

PAPERS AND MONOGRAPHS OF THE FINNISH INSTITUTE AT ATHENS VOL. XV

# THESPROTIA EXPEDITION I TOWARDS A REGIONAL HISTORY



Edited by Björn Forsén

PAPERS AND MONOGRAPHS OF THE FINNISH INSTITUTE AT ATHENS VOL. XV

THE SPOTIA EXPEDITION I  
TOWARDS A REGIONAL HISTORY

edited  
by Björn Forsén

HELSINKI 2009

© Suomen Ateenan-Instituutin säätiö (Foundation of the Finnish Institute at Athens),  
Helsinki 2009

ISSN 1237-2684  
ISBN 978-952-67211-0-1

Printed in Finland by Ekenäs Tryckeri.

Cover: The Early Hellenistic fortress Agios Donatos of Zervochori seen from the south.  
Photo: Esko Tikkala.

Layout: Vesa Vahtikari

## Contents

Preface		i
Björn Forsén	<i>An Interdisciplinary Odyssey into the Past</i>	1
Evangelos Tourloukis Ourania Palli	<i>The First Mesolithic Site of Thesprotia</i>	25
Antonia Tzortzatou Lila Fatsiou	<i>New Early Iron Age and Archaic Sites in Thesprotia</i>	39
Jeannette Forsén	<i>The 'Dark Age' in the Kokytos Valley – Not So Dark After All</i>	55
Mika Lavento Maria Lahtinen	<i>Geo-archaeological Investigations at Mavromandilia of Prodromi</i>	73
Irini Svana	<i>The Rural Sanctuary at Kyra Panagia</i>	89
Peter Funke	<i>Concilio Epirotarum habitato – Überlegungen zum Problem von Polyzentrismus und Zentralorten im antiken Epirus</i>	97
Γιάννης Πίκουλας	<i>Αναζητώντας αμαξιτούς οδούς στη Θεσπρωτία</i>	113
Mikko Suha	<i>The Fortification Walls of Agios Donatos</i>	119
Esko Tikkala	<i>The Frieze-Epistyle Blocks of Agios Donatos</i>	133
Markku Niskanen	<i>A Shift in Animal Species Used for Food from the Early Iron Age to the Roman Period</i>	145
Janne P. Ikäheimo	<i>Stamped Terra Sigillata from Agios Donatos</i>	155
William Bowden	<i>Thesprotia in the Context of Roman and Late Antique Epirus</i>	167
Erkki Sironen	<i>Some Notes on Inscriptions of Roman Date from Thesprotia</i>	185
Νίκη Βασιλικού	<i>Παλαιοχριστιανική βασιλική στην Κρυσταλλοπηγή Παραμυθιάς</i>	197
Asterios Aidonis Anestis Emmanouil	<i>The People of Doliani: An Approach to the Paleodemography of the Late Byzantine Cemetery</i>	207
Mika Hakkarainen	<i>Venetian Presence in Thesprotia</i>	223
Timo Sironen	<i>An Ottoman Sepulchral Stele from Paramythia</i>	239
Evangelia Balta Fehmi Yilmaz Filiz Yaşar	<i>Tsamouria – Nineteenth Century Ottoman Thesprotia</i>	245
List of Contributors		275



## Preface

This volume originates in the Thesprotian colloquium that was organised in June 2006 in Athens by the Finnish Institute at Athens and the 8th Ephorate for Prehistoric and Classical Antiquities. As several of the papers given at the colloquium already have been published elsewhere, this volume includes less than half of the original papers. Instead new chapters written by members of the Thesprotia Expedition or by other colleagues working in the region have been added. The aim has been to produce a book that will give a general picture of some of the newest results concerning the past of Thesprotia in northwestern Greece, with a special emphasis given to the results of the first three years of the Thesprotia Expedition.

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 supervision of the 32nd (formerly 8th) 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, 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 Marjaana Vesterinen at the Finnish Institute.

While planning the Thesprotia Expedition I received much support and encouragement from Leena Pietilä-Castrén, at that time director of the Finnish Institute at Athens. I am most grateful to her for this, as well as to all those who during my term as her successor were engaged in working for the Thesprotia Expedition as part of their positions at the institute. Here I especially want to emphasise my two consecutive assistant directors, Esko Tikkala and Vesa Vahtikari, as well as the CIMO trainees Tiina Piironen, Mikko Suha, Tommi Turmo and Anna Patteri for their genuine enthusiasm and constant willingness to help in what must have seemed like an endless task.

