where the metropolitan of Larissa and Trikka, Dionysios Skylosophos, had once lived.[36] According to the register dated 1611 the monastery continued to pay the same amount in tax (50 aspers) even though tradition relates that the monastery was destroyed by the Ottomans on account of its involvement in the insurgency fomented by Dionysios.[37]

Also noted is the church/monastery of John the Baptist (Ioannis Prodromos) at the village of İpsareza Küçük. We were unable to identify the village in the nineteenth century. Nevertheless, a connection with the monks Nektarios and Theophanis from the Apsarada family, who built the monastery with the same dedication on the island of Ioannina and later the monastery of Barlaam at Meteora, would not come amiss. In our opinion, neither the name of the village İpsareza (best read as Apsarada), nor the presence there of a monastery dedicated to John the Baptist, should be deemed a coincidence.[38]

Finally, with regard to Doliani and Vrousina, the Ottoman registrar noted that whereas 20 to 30 years earlier the villages' inhabitants revolted and scattered into neighbouring villages, in the 1551 register the villagers were recorded by their place of origin and obliged to pay their taxes to the *sipahi* of their village.[39] Register *TT* 608 demonstrates that the villages were not deserted. Their inhabitants only left temporarily. But in later head tax registers only the village of Vrousina is recorded.[40]

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[33] Soustal 1981, 250-251.

[34] "Mezkûrlar sâbıka müsellem olup hâliya hukûk-ı şer'iyye ve rüsûm-ı örfiyesin sâir re'âya gibi edâ eylemek üzere bâb-ı Sa'âdet'den fermân olunmağın defter-i cedîdde nefs-i Özdine'de ra'iyyet kayd olundılar. Sah." (*TT* 273, p. 155).

[35] "Aydonat'dan Yanya'ya gider mahalde muhavvif yolu beklerler, tîmar erine neferden nefere onar akçe ispençe ve evlülerinden birer kile bugday ve birer kile arpa ve cürm-i cinâyet ve bâdihevâların verirler. Sâir tekâlif-i örfiyyeden mu'âf ve müsellem olmak üzere derbend hizmetin ederler. An ze'âmet-i İskender Za'îm" (*TT* 273, p. 158).

[36] Oikonomou 1964, 92 and Kamaroulias 1996, I, 618-623.

[37] "The Turks destroyed the monastery of St. Dimitrios down to its foundations, leaving only the sanctuary undamaged – and when the monks living there scattered, they [the Turks] plundered the monastery's rich estates and possessions. Rather than listing them all, I mention only that the monastery had eighteen dependencies in different villages, each with its own church." Kamaroulias 1996, I, 619-620.

[38] Tourta 1980, 66-88.

[39] "Mezkûr karye 20-30 yıldan berü âsi ve mütemerrid Ferhad zulmünden müteferrik olup hâliya vilâyet tahrir olundukda giru kadîmi yerlerine gelüp defter-i cedîd-i Hâkanîye kayd olundılar" (*TT* 273, p. 159).

[40] *KK* 2663; *MAD* 15210; *MAD* 15205; *MAD* 1351; *MAD* 6851; *MAD* 1451.

Although formally a tax register, the document preserves precious information about the conditions in the area adjacent to the northern end of the Ionian Sea during the reign of Suleyman the Magnificent. The registrar's note about the villages of Doliani and Vrousina probably alludes to the aspirations and uprisings encouraged by the patrols made by the Sacra Lega fleet commanded by the Genoese admiral Andrea Doria along the coast of Apulia and the Albanian and Epirote littoral, which concluded with the Ottoman victory over the fleet of the Christian alliance in the naval battle of Preveza (1538).[41] Their victory was attributable to the Ottoman exploitation of disagreements among the commanders of the allied Christian forces. The flimsy solidarity of the Christian powers' political aims coloured the episode and, in particular, the political antagonism between the Spanish and Venetians with regard to the Ottomans, which would continue throughout the second half of the sixteenth and into the early seventeenth century. The same problem undermined all attempts to coordinate involvements in the Greek mainland and also had negative implications for revolutionary efforts initiated by the Greeks themselves.[42]

With the Ottoman-Venetian treaty of 1540, the Venetian Republic had to pay 500 ducats for the possession of Zakynthos and was allowed to restore her sovereignty over Buthrotum and its rich fishing grounds, to consolidate her presence in plundered Parga and to fortify her other bases in the Ionian islands. But the inhabitants of Aydonat, Margariti and Parakalamo, and especially those in the coastal regions, suffered from the arbitrary acts of the Venetians and their Corfiot subjects who violated the terms of the treaty they had signed. They seized herds belonging to Ottoman subjects on the opposite shores, and lured merchants away from the harbour at Sagiada by offering lower prices if they would bring their business instead to Corfu.[43] In 1571, the Venetians formed an alliance with the other Western powers and began assaults on the region, seizing the villagers' offspring and flocks and threatening the citadel at Margariti.[44] A firman addressed to officials in the region by the sultan asks that they take measures to protect Ottoman subjects.[45] The unrest did not abate. The uprisings at Chimara and Xeromero followed the first attempted revolt led by Dionysos, metropolitan of Larissa and Trikka, who apparently anticipated Spanish aid.[46] Already from 1590 Dionysos had been in contact with the western monarchs in the hope that they would assist the struggle for liberation in western Greece. The Venetian bailo in Corfu recorded on 30 December, 1604, a meeting of Spanish envoys at the village of Choïka, where at a secret gathering two hundred Christians promised to attack Preveza if the Spanish fleet appeared.[47]

The tax register for the kaza of Aydonat begins by quoting the taxes which belonged to the sultan's landholdings. The income of 100,000 aspers from the customs-house at

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[41] Paulino Toledo Mansilla has traced the political situation and armed conflicts in the region as reported in the Ottoman chronicles; see Mansilla 2010, 139-167. On the Venetian presence in Thesprotia, see Hakkarainen 2009, 223-237.

[42] On this complex historical conjuncture in the region characterized by on-going conflicts between the Ottomans and Venetians, and the involvement of the European powers, see Floristan 1993, 73-84; Psimouli 2006, 71-75; and Dokos 2009, 65 ff.

[43] *7 Numaralı*, no. 2747.

[44] Ploumidis 2010, 241-250.

[45] *12 Mühimme Defteri*, no. 391.

[46] Chassiotis 1968, 265-276.

[47] On the organization of the uprising spearheaded by Dionysios, see Aravantinos 1957, I, 220; Mertzios 1938, 81-89; Mertzios 1940, 33; Papakonstantinou 2000 and Papakonstantinou 2004.

Sayada, recorded as Bastia, belonged to the sultan, as well as that from the salinas also at Sagiada (40,000 aspers).[48] Also accounted to the sultan were 15,000 aspers from the income of the customs-houses at the harbours of Goumenitsa, Douviana (Kryopigi) and Ragi, 7,000 aspers from oak exports from the liva of Delvine, and 20,000 aspers from the tax on pasture land in the kaza of Aydonat.[49] Finally, the sultan also received 5,000 aspers from the income of the harbours at Arila and Volia (Syvota). Taken in sum, the sultan's income from the kaza of Aydonat reached 187,000 aspers.

The fiscal registers for the villages show that cereals were the basic agricultural goods cultivated in the kaza, with viticulture and wine production ranking second.[50] Small quantities of pulses, cotton and olives were also produced. Evliya Çelebi in the late seventeenth century noted that one hundred *tulums* (skin made into a bag) of olives were sent from this region to the Topkapı Palace annually, indisputable proof of their high quality.[51] He praises their quality by saying that they are superior to olives from Koroni, Damascus and Karaburnu on the Aegean coast of Asia Minor. The peasants of Aydonat supplemented their income with bees, the cultivation of silk worms and exports of *prinokok* (kermes oak, bot. *Quercus coccifera*), a highly prized dye procured from the forested regions of the kaza. The 20,000 aspers paid in tax to the sultan on pasture land clearly suggests that their flocks were prodigious. The area is known to have supported not only local flocks, but also those of semi-nomadic shepherds, the Sarakatsani and Vlachs, who pastured their animals in the grasslands and moved on in pursuit of ever more favourable conditions for the breeding of their livestock. In the villages, swine and fowl were kept.

On the basis of tax register *TT* 608, we observe that fifty years later the population of the villages in the kaza of Aydonat had experienced a perceptible increase (approximately 25%). There were many villages (87) and their number remained the same. Aydonat and Ozdina reached as many as 750 and 432 houses, respectively. In the last decades of the seventeenth century, Evliya Çelebi estimated that there were 800 houses in Aydonat.[52] The other settlements also witnessed a spectacular increase in population. In some, Muslims from elsewhere or local converts to Islam had settled during the intervening years, if we judge by the appearance of resm-çift and resm-i bennak taxes in the 1613 register. We find these taxes recorded in the settlements of Aydonat, Glyki, Souli, Dragoumi, Pradala, Gardiki, Zotiko, Liviachova, Nimonia (?), Psareza Küçük, Stanovo and Zaravoutsi Büzürk. With regard to the last, tradition relates that its inhabitants, who took part in the uprising led by the Dionysios Skylosophos, slaughtered their Muslim neighbours.[53] And there is also a tradition that after this movement was suppressed, the population of Gardiki was forcibly converted to Islam.[54] However, register *TT* 608, dated 1613, does not corroborate this tradition, as the majority of Gardiki's population remains

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[48] On fish-farming at Sagiada, see Ploumidis 2002, 9-15.
[49] Tax on sheep was not included among those levied on the villages of the kaza, as that tax belonged to the sultan.
[50] We find similar production in the neighbouring sancak of Ioannina; see Delilbaşı 1991, 57-62.
[51] Evliya Çelebi 2003, 293a.
[52] Evliya Çelebi 2003, 293a.
[53] Papadopoulos 1974, 326-328 and Chassiotis 2002-2003, 13-27.
[54] Karkaletsis 2005.

Christian (96 *hane*, 4 *mücerred*).[55] To judge from the amount of tax (47 aspers in total) described as *resm-i çift* and *resm-i bennak*, there must have been only two or three Muslim inhabitants in the village.

Taxation of the villages in the nahiye did not, in the seventeenth century, undergo an increase similar to the population's. Whenever we do notice an increase, which is rare, it is very small. New taxes were imposed on the production of walnuts and reeds. The latter constituted an indispensable raw material for the construction and maintenance of the region's fisheries, and its usefulness caused it to be the object of taxation. The tax on walnuts, which in the past had belonged to the sultan's landholdings, was assigned in 1613 to the villages' *sipahis*.[56] Also, in addition to the tithe in must, a tax on table grapes (*resm-i sepet*) was added. The tax on fowl was increased by a significant percentage, since it was accounted together with the tax on the production of maize, which had not appeared in the previous tax register. The taxes levied at Aydonat belonged to the *has* of the beylerbey of Delvine and those at Ozdina to the *zeamet* of *kapudan Paşa* Piyale Paşa (1515-1578),[57] which had previously belonged to Sinan Paşa, who was *kapudan Paşa* in 1550-1553.[58] The sultan's income from Aydonat remained the same as it had been in the mid-sixteenth century, except that the aforementioned oak tax was assigned to the *sipahi*. The fifteen *müsellem* of Ozdina who continued to offer their services at the castle of Riza were again recorded separately from the rest of the inhabitants. They were obliged to pay tax since, as we noted earlier, they failed to produce the relevant documents to exonerate them.[59] For the same reason the *müsellem* of the Dragoumi had to pay tax, and the same amount as their fellow villagers. Lefterochori, classified as a derbent, was taxed more lightly, as it had been half a century earlier as well. The households paid ten aspers *ispence* and a *kile* of wheat and barley.