The archaeological field work of the Thesprotia Expedition would not have been possible were it not for the expertise of my wife Jeannette Forsén, who apart from functioning as assistant director singlehandedly sorted out all the collected finds. I also want to express my thanks to Evangelia Balta, who agreed to join the project and created the much needed contact with the Istanbul archives, as well as to Jon van Leuven, who patiently read through the manuscript paying special attention to the English language. Finally I want to thank the anonymous readers who commented on the different chapters in the book, as well as the following colleagues whose interest in the Thesprotia Expedition was an important incentive for all of us: William Bowden, Jack Davis, Søren Dietz, Angelika Douzougli, Mogens Herman Hansen, Anna Philippa-Touchais, Curtis Runnels, Giovanni Salmeri, Gilles Touchais, Ken Wardle, Geert Jan van Wijngaarden, James Wiseman and Konstantinos Zachos.

Between 2004 and 2006 the following colleagues and students took part in the project in one way or another: Evangelia Balta (2005-2006), Yannis Bassiakos (2004), Euthymios Dokos (2004), Konstantinos Dokos (2006), Vasiliki Eleutheriou (2005), Björn Forsén (2004-2006), Jeannette Forsén (2004-2006), Maria Gourdouba (2004), Barbara

Greiner (2006), Mika Hakkarainen (2004-2006), Nina Heiska (2004-2006), Anniina Hopeala (2006), Janne Ikäheimo (2005-2006), Paula Kouki (2004-2005), Maria Lahtinen (2006), Mika Lavento (2004-2006), Jeanette Lindblom (2005), Jukka Moisanen (2004), Markku Niskanen (2006), Mustafa Oğuz (2006), Jari Okkonen (2005-2006), Tuula Okkonen (2005-2006), Aleksi Okkonen (2005-2006), Ourania Palli (2005-2006), Antonis Papardukakis (2004-2005), Anna Patteri (2006), Petros Petsios (2005-2006), Yanis Pikoulas (2005), Tiina Piironen (2005), Sarianna Silvonen (2004-2006), Erkki Sironen (2005-2006), Tatyana Smekalova (2006), Mikko Suha (2004-2006), Nicolas Teyssandier (2004), Thanasis Themelis (2005), Esko Tikkala (2004-2006), Evangelos Tourloukis (2005), Thanasis Tsiproftis (2006), Tommi Turmo (2006), Rauno Vaara (2005), Nikolaos Zacharias (2004), Tiina Äikäs (2006).

A project like the Thesprotia Expedition cannot be undertaken without local support, and I gratefully acknowledge all the help, advice and support we have received – especially from Vasilis Lolos (†), previous mayor of Paramythia, from Georgios Riginos, who also after leaving his position as chief archaeologist in Thesprotia keeps returning to Elea and the Kokytos river basin, and finally from Ourania Palli, Petros Petsios, Eleni Nikolaou and Stavros Banakos, who all worked with us in field at different stages. 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 nearly adopted part of my family and made the village of Chrysaugi stand out as a second home for many of us.

The main funding for the Thesprotia Expedition during the years 2004 to 2006 was received from the Kone Foundation, a position that since 2007 has been taken over by the Academy of Finland. I owe many thanks to them as well as to all other foundations that have offered financial support to the project between 2004 and 2006: the Finnish Institute at Athens (2004-2006), Finnish Cultural Foundation (2004), Institute for Aegean Prehistory (2005-2006), Niilo Helander Foundation (2005), University of Helsinki (2005), SanomaWSOY (2006), Oulu University Scholarship Foundation (2006) and Oscar Öflund Foundation (2006). I am especially grateful for Rafaela Seppälä's help in obtaining support from SanomaWSOY, which carried the costs of the Thesprotian colloquium and the printing of this book.

This first volume of the Thesprotia Expedition is dedicated to Agios Donatos, protector and patron of all those trying to balance on rolling stones.

Björn Forsén

Helsinki, 10 December 2008

# An Interdisciplinary Odyssey into the Past

Björn Forsén

The Thesprotia Expedition is an interdisciplinary project combining archaeology, history and geology with the aim of writing the diachronic history of the Kokytos river basin in Thesprotia from prehistoric to modern times.<sup>1</sup> The Kokytos river basin stretches from the modern town of Paramythia and the Roman *colonia* Photike in the north, southwards for some 20 km until it reaches the Acheron river, not far from where Odysseus stopped in order to ask the Nekyomanteion (the Oracle of the Dead) for advice how to find his way back to Ithaca (Homer, *Il.* 10.506-520; 11.14-22). The dramatic Paramythia mountain range, rising to a height well over 1000 masl (highest point 1658 masl), demarcates the Kokytos river basin in the east from the Souli valley, whereas a series of lower hills separates it in the west from the valley of Margarithi and Parga. In the north the Kokytos valley is connected via Neochori to the Kalamas river, the region's second largest river after the Acheron (Fig. 1).

The Kokytos river basin, which in a sense is located at the very heart of Thesprotia, has always been of strategic importance. Firstly it is next to the Kalamas river basin, one of the region's most fertile areas. Secondly, one of the main roads leading from the south to the north has throughout history followed the course of the Kokytos river. In addition, some of the main routes leading from the sea towards Dodona and Ioannina further inland also pass through the Kokytos river basin (with Photike/Paramythia located at the very crossing-point of the routes leading from south to north and from west to east).

While planning the project back in 2003 it was clear that the Kokytos river basin was far too large to be covered by an intensive field survey. It was also obvious that the lush vegetation would pose problems for such a survey. The western lower slopes of the Paramythia range with several rich water sources, for instance, are totally overgrown by an impenetrable forest which makes any kind of field survey impossible. The visibility in the valley bottom again varies a lot; in cultivated fields, intensive field surveying can produce good results after ploughing, whereas other parts left fallow reveal absolutely nothing.

Intensive field surveys need to be based on and to take into account the archaeological work previously done in the region. This created quite a challenge for our conduct of an intensive survey in the Kokytos basin. At the same time as large parts of Thesprotian history remained poorly understood in 2003, the valley had changed dramatically during the 1990s as a result of agricultural improvements sponsored by the European Union (including building an irrigation system and creating larger fields through bulldozing). Due to these activities, large numbers of archaeological sites had been found and partly destroyed. However, thanks to the vigilant work of the local Greek archaeological authorities, rescue excavations had been conducted at several of the sites.

---

<sup>1</sup> I owe thanks to Jeannette Forsén, Jon van Leuven and Giovanni Salmeri for commenting on the contents and language of this chapter. All figures were made by Esko Tikkala, and Figs. 4-5 in collaboration with Tatyana Smekalova, who supplied the magnetometer data.