The inhabitants of Vromopigadi had become agricultural workers in other villages (*perekende*); however, the registrar noted in the register of 1613 that they were recorded according to their place of origin.[60] The village was not recorded in the nineteenth century. Its absence in later years can be linked to the information provided in *TT* 608 that the inhabitants of Vromopigadi had scattered and taken up residence in neighbouring villages by 1613, thereby providing evidence for the process of the settlement's abandonment.

Tax register *TT* 608 includes on its first page the *kanunname* of Delvine, in other words the legislation regulating the collection of taxes in the sancak. Here was specified the capacity of measure by which the tithes of grain should be reckoned. Usage continued

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55 *TT* 608, pp. 188-189.

56 "Livâ-i mezbûrda vâkı' olan palamud bundan akdem mîri içün zabt olunup havâss-ı humâyuna münâsib olmayup erbâb-ı tîmara yazılması fermân olmağın fermân-ı şerîf mûcebince her sipâhiye kendü karyesi sınurında hâsıl olan palamud kendülerine mahsûl kayd olundı" (*TT* 608, p. 143).

57 *Sicill-i Osmanî* IV, 1336. Babinger 1995, 316-317.

58 *Sicill-i Osmanî* V, 1511. Sinan paşa was the brother of Rustem paşa, who married Mihrimah sultan, the daughter of Sultan Suleyman I.

59 "Müsellemânân-ı kal'a-i Rinâse ki mütemakinân end der nefs-i özdine tâbi'-i Aydonat, zeâmet-i Piyale merhûm hazret-i Sinan Paşa. Mezkûrlar sâbıkâ müsellem olup hâliyâ hukûk-ı şer'iyye ve rüsûm-ı örfiyyelerini sâir reâyâ gibi edâ etmek üzere bâb-ı ... fermân olunmağın defter-i cedîde ra'iyyet kayd olundılar, deyü defter-i atîkde mastûr ve mukayyed olmağın defter-i cedîde dahı ra'iyyet kayd olundı" (*TT* 608, p. 165).

60 "Karye-i mezbûre ahâlisi perâkende olmuşlardır. Etrafında olan karyelerde perakende olmuşlardır. Mütemekkin oldukları karyelerde yazılmayup yine karâr-ı sâbık karyelerine kayd olundılar" (*TT* 608, pp. 173-174).

as in the old tax record, *TT* 273 (1551): a load (*yük*/*hıml*) corresponded to 6 kile of Istanbul (where 1 kile of Istanbul = 20 okas).[61] A load of wheat or a load of pulses was worth 45 aspers; and respectively, a load of barley, rye, or vetch was worth 29 aspers, and finally oats, merlin etc. were worth 19 aspers. A measure of must (*medre*) was worth 13 aspers, a litre of oil took 12 aspers, and a load of olives 36 aspers. The *hane* paid 2 aspers in garden tax (*resm-i bostan*) and 5 aspers in fodder tax (*resm-i giyah*). Some households were obliged also to pay a protection tax (*resm-i koruculuk*) of one or two *dağars* (leather skin made into a bag which was a measure of grains)[62] of wheat.

The owner of animals which had damaged property in the village paid a fine of 5 aspers per beast (*resm-i deştibâni*). In the nahiyes of Aydonat and Mazaraki, as in the sancak of Yanya, reayas with a *çift*[63] paid 4 aspers in protection tax (*resm-i koruculuk*) and for half of a *çift* (*nim çift*) 2 aspers. At harvest-time, reayas continued to give to their *sipahi* the ispence and tithe of one chicken and half a *dağar* of wheat. The final sentence of the *kanunname* notes that the oak tax ceased to belong to the sultan's holding and was assigned instead to the state. The *timar*-holders thenceforth would collect the oak tax within the boundaries of their own *timars*.

The nahiye of Parakalamo

In 1551, the nahiye of Parakalamo – as Filyat would be known in subsequent centuries – included 48 villages,[64] whereas in 1613 it had 53,[65] since the settlements of Karyani, Kızılkaya (modern Kokkinolithari), Lista, Konispoli, Rizona and Solopia were added to it. In register *TT* 608 the village of Markati is not mentioned. The villages included in the kaza of Parakalamo and located today in Albania are Verva, Giannari, Konispoli and Markati.[66] In the nineteenth century, Varphani, Benteleni, Salitsa, Dramesi and Retzati were included in the kaza of Margariti.

To judge by the number of individuals taxed, the largest settlements in demographic terms (+200 *neferan*) were: Agios Vlasis (later Souvliasi), Dramesi, Plisibitsa and Mengoulati (Mengoulates). The last should be identified with Menguli (modern Peristeri), a settlement which in the nineteenth century belonged to the kaza of Pogoni. Near Mengoulati was located the monastery known as 'Paliokastro', as we learn from a note in the register and from the tax described as *bâc-ı bazar-ı panayır-ı*

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[61] In the nineteenth and early twentieth centuries, the weight of a load in the region of Paramythia was 78 okas in mountainous areas and 88 in the plain; see Pavlidis 1962, 635-636, who attributes the difference in reckoning to the well-fed livestock in the plains, which could bear heavier burdens. The reckoning of a load for grain and pulses differed between plain and mountain simply because, as was logical, production in the plain was more efficient. Consequently, the tax paid to the state, or the part of the harvest paid to the landowner, varied accordingly. The unit of measure remained the same; only its capacity changed.

[62] The dağar was the usual measure of weight until the 1930s in the area of Paramythia. In Epirus two types of dağars were in use, each with a different capacity. The dağar of Paramythia held 100 liters or 33 okas and one litre, while the other tagari held 60 liters or 20 okas, which was more widely used. See Pavlidis 1962, 636-638. It is not coincidental that the Paramythia measure was greater, since the villages were located in the plain where production was also greater.

[63] *Çift* = land workable by a pair of oxen.

[64] *TT* 273, pp. 65-109.

[65] *TT* 608, pp. 61-116.

[66] Kokolakis 2003, 248-249.

Palyokastri, which was included in the taxes levied on the village. From this it is clear that the village hosted a commercial fair. In Epirus, the fair at Pogoniani was well-known and had been transferred there in the seventeenth century from Dipalitsa after conflicts had arisen between its patrons, the Lialatoi and Karamouratatoi.[67] We may suppose that we are dealing with the same fair. It should be noted that the tax on the fair at Mengoulati fell from 400 aspers in 1551 to 50 in 1613. Consequently, this reduction must have coincided with the period of conflicts between the Albanian clan leaders for control of the fair.

Besides the four large settlements already mentioned, there were already in the nahiye of Parakalamo in the mid-sixteenth century ten other settlements with more than 100 taxpayers. These settlements grew demographically in the early seventeenth century (Appendix IIb). Filyat, once the administrative centre of the kaza, was in these centuries a small, insignificant settlement. In 1551, the taxes of the villages of Salesi and Plisivitsa belonged to the sultan's holding, which is no surprise since their incomes were the highest in the whole nahiye, as can be seen from the taxes they paid. In 1613, the most vibrant villages both economically and demographically belonged either to the sultan's holding (such as the villages of Kotsika, Giromero, Konispoli), or to the holdings of Sinan Paşa (Istefanat, Varphani, Dramesi, Liopsi), which were later transferred to his successor, Piyale Paşa.

In 1613, the 235 tax-paying inhabitants of Sagiada did not pay tax because the entire population was forced to work in the salinas. 'In the older tax register', notes the registrar, 'only 70 inhabitants were workers in the salinas and they were exempt from all taxes except the head tax'.[68]

In the half century following the census of 1551 (*TT* 273), we may observe, in 1613, that a Muslim population appeared in 38 villages in Parakalamo. Only 15 villages of the 53 in the nahiye had an unmixed Christian population.[69] Evliya Çelebi described Liopsi as a Muslim village.[70] Let us return to the period we have been investigating to ask the following question: should the above situation be described in terms of colonization by a Muslim population or conversion to Islam by the local population? The answer to this question cannot be found through the study of tax registers. Answers to such questions are more likely to emerge from the kadi registers, which usually note conversions of Christians to Islam. But such documents have not been preserved. The published *Muhimme Defterleri* to which we have turned did not offer information relevant to this subject, but we did find exceptionally interesting material concerning revolutionary movements in villages of the Parakalamo nahiye which may help us interpret the appearance of a Muslim population. In March 1560, the inhabitants of the villages of Varphani, Agios Vlasis and Dramesi revolted. They burned houses, looted and refused to pay the head tax and all other taxes levied. The sultan ordered the arrest of the trouble-makers and their transfer to Istanbul to labour in the galleys.[71] This disobedience in the face of Ottoman authority was fuelled and supported by the Venetian presence in the region. We know, furthermore, that in the same year, 1560, it was deemed necessary to reinforce the guard

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[67] Gatsopoulos 1960, 142-147, 220-227 and Karanatsis 1994, 320.
[68] *TT* 608, p. 63 and *MAD* 18042.
[69] The fully Christian villages were Tzamanta, Keramitsa, Phaneromeni, Elya, Isbovik, Iskefarik, Kartesi, Lista, Orthopistya, Palamba, Plisiviça, Sulupi, Ulaç, Viranya and Verva, see Appendix IIa.
[70] Evliya Çelebi 2003, 2935b.
[71] *3 Numaralı*, no. 845.

at the citadel of Margariti with men from other citadels in the sancak of Yanya as they were threatened by the Venetians and their allies.[72] A few years later, in 1565 to 1566, the inhabitants of Parakalamo took up arms and refused to hand over their own offspring in the levy on children (*acemi oğlan*).[73]

Rich material concerning the situation prevailing in this area during the period between 1498 and 1673 can also be found in the Venetian archive, as can be seen in the publications of K. Mertzios.[74] The bailo of Corfu mentioned that 'some wretched Albanian women appeared before me with a heap of small children... and wept and lamented in fear lest their husbands would be forced to become Turks'. On 10 June 1562, a decree had been issued for the deportation from Corfu, on grounds of animal theft, of forty Albanians who had migrated to the island with their families from the regions of Igoumenitsa and Paramythia. These men and their families appealed to the Venetian authorities claiming that 'we wish to die in the shadow of Venice'. They accepted forced labour 'taking stones from the mountain [to build] citadels' rather than endure 'the unspeakable tyranny of the faithless conquerors'. The archival source offers certain information about the situation on the mainland, even if the protagonists in the story were condemned for criminal behaviour. Their flight itself indicates the hard times, both economic and social, that led them to abandon their homeland in search of a better fortune in Venetian territory, and it also reveals their fear of forced conversion which would await them if they returned.[75]