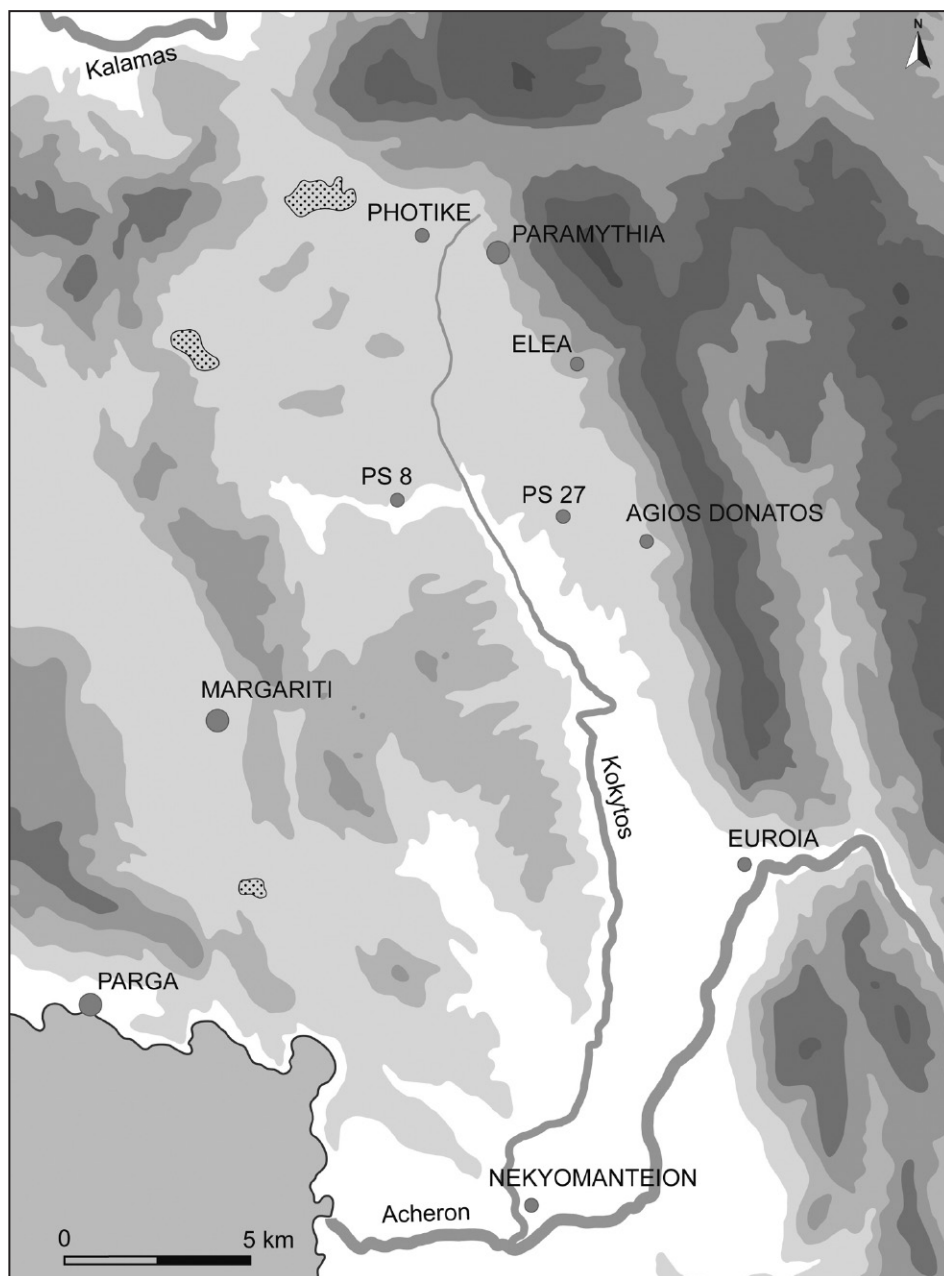


Fig. 1. General map of the Kokytos river basin, including some of the sites mentioned in the text as well as the three lakes of Chotkova, Prontani and Morphi (from north to south).

Any attempt at writing the diachronic history of the Kokytos river basin thus clearly had to take into account the results of these mostly unpublished rescue excavations.

With all these factors in mind the Thesprotia Expedition was designed as a larger umbrella project, in which everyone working in the region would be invited to take part.

The purpose of the project is to produce two or three volumes with contributions not only from our own team members but also from other colleagues, especially from the Greek Archaeological Service. Our own work was planned to encompass, apart from an intensive archaeological and geological survey in part of the Kokytos river basin (due southwest of the acropolis of Elea and roughly between the villages Daphnoula, Zervochori and Agora in the east and Sevasto, Xirolophos and Skandalo in the west), also small-scale 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 survey area. Efforts have also been put into re-studying inscriptions from Photike and collecting archival sources concerning Thesprotia in general in Istanbul and Venice.

## Previous research and specific research aims

Landscape archaeology conducted in the form of intensive field surveys has developed into one of the most important research methods for regional history in the Mediterranean. One of the reasons for the popularity of the method is the fact that landscape archaeology enables us to assess the Braudelian *longue durée* developments. From the very beginning, intensive field surveys have been carried out in collaboration with natural sciences (geoarchaeology, palynology, etc.) and anthropology (e.g. phenomenology) in order to create a picture of the relationship between human beings and the environment. Historical sources, too, have always played an important role in such projects.<sup>2</sup>

Intensive field survey projects generally have a diachronic approach, although some of the earlier projects did not include the periods later than the Byzantine. Recent projects, however, include the history of the study areas until the advent of the modern era. Thereby, the use of Venetian and Ottoman archival sources has developed into an important facet of the projects, which at the same time have, in a sense, been transformed into regional history projects aiming at writing an ideal *histoire totale* on the basis of an increasingly sophisticated interdisciplinary approach. As examples of two recent projects of this type, where the use of historical sources has played an especially important role, one could mention the *Asea Valley Survey*<sup>3</sup> and the *Pylos Regional Archaeological Project*.<sup>4</sup>

During the last few years an increasing emphasis has been put on comparing the diachronic settlement patterns of different regions in the Mediterranean.<sup>5</sup> Only in this way can we establish any regional differences in the development that may help us to understand the economic, social and political history of the Eastern Mediterranean. Therefore it is of great importance that we also collect similar sets of data from the more peripheral regions. Much less archaeological research has been conducted in northwestern Greece, i.e. Epirus, than in the rest of Greece. Thus, the Thesprotia Expedition is only the

---

<sup>2</sup> Among the plethora of intensive field survey final reports may e.g. be mentioned the Southern Argolid survey (e.g. Jameson, Runnels and van Andel 1994), the Keos survey (Cherry, Davis and Mantzourani 1991), the Methana survey (Mee and Forbes 1997), the Laconia survey (e.g. Cavanagh *et al.* 2002), the Asea Valley Survey (Forsén and Forsén 2003) and most recently also the Boeotia survey (Bintliff, Howard and Snodgrass 2007).

<sup>3</sup> Forsén and Forsén 2003.

<sup>4</sup> The Pylos project has been published in a series of articles in *Hesperia* (for references to these and the project in general, see <http://river.blg.uc.edu/prap/PRAP.html>) as well as in Zarinebaf, Bennet and Davis 2005, and in Davis 1998.

<sup>5</sup> See e.g. S.E. Alcock and J.F. Cherry 2004; Bintliff and Sbonias 1999 with further references.

second intensive field survey project to take place in Epirus (the first being the Nikopolis project carried out from 1991 to 1996, the focus of which ended after the Byzantine period).<sup>6</sup> However, there are some similar projects of importance in Albania, such as the Butrint project<sup>7</sup> and the Mallakastra Regional Archaeological Project.<sup>8</sup>

The classical overviews of Thesprotian and Epirote antiquity were written by Dakaris and Hammond more than 30 years ago.<sup>9</sup> Another more recent and useful general survey of Epirote history, published by Sakellariou, stretches all the way until modern times.<sup>10</sup> Apart from these overviews there are particular studies of different aspects of the Epirote past, such as the prehistoric periods,<sup>11</sup> Hellenistic history or coinage,<sup>12</sup> Late Roman history,<sup>13</sup> Medieval history,<sup>14</sup> Early Modern to Modern history,<sup>15</sup> and even geological history.<sup>16</sup> Very useful for new archaeological and historical information on Thesprotia/Epirus are finally e.g. the conference series *L'Illyrie méridionale et l'Épire dans l'Antiquité*<sup>17</sup> and the local periodical *Epeirotika Chronika*.<sup>18</sup>

In the Kokytos river basin itself, the research since the publication of Dakaris' seminal opus in 1971 has mainly focused on the Late Classical through Hellenistic acropolis of Elea, although work also has been done e.g. in the Roman *colonia* Photike. Agricultural improvement works during the last 20 years have also led to a large number of rescue excavations at different places in the valley. Reports on these excavations are regularly published in the journals *Archaiologikon Deltion* and *Epeirotika Chronika*. Apart from such mainly annual reports there have appeared a handful of other important publications, such as Choremis' article on the remarkable fourth-century BC tomb in Prodromi,<sup>19</sup> some articles on sites found on the valley bottom,<sup>20</sup> a couple of overviews on Photike<sup>21</sup> and most recently a guide book on Elea and its surroundings by Riginos and Lazari.<sup>22</sup> There are also some recent works of local history dealing with the valley.<sup>23</sup>

---

<sup>6</sup> Only the first volume of the final report, concerning the Palaeolithic and Mesolithic periods, has been published to date: Wiseman and Zachos 2003. For the later periods see also the doctoral dissertations by Tartaron 2004 (Bronze Age) and Moore 2000 (Hellenistic through Late Roman pottery).

<sup>7</sup> E.g. Hodges, Bowden and Lako 2005.

<sup>8</sup> For further information see the project's home page at <http://river.blg.uc.edu/mrap/MRAP.html>.

<sup>9</sup> Dakaris 1972; Hammond 1967. Cf. also Mouselimis 1980, a work by a teacher in Paramythia that contains some information not included in Dakaris 1972 and Hammond 1967.