The close proximity of Venetian territory to the mainland coast and Ionian islands, as well as the European powers' incitement of revolutionary movements in this corner of the Ottoman Empire, created a continuous and widespread climate of unrest which made necessary the strong and constant presence of Ottoman forces both in order to protect the empire's frontiers against the Venetians and other Europeans, and to suppress uprisings of the local populations. It is natural in such critical periods for there to be changes both in settlement patterns and in the region's demographic traits: the local population's flight resulted in abandoned villages; villagers moved temporarily, or eventually permanently, to neighbouring villages that may have been safer; new people settled, and some people converted to Islam, either voluntarily or by force. In any case, the evidence in tax register *TT* 608 relating to the presence of Muslims in the villages of the kaza of Parapotamos foreshadows what would transpire elsewhere in the following centuries. For example, in the nineteenth century the villages in Philiates (as the administrative district of Parakalamo had by then been renamed) were either partly or entirely Muslim.[76]

One would expect that the armed conflicts, the attacks by the Ottoman fleet on the area and the widespread political anarchy would have led to the decimation of the population and left its mark in the tax records we are investigating. In the early seventeenth century we observe a 30% increase in the tax-paying population. It should be noted that this amount does not include the five villages which were transferred to the nahiye of Parakalamo in 1613. The considerable increase may be attributed either to settlers from other regions of the empire, or to a possible change in the way in which the census was

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[72] *3 Numaralı*, no. 462.
[73] *5 Numaralı*, no. 1197. For repercussions in the area of the levy on children carried out by Sultan Murat III (1546-1595), see Aravantinos 1957, I, 218.
[74] Mertzios 1940, 22-58.
[75] Mertzios 1940, 31-32.
[76] Kokolakis 2003a, 228.

taken – it may have included as permanent inhabitants nomadic or semi-nomadic groups who moved about the Pindos range with their flocks. The appearance of Muslims in the villages of Parakalamo cannot be attributed exclusively to newly settled Muslims who came to the region as part of the army or as fortress guards, and subsequently settled in the fertile plains which offered them opportunities to increase their fortunes. There were, of course, local people who converted to Islam, and neighbouring regions preserve examples of this phenomenon. The Venetian archive contains an interesting account of the conversion of a man who was in all likelihood a Christian *sipahi* by the name of Ahmet Proniari of Agia, who organized in June 1558 incursions against Parga undertaken with the help of other men from the same village.[77] It is worth noting that Proniaris was the name of a large family of Albanian notables and agas with a strong presence in Paramythia at the end of the eighteenth century.

We do not find an increase in taxes in the same kaza in the early seventeenth century. The total tax levied in 1551 was greater than in 1613 because it included the taxes from the five newly absorbed villages. The register of the villages of the nahiye of Parakalamo in 1613 begins by quoting the taxes owed to the sultan's holding, and in particular, the taxes from the harbour and salinas of Sagiada which corresponded, respectively, to 12,000 and 214,000 aspers. Reference was made to the duties collected by the sultan from the harbour at Sagiada by Evliya Çelebi, who also noted that products from Yanya, Trikala, Yenişehir (Larissa), Salonica and Serres were shipped from that same harbour.[78]

In addition, the sultan's holding earned tax revenues worth 104,000 aspers from the harbour at Douviani and 5,000 from that at Doxati,[79] as well as another 5,000 aspers from the harbour at Saranta (Agioi Saranta), not to mention the tax of 2,100 aspers from the five fisheries in the area. The total income from taxes owed to the sultan's holdings from the nahiye of Parakalamo reached 343,534 aspers, whereas that directed to the state was on the order of 442,534 aspers; in other words, almost half of the taxes levied in this region went to the sultan. The salinas and fisheries around the sandy coastline had provided an important income for local rulers already in the middle ages. After his conquest of Epirus, Charles Tocco controlled all the income derived from the salinas and fisheries, his brother Leandros had a share from the salinas of Lefkada, and Ioannis Presas, the administrator of Vonitsa, collected the revenues from the region's fisheries.[80] It was, then, only logical that the taxes of these industries fell to the sultan after the Ottoman conquest. The exploitation of the salinas and fisheries bears witness to significant economic activity along the Epirote coast which continued from the late medieval through the Ottoman period despite the succession of rulers.

In the nahiye of Parakalamo two monasteries are recorded:

A) The monastery of the Dormition of the Theotokos was characterized as a *vakıf*. This must be the monastery of Geromerion which still stands today on the western slopes

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[77] K. Mertzios 1940, 30-31 and Hakkarainen 2009, 227, n. 26. Psimoulis connects the surname 'Proniaris' with the Byzantine *pronoia*, the grant of a certain number of tax revenues, suggesting that the Ahmet Proniaris in question was descended from the soldier pronoiars of the Tocco family who eventually evolved into Christian *sipahis*; see Psimouli 2006, 78-79. All the residents of Agia in register *TT* 608, pp. 220-22, have Albanian names and are Christians.

[78] Evliya Çelebi 2003, 2935b.

[79] Douviani and Doxati belong to the sancak of Argyrokastro.

[80] Asonitis and Sygkellou 2010, 73-75.

of Mt. Pharmakovouni.[81] The monastery was built by the blessed Neilos Erichiotes in the early fourteenth century, was made stavropegic and later, in 1533, was recognized as a patriarchal exarchate by means of patriarchal and synodal sigillia.

The taxes levied on the monastery – 375 aspers in 1551 and 45 in 1613 – were included together with those of the village of Geromerion in the sultan's *has*.[82] In a note penned by the Ottoman registrar, we read that the monastery of Geromerion possessed the following metochia (dependencies): Martyritsa in the village of Vryselas, Saint John the Theologian near Sagiada, and another dedicated to Saint John the Theologian near Martziani, a village located today in Albania.[83] Also recorded in 1613 was the church of the Virgin at Kokkinolithari which paid an annual 90 aspers in tax.[84] This village was considered a settlement belonging to the exarchate of Geromerion.

B) The monastery known as 'Paliokastro' near the village of Mengoulates (Mengouli, modern Peristeri) was taxed at a flat rate on agricultural production: 100 aspers in 1551 and 150 in 1613. At the southwest end of the village of Peristeri is preserved the main church of the old monastery of Mengouli, dedicated to the Presentation of the Theotokos in the Temple. This is probably the same monastery as that noted in our Ottoman source. On the basis of the date inscribed on the only window in the north side of the church, the monastery preserved at Peristeri is considered to have been built in 1587 to 1588. But the fact that the monastery is mentioned in the record dated 1551 – if indeed we are speaking about the same monastery – implies that it must have been founded at least 30 or 40 years earlier than was believed on the basis of the inscription.[85]

The nahiye of Mazaraki

In 1551, the nahiye of Mazaraki, which was later renamed the nahiye of Margariti, included 38 villages, whereas in 1613 it had 35.[86] Evliya Çelebi noted that in 1670 the nahiye had 40 villages and that the region was conquered by Gedik Ahmed Paşa in the reign of Sultan Beyazit II Veli (1481-1512).[87] In 1551, the census taken (*TT* 273) of the tax-paying population recorded in a special category the *müsellem*, that is, peasants exempt from tax on account of their military service, in 20 villages in the nahiye. The record of these persons was always accompanied by a standard note of their privileged status.[88] The names of the *müsellem* are Gin, Gön, Leka, Andriya, Buya, Ilya, Bali, Bola, Giorgo and others. Without a doubt, these men were members of local Albanian tribes who continued after the Ottoman conquest to serve as supplementary military corps. They do not appear, however, in the register for 1613.

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[81] The history of the Monastery of Geromerion is examined by Evangelou 2010.

[82] "Manastır-ı Panaya der karye-i mezbure ma'a kilise-i Maric der sınur-ı karye-i Virsila ve kilise-i Teologa der sınur-ı karye-i Sayada ve bağ der sınur-ı karye-i Marcyan ve öşr-i gallât ve öşr-i zeytün ve şıra ve ipek ve [...] el-meşhur vakf-ı manastır-ı elmezbûr. Hasıl ber-vech-i maktû' fî sene 45 [akçe]" (*TT* 608, pp. 76).

[83] Oikonomou 1964, 72-73.

[84] "Kilise-i Panaya der karye-i mezbure tabi'-i Manastır-ı Panaya der karye-i Yeromer an öşr-i gallât 90 [akçe]"; see *TT* 608, pp. 92.

[85] Kamaroulias 1996, 237-240.

[86] *TT* 273, pp. 213-250; *TT* 608, pp. 215-240.

[87] Evliya Çelebi 2003, 294b.

[88] "Mezkûrûn müsellemler mâ dâme ki, istikamet üzere hizmet edeler, hukûk-ı ser'iyye ve rüsûm-ı örfiyyeden

It is also striking that Mazaraki (modern Mazarakia), the seat of the most powerful tribe of the Mazarakaioi, does not appear in the two tax registers *TT* 273 and *TT* 608, although it appeared in the registers of the head tax which we investigated and was even categorized as a town (*nefs-i Mazarak*).[89] The fact that Mazaraki is not recorded in the tax registers should not be attributed to the inhabitants' tax-exempt status since in such a case this status would be noted in the register, as we confirm in the case, for example, of Sagiada and other villages. Probably Mazaraki's tax revenues had been granted as a *timar* for officials in another kaza. We should also note the striking fact that Margariti (Margiliç) was recorded in both registers as possessing a minute population (17 households in 1551 and 20 in 1613). In 1571 its citadel was besieged and destroyed by Venetian forces and inhabitants from the Ionian islands, Parga and Paramythia.[90] P. Oikonomou notes that Venier destroyed the citadel of Margariti 'because it had become a stronghold for elements threatening the Venetian possessions. The Venetians ascribed such importance to the fall of Margariti that a painting of the occasion was commissioned for the ducal palace in Venice'.[91]

The name of the Margariti citadel is thought to refer to 'Margaritos', a pirate and emir of the Sicilian fleet, known from late twelfth-century chronicles for his involvement in the affairs of the Crusader state in Jerusalem. The Normans surrendered their territories in the Ionian Sea to him in the twelfth century.[92] According to Evliya Çelebi, the citadel of Margariti in circa 1670 enclosed 200 houses and the town outside the walls, the *varoş*, had 1,200 houses. The Ottoman traveller also mentions the highly important piece of information that the citadel of Margariti had been built by an 'infidel fisherman'. Behind the word *balıkçı* ('fisherman') lies, without a doubt, the name of the great Byzantine family, the Apsarada. Evliya also praises the figs of a settlement called Agriyomasa, which should be connected with the village of Smokovina, a toponym of Slavic origin which means 'fig village', or Sykochori, the village's modern name. Evliya celebrates this local variety of fig – it is large, five or six making an oka, thin-skinned and as sweet as honey, and he adds that one can consume three or four okas without any accompanying discomfort.[93]

We may add the following information gleaned from tax registers *TT* 273 and *TT* 603 about the villages of the nahiye:

1.Kourtesi (modern Mesovouni) was in the pass on the road between Agios Donatos and Margariti. Its inhabitants were charged with the task of safeguarding the passage of travellers and the goods they transported, and for this they received more favourable terms of taxation. They paid only 10 aspers ispence and the households paid one kile of wheat and barley as well as the *cürm-i cinâyet ve bâdiheva* taxes. They did not pay exceptional taxes.[94] In 1613 the village of Kourtesi was absorbed into the *has*

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mu'âf ve müsellem olmak üzere hükm-i şerîf irad eylemeğin defter- cedîd-i Hâkani'ye kayd olundılar. Sâh."

[89] *MAD* 14635; *MAD* 18242; *MAD* 15210;*MAD* 1451.

[90] Chassiotis 1974, 320. Now see also Hakkarainen, this volume.

[91] Oikonomou 1979, 47, ascribes the painting to Antonios Vasilakis, but in reality it was painted by Domenico Tintoretto and later copied by Pietro Bellotti as shown by Hakkarainen, this volume.

[92] Maltezou 1979, 260.

[93] Evliya Çelebi 2003, 294a.

[94] "Mezkûr karye, Aydonat'dan Margılıç kal'asına varır mahall-i mahûf yolu beklerler. Tîmar erine neferden nefere onar akçe ispençe ve evlülerinden birer kile buğday ve birer kile arpa ve cürm-i cinâyet ve bâdihevaların verirler. Tekâlif-i örfiyyeden mu'âf ve müsellem olmak üzere derbend hizmetin ederler" (see *TT* 273, pp. 220-221).

of Sinan Paşa and the 152 recorded tax-paying inhabitants paid the usual amount of 25 aspers ispence, but a very small amount on their agricultural production,[95] obviously on account of their continuous service in guarding the pass.

2. The inhabitants of the village of Nista (modern Phaskomilia) worked as miners in the salinas and, in return for this service, paid no tax other than the head tax.[96] In 1613 the village's inhabitants, who had stopped working in the mines, lost their privileged status and were inscribed in the tax register like the other *reayas*.[97]

In the nahiye of Mazaraki, compared with the other nahiyes in the sancak of Delvine, we found a smaller increase (only 5%) in the numbers of tax-payers over the 50 years between the censuses of 1551 and 1613. In the population of the villages noted in *TT* 273 (1551), we also found *müsellems*, who were not included in the number of tax-payers, precisely because they did not pay tax. We have already mentioned that this part of the population did not appear in *TT* 608 of 1613, except as the Muslim population of certain villages in the nahiye, as can be concluded from the record of the resm-i bennak and resm-i çift taxes.

Muslim inhabitants existed, in particular, in the villages of Arvenitsa, Grikohor, Koritani, Margiliç (Margarit), Nihor Kokali, Nihor Nista and Yunus. Seven of the 35 villages in Mazaraki had Muslim inhabitants, whether local converts such as Ahmet Proniaris from Agia, or foreigners. It is also worth noting that in some villages we find a large number of unmarried individuals (*mücerred*) who constitute up to approximately one half of the tax-paying population, as in the villages of Arvenitsa, Ayalar, Kondo Isari and others. The tax classification of these unmarried persons included in some villages payment of the ispence as normal households (25 aspers), while others were exempted. The different treatment leads us to surmise that some of the unmarried persons served the Ottoman state in some capacity. In any case, the high percentage of unmarried individuals is observable in certain settlements not only in the nahiye of Mazaraki, but also in the other sancaks of Delvine and was clearly associated with the loss in population from death as well as migration during the course of the various armed conflicts and popular revolts. In terms of demographics, we see in this situation the consequences of the political conflicts, as well as flight triggered by the predatory violence of Ottoman officials and Albanian converts which had intensified in the absence of centralized control.

We are informed by Venetian documents and travellers' accounts, as well as documents from the early nineteenth-century archive of Ali Paşa, that from the late eighteenth century the entire Phanari plain belonged to Hasan Ağa Tsapari of Margariti and other beys in the region, just as whole villages belonged to leaders of the strong Albanian clans which had converted to Islam.[98] The same situation prevailed in the plain of Paramythia, which was controlled by the Proniatis clan. Eighteenth-century documents in

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[95] *TT* 608, pp. 225-226: *İspençe* 3.775, *Hınta*, *hıml-2* 90, *Şa'îr, hıml-10* 290, *Öşr-i sıra, medre-10* 120, *Öşr-i keten* 35, *Resm-i giyâh* 350, *Mâkiyan ve cev* 350, *Palamud* 10, *Öşr-i bostan* 15, *Resm-i sepet* 10, *Bâdihevâ [ve] cürm-i cinâyet ve resm-i arûs ve koruculuk* 50, *YEKÛN* 5.250.

[96] "Mezkûr karye ahalisi hâliya ihdâs olan nesneye memlehası ocaklarına tuzcu ta'yin olunup her senede tuz işleyüp vaz' olunan cizyelerini edâ ettiklerinden sonra zimmetleri mukabelesinde sayir hukûk-ı şer'iyye ve rüsûm-ı örfiyyeden mu'âf ve müsellem olmak üzere defter-i cedîd; hâkanide kayd olundı. Sah." (see *TT* 273, pp. 228).

[97] "Karye-i mezbûre sâbık tuzcılar olmağın cemi'-î' hukûk ve rüsûmdan muâflar tutulup hâlâ tuzcılıkdan ferâgat etmeğin sâir reâya gibi kayd olundı" (see *TT* 608, pp. 215).

[98] Hakkarainen 2009, 228; Leake 1835, IV, 49, 50, 53-54 and *Αρχείον Αλή Πασά* 2009, 1408.

the *BOA* allow us to trace the process by which the land was privatized, a process which entailed a change in the status of the land's exploitation to the disadvantage of the agricultural population. A large number of peasants who had been free farmers became, in this process, tied to the land as share-croppers (*ortakcı*) or simple agricultural workers.

Control of the region was lost when the sipahis gradually left their timars for what were basically economic reasons. The Ottoman archival material confirms that incomes from the *timars* had remained at exactly the same levels after one and a half centuries. For example, the value of a timar (6,000 aspers), which constituted the tax revenue from the village of Tourkopalouko, remained nominally the same from 1613 to 1809. The same was the case for the timar of Nikoliç (Fig. 3).[99] The timar-holder of the village of Muzakat in the nahiye of Aydonat sought in 1739 permission to abandon his timar, ceding half of its income to the sancakbey of Delvine and the other half to his brother on the precondition that he would live in the sancak of Delvine and fight under the command of its sancakbey.[100] Clearly, the abandonment of their land by the representatives of the central authority had assumed great proportions, a fact which in 1787 forced the sultan to request from the sancakbey of Delvine the timars of all those who did not live on their timar, or did not fight with their men on behalf of the empire, as they were obliged to do. Their timars were to be given to other *sipahis* who were willing to fulfil their obligations (Fig. 4).[101]

Fig. 3. *Cevdet Timar* 6788/2. A firman sent by the sultan to the sancak of Delvine to authorize the *sened* to Yusuf veled-i Süleyman of the *timar* belonging formerly to the sons of Hüseyin in the village of Turkopalouko, worth 6,000 aspers, as well as the timar belonging formerly to the sons of Yahya, Mustafa and Ali, in the village of Nikolitsi in the nahiye of Mazaraki, worth 3,000 aspers. The previous owners refused to be inscribed in the *cebe defter* and for this reason the titles of their *timars* (*sened*) were seized. Date of the firman: 3 Muharrem 1224/ 18 February 1809.

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99 *Cevdet Timar* 6788.
100 *Cevdet Timar* 8021 and 4444.
101 *Cevdet Timar* 6977.

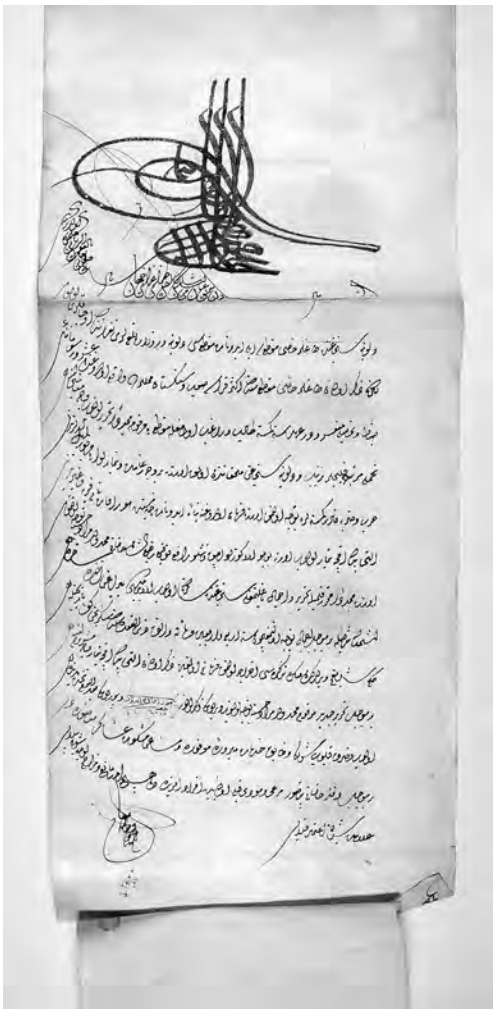

Fig. 4. *Cevdet Timar* 6977/1. The sultan authorized on 25 Muharrem 1202 (6.11.1787) by firman the possession of the *timar* of Ahmet pursuant to the request of the sancakbey of Delvine, submitted at the Sublime Porte on 11 Ramadan 1201 (27.6.1787). In his firman the sultan sets the following terms for the approval of the possession of the *timar*: firstly, the *sipahi* Ahmet must be an inhabitant of the sancak of Delvine and must engage in warfare as his services are required, and secondly, he must show an interest in and maintain his *timar*.

It would be natural to assume that the cavalries replaced their lost income directly from the producers themselves and by the arbitrary use of violence. Arbitrary tax-farming and the abuse of power at the expense of the rural population had also occurred in earlier periods. The Venetian archive provides illuminating information for the tour of Peri Mehmet Passopoulo, voivod of Paramythia, who, escorted by a strong corps of infantry, had in 1625 been plundered by the peasants 'as if he were their enemy and not their master'.[102] It is not by chance that the *kanunname* of the sancak of Delvine clearly underlines that the *sipahi* should not take more than one chicken and half a *tagari* of grain from the peasants and nothing more, when making his rounds to collect the tithe and the *ispence*,[103] thereby nipping in the bud, or even forbidding, arbitrariness in tax collection. And it seems to us no coincidence that in 1611, during the uprising led by the metropolitan of Larissa, Dionysios the Philosopher, the peasants who overran Ioannina brandishing farm tools shouted slogans against heavy taxation: '*haratzi, haratzopoulo, anazouli, anazoulopoulo*' (a play on words related to oppressive taxation: *haratzi* is the Greek form of haraç, head tax, and anazouli is the *nüzül*).[104] If the tradition conveys an accurate picture, then it is clear that the reason behind the Epirote peasant revolt was the intolerable tax burden.

In this frontier zone of the Ottoman Empire, acts of disobedience at the level of military officers and

[102] Mertzios 1940, 39-40.
[103] *TT* 608, p. 1.
[104] Papadopoulos 1974, 326-328. On the Venetian archives related to the uprising led by Dionysios, see Hakkarainen 2009, 231-232.

high administrative officials extended even to the withholding of state revenues. From a sultanic decree dated 1749 addressed to the vali of Rumeli, Ahmet Paşa, we learn that the state did not collect the head tax or the *avarız* and *nüzûl*[105] taxes, because the owner of estates in the kaza of Aydonat did not permit the reayas to pay these taxes to the state. The sultan's decree was exceedingly harsh: the vali was to ensure the collection of said taxes by threatening the landowners with the seizure of their land if they continued to obstruct the will of the central authority. The landowners were ordered to surrender to the mübaşir, who had arrived from the capital, in the presence of the *naib* (kadi's assistant) of the kaza of Aydonat, the tax revenues they had collected from their reayas.[106] There is archival evidence which also bears witness to arbitrary behaviour on the part of the highest officers, who withheld taxes belonging to the state. According to the accusation made by the sancakbey of Delvine to the Sublime Porte, Mehmet Paşa, who lived in Yanya, deferred paying the *emvâl-i miriye* taxes he collected from the landowners in both 1185 (1771-72) and 1190 (1776-77).[107]

On the other hand, the levying of local nomadic shepherds and landless peasants, as well as experienced Albanian fighters who had long served in mercenary corps to aid and assist the regular Ottoman army in guarding the citadels and frontiers, as also their use in raids on Parga and Preveza, gave power and wealth to this part of the population. Their organization into factions and clans gave them the shape of regular military corps in which, however, the role of the salaried soldier blurred and overlapped with that of the brigand. A significant number of such men eventually converted to Islam. Evliya Çelebi refers to one such instance in his writings, when the Christian Albanians from Kourbelesi who guarded the citadel at Zouliati converted en masse when Küçük Mehmet Paşa banned Christians from serving as guards in the region's citadels.[108]

Conversion to Islam and reconciliation with the conqueror simplified their incorporation into the Ottoman administration. Local converts became ağas, tax-farmers and large-scale landowners, thanks to farmers' debts as well as the exercise of violence.[109] In their accumulation of wealth and power, they often developed antagonistic relations with the Ottomans. Documents refer to the auction of 29 estates in Agios Donatos and Margariti in March, 1844, which ended up in the hands of wealthy Chams (*Çamlık hanedân*) who were already in possession of enormous land holdings.[110]

With the help of the Ottoman sources, we have followed the development of the area and population of Chamouria from the mid-fifteenth until the seventeenth century when, gradually, it passed into Ottoman domination. The settlements of the three kazas of Aydonat (Paramythia), Parakalamo (Filyat) and Mazaraki (Margariti) constituted, during this period, a dense and, by and large, highly populated network, as shown by the numbers of recorded tax-payers. The taxable inhabitants of the towns and villages recorded in the older records were exclusively Christian until the early sixteenth century when Muslims appeared in some of the settlements. The origin of these Muslims should be attributed

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[105] Avarız and nüzûl, extraordinary dues, originally collected in wartime in order to cover extraordinary needs arising for the state machine to operate under such conditions, but later collected on an annual basis.
[106] *Cevdet Maliye* 13224.
[107] *Cevdet Maliye* 15357.
[108] Evliya Çelebi 2003, 298b-299a.
[109] Psimouli 2006, 86-111.
[110] *Cevdet Maliye* 6581and 27645.

to conversions, but also to the settlement of Muslim Albanian nomadic tribes, as well as Christian nomadic tribes, because otherwise it is not possible to explain the continuation of either the region's urban density or the demographic size of the settlements, since there was at the same time a strong wave of Christian inhabitants migrating to Venetian territory.

It is nearly impossible to attain a clear understanding from the Ottoman tax registers of the ethnic and cultural groups which constituted the region's population, in other words to distinguish the Albanians, Sarakatsani and Vlachs. By studying the personal names from some settlements, such as Agia, we have confirmed that already in the early seventeenth century the population was densely Albanian. The picture which emerges from the tax registers of the fifteenth, sixteenth and seventeenth centuries complements evidence from eighteenth-century Ottoman documents, as well as material from Venetian and Greek sources. Furthermore, it also indicates the imposition of leaders from clans of Albanian converts to Islam and the process by which land was divided up into private estates, the typical land arrangement of the nineteenth century.

Appendix Ia - Demographic size and productive activities of the villages of Aydonat in *TT* 273 (1551)

No.	Name of village	Neferan	İspence	Taxes	Grains etc	Olives	Fruits	Wine	Cotton/Silk	Prinokok	Mills	Beehives	Chickens	Pigs	TOTAL	TOTAL in *TT* 273
1	Anemiça (Nemitsa, pr. Vouvopotamos)	24	600	186	1186		13		95		60	23	20	17	2200	2200
2	Arces (Narkissos)	217	5325	1612	14506	300		1200	663		30	278	212	261	24387	24387
3	Ayo Zaniko	32	800	236	394			120				10	30	10	1600	1600
4	Ayo Zaniko Büzürg ve küçük	49	1225	300	720			120				95	40		2500	2500
5	Belesi	46	1150	262	352			120	24	27		18	37	10	2000	2024
6	Belesi nam-ı diğer Sevasto	10	250	108	536				49			40	8		991	991
7	Borovar (Kyra-Panagia)	8	200	66	4530	30		24	64	20	30	10	6	26	5006	1091
8	Çurili (Kallithea)	317	7925	2390	3250	450	25	1200	350		150		260		16000	5000
9	Dolani (Geroplatanos)	19	475	152	1196	500		600	50			50	17	60	3100	5725
10	Domolesa	33	825	320	1352		56	624	280		15	53	25		3550	3550
11	Dovla	16	400	134	1616			240	55			30	14	11	2500	2500
12	Dragani (Ampelia)	116	2775	820	5172	266		480	241		30	150	85	138	10157	10157
13	Dragumi (Zervochori)	62	1550	412	1952		50	1764	108		30	81	52		5999	10247
14	Eflahohor (Vlachor, pr. Polydroso)	13	325	135	1236			300					11	17	2024	2024
15	Elesna (Artopoula)	27	675	211	2526		60	156	232		15	87	22		3984	3984
16	Gardiki	94	2350	200	3380	500		1500	300	250		25	80	81	8666	8666
17	Grajdan (Katamachi)	49	1225	364	1440			1200	195		15	50	44		4533	9136
18	Gramatiko nam-ı diğer Kukuli	60	1500	368	2960			180	202			134	51	105	5500	4532
19	Graniça	25	625	375	2296		25	600	257		30	106	23	100	4437	4437
20	Halkades	33	825	248	1512			240	18			129	28		3000	4500
21	Hoyka	128	3200	1160	20260	142		600	420		90		110		25982	25982
22	İgliki (Glyki)	23	575	1720	2140	140	39		66		30	12	20		4742	4742
23	İksenopulo	28	700	202	1424				43		90	38	24	45	2566	2566
24	İpsareza-yi Büzürg	102	2550	790	2684	450		1320	632				85	65	8576	8576
25	İpsarez-yi Küçük	91	2275	633	2830			240	23	81	30	26	78		6216	8579
26	İskandili (Skandalo)	42	1050	270	1710	310		720	140	50		70	40	40	4400	4400
27	İsterganeci (Dichouni)	15	375	117	324			156				16	12		1000	1000

No.	Name of village	Neferan	İspence	Taxes	Grains etc	Olives	Fruits	Wine	Cotton/Silk	Prinokok	Mills	Beehives	Chickens	Pigs	TOTAL	TOTAL in *TT* 273
28	Karbunar nam-ı diğer İskura	33	825	221	500	100		240	120	44		50	25	25	2150	2150
29	Karbunar nam-ı diğer Paskal	28	700	174	218	10		60	8			4	24	2	1200	1200
30	Karbunari nam-ı diğer Livikista	100	2500	757	3136			1320	180	60		67	85	95	8200	8200
31	Karyoti	80	2000	643	820			240	100	40		48	70	50	4011	4011
32	Katuna	60	1500	380	1080		100	1560	120	160	45	60	55		5060	4051
33	Kerasova (Kerasia)	74	1850	417	2240		25	1248	110		30	20	60		6000	5000
34	Kerasya														554	554
35	Kobro (Kopra, pr. Anthochori)	10	250	80	344			180	25			15	6		900	900
36	Koluça /Kukuça nâm-ı diger Pangrat Luka (Pankrati)	7	175	52	72								5		304	304
37	Kondat/Kondara (Kondra?)	30	750	155	1684	75	50	600	70	50	90	48	24		3596	300
38	Koprina (Kopra pr. Anthochori)	35	875	281	2526			156	132		15	97	32		4114	4114
39	Koristiyani (Phrosyni)	127	3175	692	2640		31	1200		100	30	29	102		7999	3400
40	Körfani / Gürkani (?)	29	750	247	1082		55	936	230		30	45	25	50	3450	3450
41	Kukuli nam-ı diğer Hotaçovo	29	725	396	3300		100	720	150		45	53	21	10	5520	8000
42	Labaniça (Elataria)	9	225	88	128		4					13	7		465	5615
43	Laliza	12	300	90	1514				40		15	12	10	19	2000	2000
44	Liboyikista (Zotiko)	79	1975	610	4176			2400	490		15	164	70		9900	9900
45	Livyahova	74	1850	450	4370		10	1224	434		45	57	60		8500	8500
46	Logat (Agora)	92	2300	534	822	30		120	30		30	10	79	20	3975	3975
47	Longos nam-ı diğer Katuna Petro Kokali	40	1000	249	720			624	27	50		36	33		2739	4000
48	Majat nam-ı diğer İstanova (Stanovo, pr. Mandrotopos)	81	2025	584	2950	170		575	200	80	30	30	69	28	6741	3000

No.	Name of village	Neferan	İspence	Taxes	Grains etc	Olives	Fruits	Wine	Cotton/Silk	Prinokok	Mills	Beehives	Chickens	Pigs	TOTAL	TOTAL in *TT* 273
49	Maji (Polydoro)	18	450	139	782			240					15		1626	6859
50	Maluni	50	1250	315	3110			1200				100	40	100	6115	1266
51	Markopoulo	96	2400	733	1580		75	2760				200	84	168	8000	6055
52	Muzakat (Mouzakeika)	82	2050	544	5056				100				74		7824	
53	Nefs-i Aydonat	538	13450	7795	10000	2454	391	4800		181	884	175	480	155	40765	7825
54	Nefs-I Ozdina (Pente Ekklisies)	331	8400	5696	7640	10392	25	4200	1011		225	466	302	46	38403	38403
55	Nehor Revani	46	1150	308	2098			1104	114		15	26	40	35	4890	4890
56	Nimonya /Timonya	27	675	244	1192	150	125				90		24		2500	2500
57	Paskal Selyani (Ag. Mavra)	125	3125	900	2868			2165		500		82	110	85	9835	38500
58	Petroviça	54	1350	382	454	60		226	41			50	47		2610	9825
59	Petusi	41	1025	284	1144			720			30	160	35	60	3458	3458
60	Popovo (Ag. Kyriaki)	90	2250	630	2610			1200		75	15	170	80		7030	7030
61	Pradala (Pardalitsa)	71	1775	504	748			816	62		15	20	60		4000	4000
62	Radoviz	56	1400	346	444		10	192	15		30	10	41	12	2500	2500
63	Rominyat (Romanos)	23	575	158	1240		30	600	68	66	15		18	50	2820	2820
64	Ropalon /Zupalyot/ Rumelyot (?)	2	50	22	36			48	9			18	2		185	185
65	Selanik (Saloniki)	25	625	216	1418			120				99	22		2500	180
66	Sendeli nam-ı diger Lefterohori (Lefterochori)	27	270	102	522										894	894
67	Sergopuli nam-ı diğer İspatarat	24	600	195	1416				20				23		2254	1020
68	Sistrun Küçük	25	625	183	704			240		128	60	40	20		2000	2000
69	Sistrun Büzürg	82	2075	537	3020	100	34		219		150	130	71		6336	6336
70	Suli	244	6100	1522	2048			660					210		10540	10540
71	Şaleşi	34	650	186	700			300	117	40		30	21		2044	10550
72	Turkopaluko (Kypseli)	59	1475	688	8892				346	200	120	250	50	25	12046	12046
73	Usteniki nam-ı diğer Pisulka	13	325	108	632				6		60	20	10	10	1171	1171
74	Valanidya	27	675	184	460			144					18		1481	2287

No.	Name of village	Neferan	İspence	Taxes	Grains etc	Olives	Fruits	Wine	Cotton/Silk	Prinokok	Mills	Beehives	Chickens	Pigs	TOTAL	TOTAL in *TT* 273
75	Varibob (Phteri)	11	275	106	720			300	88		15	50	9		1563	1563
76	Veliani (Chrysavgi)	71	1775	532	2986	102		1860	125	50	210	48	56	46	7790	8000
77	Vinuka nam-ı diğer İpsadara (Voinikou, pr. Prodromi)	38	200	127	1400			300	46			20	7		2100	2100
78	Vromopigadi	20	500	224	2100				415				13		3252	3252
79	Vrusina	120	3000	870	5276			3000	678			45	110		12979	12979
80	Zagorya	23	575	138	216	40		72			15	34	20		1110	1110
81	Zalango Epano	24	600	176	764	70	25	300	24			25	20	21	2025	2025
82	Zalango Kato	44	1100	292	2608			1320	155		15	36	35	75	5636	5636
83	Zaravuçi Büzürg (Ag. Nikolas)	28	700	203	1828		10	360	129			20	22	21	3293	3293
84	Zaravuçi Küçük (Ag. Nikolas)	11	275	114	1152			360	76			76	8	30	2091	2055
85	Zeleso (Xirolophos)	74	1850	560	6938	150		600	395		75	200	60	192	11020	11020
86	Zenisi / Renisi (?)	5	125	54	762				19		30	9	4	5	1008	1008
87	Zotiko	24	600	204	1922			660	90			30	19		3525	3525
	TOTAL	5411	133870	47412	207292	16991	1368	57974	11341	2252	3134	5028	4576	2421	494213	488426

Appendix Ib - Demographic size and productive activities of the villages of Aydonat in *TT* 608 (1613)

No.	Name of village	Neferan	İspence	Taxes	Wine	Grains	Olives	Cotton/ Silk	Fruits/ Vegetables	Mills	Prinokok/ Oaks	Beehives	Chickens	Pigs	TOTAL	TOTAL in *TT* 608
1	Anemica (Nemitsa -Vouvopotamos)	26	650	435	10	1125	31	20	43	60		5	125	15	2545	2500
2	Arces (Narkissos)	170	4250	774	220	15370	70	300	100	45	20	62	500	70	21951	24387
3	Ayo Zaniko	32	832	225	13	68		7				5	125	5	1312	1200
4	Ayo Zaniko (Büzürg ve Küçük)	81	2015	400	120	595			20	30	50	20	300	15	3565	3400
5	Belesi	28	700	112	17	74		5			15	5	100	5	1033	800
6	Belesi nam-ı diğer Sevasto	17	425	10	30	422		10	10			15	70	10	1019	1000
7	Borovar	10	250	345	1800	2515	220	66	24	45	222	27	45	10	5569	6500
8	Çurila (Kallithea)	361	9000	625	34	209	15	32	29	195		15	400	15	10930	10638
9	Dolani (Geroplatanos)	34	850	715	540	2690		150	28			45	125	45	5222	5280
10	Domolesa	45	1100	457	1324	1020		20	76	15		15	195	22	4289	4250
11	Dovla	31	775	382	382	1294	65	120	20			20	130	50	3269	3135
12	Dragani (Ampelia)	100	2481	520	324	882	540	510	30	30	55	30	410		5912	6003
13	Dragumi (Zervohori)	210	4750	1455	1991	8470	50	38	145	60		30	845	29	18073	13000
14	Eflahohor (Polydroso)	46	1125	38	160	119		11	20			5	200	18	1742	1260
15	Elesna (Artopoula)	38	950	635	268	2295		84	133	30		60	165		4658	4700
16	Gardiki	112	2650	695	936	3384	840	360	55	75	150	10	45	40	9352	9136
17	Gramatiko nam-ı diğer Kukuli	112	2800	405	310	1257		80	50	30	5	45	405	35	5534	5500
18	Graniça	32	800	295	88	1428		47	49	15		54	95		2903	2890
19	Grazdani (Katamachi)	63	1575	520	1870	2249		260	120	15		60	200	40	6972	6879
20	Halkades	37	925	300	240	1480		118	50			10	175		3335	3000
21	Hoyka	177	4275	650	650	9605	400		895	120	270	150	650	50	17892	18000
22	İgliki (Glyki)	21	499	236		1700		30	216	30		130	80		2942	4744
23	İksenopulo	29	725	300		1030		60	24	90	20	72	100	25	2475	2566
24	İpsareza-yi Büzürg	110	2675	865	880	2092	480	710	130			5	515	50	8512	9000
25	İpsareza-yi Küçük	96	2387	1160	392	2461	110		140	45	185	20	410	25	7431	7865
26	İskandal (Skandalo)	76	1900	425	735	1737	120	128	20	15	100	20	315		5591	5571
27	İsterganeci (Dichouni)	18	450	155	247	2925		10	25	45			60		3935	1800

No.	Name of village	Neferan	İspence	Taxes	Wine	Grains	Olives	Cotton/ Silk	Fruits/ Vegetables	Mills	Prinokok/ Oaks	Beehives	Chickens	Pigs	TOTAL	TOTAL in *TT* 608
28	İvronat nam-ı diğer Vranat	83	2025	740	1276	1499	4499	120	247	30	50	270	250	15	11104	10949
29	Karbunar nam-ı diğer İskura	35	350	359		1110									1854	1819
30	Karbunar nam-ı diğer Livigişta	121	3025	1460	1206	1728	840	150	160		360	70	500	18	9638	9500
31	Karbunar nam-ı diğer Mangal	29	725	280	26	245	172	30	14		57	65			1643	1676
32	Karyoti	104	2665	443	140	97	15	30	55	15	40	50	300	5	3959	3527
33	Katuna	114	2850	930	1000	2060		224	360	45	240	135	300		8258	7500
34	Kerasia der nefs-i Aydonat	4	100	40		1765		100					20		2029	2000
35	Kerasova (Kerasia)	74	1850	488	496	792		70	30	30		380	305	12	4527	4500
36	Kobro (Kobra, pr. Anthochori)	9	225	184	128	370		25	8			30	32		1011	999
37	Koluça nâm-ı diger Pangrat Luca? (Pankrati)	10	250	60	60	249		18			5	5	45		702	700
38	Kondat/Kondara?Kodra	41	1025	307	610	963	60	60	70	90	50	13	185	10	3484	3796
39	Koprina (Kopra pr. Anthochori)	36	900	450	120	2429		18	18	15		55	150		4191	4114
40	Körfani / Gürkani (?)	29	725	385	36	996		6	31	30	10	5	125	40	2418	2379
41	Koristiyani (Phrosyni)	141	3525	1233	1270	1814			91	30	300	40	550		8994	9568
42	Kukuli nam-ı diğer Hotaçovo	39	975	1030	678	4600		148	24	15			180	15	7665	7860
43	Labaniçe (Elataria)	25	655	277	164	177		60	42	30		12	100	20	1562	1500
44	Laliza	20	500	200		1631		102	48	15		14	100	5	2635	2600
45	Libovikista (Zotiko)	100	2500	786	2410	5460		590	140	15	30	225	395		12651	12622
46	Livyahova	100	2475	636	480	3000		15	29	45		20	430		7230	8500
47	Longos nam-ı diğer Katuna Petro Kokali	50	1250	115	12	59		6	17	15	10	7	100		1641	1500
48	Majat nam-ı diğer İstanovo (Stanovo, pr. Mandrotopos)	48	1200	769	2654	3262	200	165	54	30	280	30	220	23	8935	9083

No.	Name of village	Neferan	İspence	Taxes	Wine	Grains	Olives	Cotton/ Silk	Fruits/ Vegetables	Mills	Prinokok/ Oaks	Beehives	Chickens	Pigs	TOTAL	TOTAL in *TT* 608
49	Maji (Polydoro)	42	950	114	20	67		5	12	15			75	5	1305	1200
50	Maluni	90	2250	258	80	1919	13	19	10	15	25	10	200		4889	3900
51	Markopulo nam-ı diğer Glaviça (Avlotopos)	68	1700	360	2440	1930			100		60	30	300	20	7008	7000
52	Muzakat (Mouzakeika)	70	1750	407		5245		19	90		25	15	250	30	7901	7825
53	Nefs-i Aydonat	750	18800	7322	12400	5242	2000	375	750	900	200	75	3000	100	51914	50000
54	Nefs-i Ozdina (Pente Ekklisies)	432	10825	3909	2452	3410	4380	18	162	330		25	232	20	26195	21218
55	Nehor Revani	77	1925	638	1200	3890	15	570	85	60	50	9	370	90	8979	9000
56	Nimonya / Timonya	31	775	146		1279	40		55	90		5	125		2546	2500
57	Paskal Seliani (Ag. Mavra)	176	4400	1420	4210	8015		160	150	15	130	105	780		19561	19389
58	Petroviça	39	975	125	32	126	8	13	21			3	100	10	1452	1525
59	Petusi	78	1950	325	125	614		20	110	30		30	225	10	3517	3000
60	Popovo (Ag. Kyriaki)	110	2755	522	34	331			15	15	50	10	425		4267	4107
61	Pradala (Pardalitsa)	41	1012	215	298	295		22	20	15		10	155		2083	2000
62	Radoviz	60	1500	250	250	1480		19	37	30		15	150	15	3806	5380
63	Rominyat (Romanos)	37	925	255	374	1039		15	23	35	40	10	160	5	2918	2830
64	Ropalon/Zupalyot/ Rumeliyot	3	75	20	36	50	4	5	6		2	10			211	170
65	Selanik (Saloniki)	22	550	121	240	2315		52	40		15	30	90	10	3485	3400
66	Sendeli nam-ı diger Lefterohori	45	450	425		1125									2045	2000
67	Sergopuli nam-ı diğer İşpatarat	29	750	257		58		5			19	6	40	5	1169	977
68	Sestrun Büzürg	108	2700	745	250	1925	44	60	84		56	15	415		6402	6300
69	Sestrun Küçük	41	1025	200	530	945		60	100		82	600	150		3733	3200
70	Suli	238	5900	1307	1860	3279		20	120	60	50	58	905		13797	13500
71	Şaleşi	27	625	183	60	432		10	20		10	20	115	20	1495	1500
72	Turkopaluko (Kypseli)	138	3450	630		549		120	15		460	12	500	75	5949	6000
73	Ustinek/Evstinek nam-ı diğer Posolika	17	425	210		560		20	30	60		36	75	15	1448	1445

No.	Name of village	Neferan	İspence	Taxes	Wine	Grains	Olives	Cotton/ Silk	Fruits/ Vegetables	Mills	Prinokok/ Oaks	Beehives	Chickens	Pigs	TOTAL	TOTAL in *TT* 608
74	Valanidya	39	775	115	17	81		20	10			5	75	5	1142	1060
75	Varibob (Phteri)	17	425	90	367	312	16	10	7	15		5	60		1324	1260
76	Veliani (Chrysavgi)	81	2025	665	1840	3809	1380	620	160	210	150	38	315	7	11300	11400
77	Vinuka nam-ı diger İpsarat (Voiniko, pr. Prodromi)	62	1550	734	560	862	182	170	69	15		130	190	40	4564	4526
78	Vromopigadi	15	375	110		1190		180					70		1940	2000
79	Vrusina	195	4900	969	720	2647		150	40	75		36	745	31	10508	10000
80	Zagorya	26	625	415	44	980	560	66	95	15		75	115	5	3021	3000
81	Zalongo Epano	26	650	179	126	1042	280	415	170			240	100	6	3234	3325
82	Zalongo Kato	57	1425	340	128	508		10	10	15		15	240	15	2763	2600
83	Zaravuçi Büzürg (Ag. Nikolas)	45	1025	438	382	1656		184	129			36	190	20	4105	4148
84	Zaravuçi Küçük (Ag. Nikolas)	6	150	180	383	463		46	25			40	30	30	1353	2212
85	Zeleso (Xirolophos)	86	2100	1105	2148	7130	240	360	144	75		76	360	191	14015	14211
86	Zenisi/Renisi	21	525	100	24	339		5	15	15	10	5	85	10	1154	1008
87	Zotiko	31	775	385	480	1583		50	60		40	38	140		3582	3500
	TOTAL	6800	167376	50495	60457	171524	17889	9006	6879	3545	3998	4239	22624	1527	526359	515312

Appendix IIa - Demographic size and productive activities of the village of Parakalamo in *TT* 273 (1551)

No.	Name of villages	Neferan Muslims	İspence	Resm-i çift	Taxes	Grains	Beans	Olives	Wine	Fruits/ Gardens	Cotton	Honey	Mills	Animals	TOTAL	TOTAL in *TT* 273
1	Ayo Vlaş (Souvliasi, pr. Ag. Vlasis)	217	5425		1015	888	44		60	334	20				7786	7790
2	Babur (Babouri pr. Vavouri)	50	1250		255	1684			240	80	52	55	30	34	3680	3680
3	Bedeleni	37	925		180	452		20	300	56	26	65		11	2035	1975
4	Çakarliman	36	900		255	1178		272	624	58		150		95	3532	3532
5	Çamanta	88	2200		710	2340			1800	152	172	400	75	151	8000	13800
6	Çeramiça (Keramitsa)	40	1000		280	1262			120	99	160	28	15	35	2999	3000
7	Çukarat (Tsekuri)	12	300		95	1139	18	74	240	18	39	30	30	20	2003	2000
8	Dirmiça	75	1875		350	332	22		60	100	10	5		8	2762	2762
9	Dramesi	257	6425		1085	1940			60	314	30	30		25	9909	9904
10	Fanaromeni	15	375		90	968		20	60	24	30	20			1587	1587
11	Fatira (Kerasochori)	31	775		177	760			150	60	70	8			2000	2000
12	Filyat	22 4	450	72	110	1162		70	612	24	65			35	2600	2500
13	Finik	39	975		471	5078		104	120	62	100	34	15	30	6989	6989
14	Gardik	155	3875		1355	7286	88		1908	262	330	224			15328	15132
15	Gramos	19 1	450	12	760	1070		46	504	28	47	42		41	3000	3000
16	İlya (Lia)	44	1100		250	1328			480	76	150	61	15	40	3500	3500
17	İskefarik (Skefari, pr. Myloi)	17	425		150	1836				24					2435	2435
18	İstefanat	62	1550		615	4860	44	64		90	80	90	240	125	7758	7758
19	İşbovik (Sbokia)	21	525		163	1516		120	240	36	120	50		30	2800	2800
20	Kamicani (Kaminia)	15	375		110	720			240	49	60	26	15	15	1610	1610
21	Kartesi (Kurtesi, pr. Mesovouni)	8	200		171	2342		20	1188	14	20	14		35	4004	4004
22	Koşka (Kotsika)	161	4025		1009	3268			3340	294	153	81	135	99	12404	12400
23	Lopşi (Neo Asprokklisi)	161	4025		770	1810	44	300	600	204	200	76		35	8064	8000
24	Makri Todor	20	500		188	2390			912	36	300	81	15	54	4476	4476
25	Markati	60	1500		500	2794	44	150	720	96	50	11	45	89	5999	5999
26	Mengulat	239 2	5925	24	1970	8716	264	1500	4200	428	461	256	30	226	24000	24000

No.	Name of village	Neferan	Muslims	İspence	Resm-i çift	Taxes	Grains	Beans	Olives	Wine	Fruits/ Gardens	Cotton	Honey	Mills	Animals	TOTAL	TOTAL in *TT* 273
27	Mihalyani	55		1375		280	2074		157	240	76	91	60	30	100	4483	4483
28	Ortopişya (Pesiani)	86		2150		606	2192	264		480	156	152			50	6050	6000
29	Palampa	25		625		130	200		10	36	49	20	10			1080	1080
30	Piçar (Aetos)	125		2125		605	1680		65	240	218	22		45	50	5050	6000
31	Pigadulya	117		2925		615	1970		60	120	200	50	10		50	6000	6000
32	Plisivica (Plesivitsa pr. Plaisio)	233		5825		1468	6482	220		6000	504	622			149	21270	21270
33	Povla (Ambelonas)	13		325		94	854			240	22	60	25	15	15	1650	1650
34	Radostiva	30		750		205	1050		101	636	36	65	45		12	2900	2900
35	Rahova (Arachova pr. Rizo)	42		1050		260	1688		128	960	64	130	36		15	4331	4331
36	Reçat (Tropaiouchos)	34		850		345	304				40	20	30		10	1599	1579
37	Şalesi	159		3975		1050	10756		234	1024	260	431	242		50	18022	18022
38	Saliça (Lakka)	93		2325		500	1496		240	120	140	159				4980	5000
39	Sideri	81		2000		509	3876		150	420	134	200	20		41	7350	7350
40	Sipatari (Trikorypho)	140		2500		1622	3808		552	2580	550	289	295		353	12549	13450
41	Şalesi	159		3975		1050	10756		234	1024	260	431	242		50	18022	18022
42	Ulaç	30		750		175	810			360	46	63	19	15	28	2266	2177
43	Varfanovi (Varphani, pr. Parapotamos)	132		3200		800	3276	44		612	200	100	20		49	8301	8401
44	Viraniya (Brania, pr. Marina)	33		825		230	2096		111	480	52	20	56	30	9	3909	4000
45	Virsila (Vrysella)	131		3275		1274	5040		1240	1200	202	500	175		252	13158	12889
46	Virva	171		4275		1140	3054			2520	280			15	216	11500	11000
47	Yanyari	88		2200		477	1030		258	600	142	800	50	30	105	5692	5692
48	Yeromar (Giromeri)	169		4225		1300	3108		175	1812	240	133	42		135	11170	11175
	TOTAL	4047	7	98875	108	27819	126719	1096	6475	40482	6889	7103	3214	840	2972	322592	329104

Appendix IIb - Demographic size and productive activities of the villages of Parakalamo in *TT* 608 (1613)

No.	Name of village	Neferan	İspence	Resm-i çift	Taxes	Grains	Beans	Olives	Wine	Fruits / Vegetables	Cotton	Honey	Mills	Animals	Oaks	TOTAL	TOTAL in *TT* 608
1	Ayo Vlaş (Suvliasi, pr. Ag. Vlasis)	273	6700	50	770	283	45		60	240	19	52		20	10	8522	8195
2	Babur (Babouri pr. Vavouri)	84	2275	72	785	825	45		140	225	80	10	30	10		4509	4000
3	Bedelen	47	1050	22	309	283	90	20	24	60	20	8	15			1998	1800
4	Çakarlıman	51	1275		495	1307	509	100	396	88	60	100				4403	3532
5	Çamanda	103	2575		757	893	90		490	196	12	90	120			5326	5000
6	Çeramiça (Keramitsa)	63	1575	62	705	1496	45	55	1090	152	340	55	15			5591	5500
7	Çukarat	25	500	90	127	128	45	16	12	39	8	10	60			1032	1000
8	Diramesi	196	4965	52	2125	3005		1200	1692	346	545	6	15	80	19	14284	9904
9	Drimiça	39	877		200	148	22		90	30	10	15		250		1733	1400
10	Fanaromeni	39	975	36	233	1143	22	70	120	60	90	5	30			2787	2750
11	Fatiri (Kerasochori)	45	1050	64	685	994	190		258	124	216	200				3798	3800
12	Filyat	27	552	24	302	778	209	100	240	42	150					2464	2500
13	Finiki	62	1425	24	756	1865	45	432	685	180	220		15			5709	5700
14	Gardiki	232	5925		2210	5605	180		1880	510	840	60	45			17511	18499
15	Garyani (Kariani, pr. Achladia)	52	575	254	435	1084	45	20	1212	92	126	10	45			3950	4000
16	Gramos	35	775	34	844	785		100	120	135	240	48				3116	3000
17	İlya (Lia)	39	975		290	517	67		255	146	120	160	90			2659	2663
18	İsbovik (Sbokia)	37	925		1079	773	45	100	240	42	90	5				3336	3343
19	İskefarik (Skephari, pr. Myloi)	28	653		272	3200	45	160	6	34	85	36				4519	4500
20	İstefanat	77	1825	24	570	3254	90	100	144	216	140		405	600		7445	7758
21	Kamiçani (Kaminia)	25	575	28	115	389			126	80	72	40	15			1465	1500
22	Kartesi (Kourtesi ?, pr. Mesovouni)	17	425		256	427	119	50	600	30	75	20				2019	2019
23	Kızılkaya (Kokkinolithari)	593	15300	12	9116	24750		2560	13200	1072	282	430	130			67445	69100
24	Konispoli	326	8000	36	2880	13350		300	2620	722	960	100	60	1790		31144	29000
25	Koşika (Kotsika)	175	3725	346	1549	1658	135	350	2435	354	180	30	135			11072	11000
26	Lista	83	2675		1167	1310			1808	154	84	30	60			7371	7000

No.	Name of village	Neferan	İspence	Resm-i çift	Taxes	Grains	Beans	Olives	Wine	Fruits / Vegetables	Cotton	Honey	Mills	Animals	Oaks	TOTAL	TOTAL in *TT* 608
27	Lopşi (Neo Asproklissi)	167	3914	89	665	1746	90	650	485	208	140	27		26		8207	8000
28	Makri Todor	36	900		331	1860		40	1458	164	244	130	15			5178	4976
29	Mengulat	282	5775	607	2982	8360	450		3136	570	964	96	130			23352	23600
30	Mihalyani	76	1850	141	1030	1720	22	1412	660	95	480	80	30			7596	7850
31	Ortopişya (Pesiani)	104	2774		680	2250	90	260	678	207	115	100		15		7273	7300
32	Palamba	39	975		160	75		25	34	45	15	14	30	22		1434	1366
33	Piçar (Aetos)	138	3425	12	740	5505	90	600	240	227	200	120	45			11342	9904
34	Pigadul (Pigadoulia)	120	3250	167	695	836	90	250	152	164	236	20		50		6030	5000
35	Plasiviça (Plesivitsa pr. Plaisio)	178	4450		1000	3355	90	60	720	230	500			50		10633	12050
36	Povla	23	525	18	435	740		230	402	75	84	44	30			2606	3000
37	Rahova (Arachova pr. Rizo)	61	1525		710	2960		350	1574	196	240	40	60			7716	7650
38	Ravostiva	38	725	88	472	1025	45	340	38	98	242	22				3133	3097
39	Reçat (Tropaiouhos)	34	825	12	80	57		5	12	30	12	10			10	1087	1220
40	Rizona (Riziani)	205	4675	178	1682	2589			3080	296	125	40	15	200	40	12920	13300
41	Salesi	213	4150	225	2382	7780	125	2150	6010	408	440	200	30		40	24153	22356
42	Saliça (Lakka)	96	2275	78	206	36		7	17	65	6	10				2796	2690
43	Sayada	245												50		295	
44	Sideri	189	4575	18	1270	2849	45	2165	1252	385	120				10	12878	12800
45	Sipatari (Trikoryfo)	196	4775	18	3127	2990		700	1850	387	96	60				14199	14000
46	Solopi (Solopia)	21	525		359	609	64			89	99			50		1816	1500
47	Ulaç	35	875		229	560	45		128	50	120	80				2122	1912
48	Varfanovi (Varphani, pr. Parapotamos)	132	3125	78	920	2960	45		580	224	84	6		500	14	8668	8400
49	Viraniya (Brania, pr. Marina)	65	1598		1594	1285		512	270	220	540	90	15			6189	5026
50	Virsila (Vrysella)	175	4250	102	830	5340	225	1450	1370	263	240	45				14290	14000
51	Virva (Verva)	205	4853		1882	3079			3080	336	125	40	15			13615	13300
52	Yanyari	102	2375	82	252	862			255	70	124	40				4162	4590
53	Yeromer (Giromeri)	177	4425	22	929	3076		350	272	264		41				9556	9400
	TOTAL	6125	141536	3165	54674	134754	3599	17289	57696	10735	10655	2875	1700	3713	143	442534	436750

Appendix IIIa - Demographic size and productive activities of the villages of Mazaraki in *TT* 273 (1551)

No.	Name of village	Neferan	Muslims	İspence	Taxes	Grains/ Beans	Wine	Olives	Cotton	Honey	Vegetables	Chichen	Mills	Animals	TOTAL	TOTAL in *TT* 273
1	Arikla nam-ı diğer İstoyan	103	13	2575	619	1080	600			13		84		5	4976	5000
2	Arila	91	4	2750	602	1556	972					80	45		6005	6000
3	Arvenica (Argyrotopos)	76	8	1900	605	3380						65		50	6000	6000
4	Ayalar (Agia)	116		2900	725	3880	1260					100	135		9000	9000
5	Borodan ?	24		600	175	1208						17			2000	2000
6	Boyades ?	43	3	1075	351	2300	240					34			4000	4000
7	Dragani-i Büzürk	51	2	1275	331	1432						40			3078	3078
8	Dragani-i Küçük	39	3	975	354	1688	1260	297	209	100		34		82	4999	4999
9	Dubre ?	110	5	2750	735	420	408			12		100			4425	4500
10	Duka Varkari	27		675	248	3064						21			4008	4000
11	Fraglina ?	9		225	100	1440	228					7			2000	2000
12	Glopoçar (Globotsari, pr. Makrochora)	20		500	132	720	120					18			1490	1500
13	Gorone (Koroni)	40		1000	288	1440	240					32			3000	3000
14	İsmokovina (Smokovina, pr. Sykochori)	43	4	1075	365	2792	240					38			4510	4500
15	Kayiça	20		500	188	2996						16			3700	3700
16	Koleste (Kolestati)	22		550	234	968	240	79				18			2010	2000
17	Kondo İşari	60	5	1500	404	2244	300					52			4500	4500
18	Koritani (Koritiani)	85		2125	714	704	252					76		50	4000	4000
19	Krosoviça (Kosovitsa, pr. Ag. Marina)	55	1	1375	387	2188	504								4454	4500
20	Kuçi (Polyneri)	35	8	875	349	3248						59			4531	4500
21	Kurtes (Mesovouni)	117	6	1170	166	2664									4000	4000
22	Livadar	32		800	268	1636	600			130		28		38	3500	3500
23	Margliç (Margariti)	17		425	129	432						14			1000	1000
24	Morfi (Morfati pr. Morfi)	5		125	59	1312						4			1500	1500
25	Nihor Fenar	7		171	70	1580						6		50	1877	1831

No.	Name of village	Neferan	Muslims	İspence	Taxes	Grains/ Beans	Wine	Olives	Cotton	Honey	Vegetables	Chichen	Mills	Animals	TOTAL	TOTAL in *TT* 273
26	Nihor Kokali	79		1975	575	1870						70			4490	5500
27	Nihor Nista (Faskomilia)	24														
28	Nikoliç	74	3	1850	445	1184	24					64			3567	3567
29	Niloç [Miloç]	13		325	126	1528						11		10	2000	2000
30	Paje / Bezere?	48		1200	308	808	144					40			2500	2500
31	Peştani (Kryovrysi)	50	2	1250	374	3632	1440		100	36	28	30	60	50	7000	7000
32	Rahoyana (Vrahona?)	137	8	3425	861	1124						108			5518	5500
33	Seniça (Eleftherio)	98		2450	647	2020	60					88	15		5280	6000
34	Simonaçya ?	57	2	1425	341	1164						45			2975	3000
35	Vola (Viola, pr. Syvota)	87	3	2175	533	1220						72			4000	4000
36	Yunus (Giounousa, pr. Acherousia)	40	7	1000	304	1002	660					34			3000	3000
37	Zeferi (Skephari-Myloi)	80		1975	569	2740	600					74			5958	6000
38	Zir	43	1	1075	433	1384	840			150		38		80	4000	4000
	TOTAL	2077	88	50016	14114	66048	11232	376	309	441	28	1617	255	415	144851	146675

Appendix IIIb - Demographic size and productive activities of the villages of Mazaraki in *TT* 608 (1613)

No.	Name of village	Neferan	İspence	Taxes	Grains/ Beans	Vegetables/ Fruits	Wine	Mılls	Olives	Cotton	Oaks/ Prinokok	Honey	Chickens	Pıgs	TOTAL	TOTAL in *TT* 608
1	Arikla	150	3700	769	404		40				20	40	705	50	5728	6000
2	Arila	65	1625	535	498	8	738	75		30	95	10		8	3622	3500
3	Arveziça (Arvenitsa, pr. Argyrotopos)	85	2114	435	3250	90	5400	15		24	1070	18	250	150	12816	12957
4	Ayalar (Agia)	116	2900		1030		120	375		10	10				4445	5000
5	Boyades (?)	51	1275	306	752	36	920			66	100	20	200	22	3697	3000
6	Dragani-i Bozörk	67	1475	430	1518	24	92		15	15	16	14	250	85	3934	3000
7	Dragani-i Küçük	64	1600	325	498	10	82		20	105	80	60	305	30	3115	3000
8	Dubre (?)	90	250	650	12140	800	5440			100	270	70		20	19740	25500
9	Duka Varkari	42	1075	170	125	21	20	15	6		5	6	100	5	1548	1416
10	Glopoçar (Globotsari, pr. Makrochora)	30	750	160	335	15	124		12	66	57	60	110	15	1704	1712
11	Gorone (Koroni)	35	875	420	850	10	250			50	70	60		15	2600	2304
12	Grikohor	63	1587	704	3800	84	2520				100		250	25	9070	9000
13	İsmokovina (Smokovina, pr. Sykochori)	40	1000	635	1509	20	366			160	50	30	185	40	3995	4000
14	Kayiça	30	700	504	2150	24	136		95	98	32	90	135	30	3994	3700
15	Kolesta (Kolestati)	25	625	331	119	20	30			24	100	34	120	10	1413	1500
16	Kondo İsari	62	1550	715	2605	62	598	40	15	280		7	200	42	6114	6000
17	Koritani (Koritiani)	112	2616	965	1158		726		90	156	20	9	365	20	6125	6000
18	Krosoviça (Kosovitsa pr. Ag. Marina)	39	975	346	1520	28	118	15		30	56	31	170	28	3317	2000
19	Kuçi (Polyneri)	110	2416	115	36	5	14			5	10	5	100	5	2711	2534
20	Kurtes (Mesovouni)	152	3775		380	15	130			35	10		350		4695	5250
21	Livadar	27	675	210	425	6	70			20	20	5		5	1436	1351
22	Marglic (Margariti)	20	487	60	89	80	128		100	20	20			10	994	1000
23	Miloç	17	425	85	94		12			5	5	5	35	5	671	510
24	Morfi (Morfati pr. Morfi)	5	125	90	235					10	14	10		10	494	571
25	Nihor Kokali	94	2275	640	2039	90	786			120	30	170	360	86	6596	6000
26	Nihor Nista (Phaskomilia)	32	750	200	1590	40				90	200	15	150	25	3060	3129

No.	Name of village	Neferan	İspence	Taxes	Grains/ Beans	Vegetables/ Fruits	Wine	Mılls	Olives	Cotton	Oaks/ Prinokok	Honey	Chickens	Pıgs	TOTAL	TOTAL in *TT* 608
27	Nikoliç	86	2150	275	227	10	77		11	15	30	10	250	11	3066	3000
28	Paje [Beze]	51	1225	288	80	38	36		120	64	50	15	175	11	2102	2000
29	Pestani (Kryovrysi)	65	1625	166	36	5	17					5	150	5	2009	20000
30	Rakoyana (Vrachona)	91	2275	500	878	6	136			21	50			7	3873	3898
31	Seniça (Eleftherio)	129	3200	1197	1770	64	7200	30		25	30	30	500	200	14246	17500
32	Simonaçya (?)	68	1700	250	119	10	12	15		10	15	10	200	10	2351	2298
33	Vola (Syvota)	60	1675	50	55	143	68	90	80	12	10	10		5	2198	2206
34	Yunus (Giounousa, pr. Acherousia)	58	1437	470	1350	20	1368			120	106	37	270	30	5208	5000
35	Zir	46	1136	488	1190		252			16	10	100		7	3199	3276
	TOTAL	2277	54043	13484	44854	1784		670	564	1802	2761	986	5885	1027	155886	179112

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