<sup>10</sup> Sakellariou 1997.

<sup>11</sup> Papagianni 2000; Souaref 2001.

<sup>12</sup> Cabanes 1976 and Franke 1961.

<sup>13</sup> Bowden 2003.

<sup>14</sup> Nicol 1984; Soustal 1981.

<sup>15</sup> Among the most recent ones are Psimouli 1998 and Kokolakis 2003.

<sup>16</sup> Philippson 1956.

<sup>17</sup> So far four volumes have been published: Cabanes 1987; Cabanes 1993; Cabanes 1999 and Cabanes and Lambole 2004.

<sup>18</sup> Especially useful is volume 40 (2006) of *EpChr*, including a whole series of papers on the past of Thesprotia.

<sup>19</sup> Choremis 1980.

<sup>20</sup> Riginos 1996; Riginos 2004; Svana 2004.

<sup>21</sup> Hatzopoulos 1980; Mouselimis 1994; Samsaris 1994. See also the important article by Swaddling 1979 on the famous Paramythia bronze hoard that now with certainty can be dated to the early second century AD.

<sup>22</sup> Riginos and Lazari 2007.

<sup>23</sup> E.g. Krapsitis 1991; Mouselimis 1997 and Bikas 1997.

The Thesprotia Expedition follows the general trend in the field, aiming at collecting all available information for part of the Kokytos river basin until the region became part of modern Greece in 1913, including historical sources for the Medieval and Early Modern periods. More specifically the project aims at answering the following questions.

1. How are we to explain the extremely rich finds of Middle and Upper Palaeolithic finds in Thesprotia and Epirus in general and the subsequent, surprisingly poor, evidence for occupation during the Neolithic period and the Bronze Age? Did the shift from hunting/gathering groups to agricultural societies follow a different path here than in the rest of Greece, where we generally have few Palaeolithic finds but very rich Neolithic and Bronze Age remains? Or is this difference due to environmental changes in Epirus?

2. How should we explain the apparent existence of “Dark Ages”, or periods with no finds in Thesprotia? The Mesolithic period, parts of the Neolithic period, the Early Iron Age, the Archaic through Early Classical period, and the Early Medieval period (seventh to eighth centuries AD) are the most obvious lacunae. Was the territory depleted of population at those times, or is the lack of finds due only to the lack of research in the area? Can we gain new insights into the dating of prehistoric pottery of northwestern Greece?

3. In what way can the contacts of the indigenous inhabitants with the first Greek colonies that were founded on Corfu and along the Thesprotian coast in the late eighth and the seventh centuries BC be documented? How did these contacts influence the development of major sanctuaries and *poleis* in Thesprotia and its closest environment? Which kinds of relationships did the Thesprotian tribe and, later on in the Classical period, the *poleis* of Thesprotia have to the major sanctuaries of Dodona and the Nekyomanteion?

4. What impact did the development of political leagues during the Late Classical and Early Hellenistic period have on regional settlement patterns? To what extent do isolated farmsteads occur in Thesprotia at this time compared to elsewhere in Greece?

5. Which effects did the spread of Roman control have on the area? What were the immediate effects of the infamous destruction inflicted on the region by the Romans under Aemilius Paullus in 167 BC? At what stage did the typical Roman villa, or isolated farmstead, economy develop? And how was the area influenced by the development of the Roman *colonia* Photike just to the north of the survey area? How large was the Latin influx?

6. Can we obtain complementary information from the rich Byzantine, Venetian and, above all, Ottoman archival sources about the cultural clashes in the area during the Medieval and Early Modern period, when it was located at the crossroads between western and eastern Europe (represented by Venice in Kerkyra and Parga and by the Byzantine and Ottoman empires on the mainland)? Which effects did the infiltration of Albanian shepherds in the area, starting in the fourteenth century, have on the demographic and economic developments in the region?

7. Which environmental changes can be documented in the area through history, and how have they influenced the living conditions? When were cereals, olives and wine cultivated in the area for the first time? Can we see changes over time in the local inhabitants' dependence on agriculture versus transhumantic pastoralism?

## Two methodological case studies

Interdisciplinarity is, as we have seen, one of the main ingredients of the Thesprotia Expedition. We are convinced that the interdisciplinary approach will create synergy effects and enable us to answer questions that otherwise would have remained at least partly unresolved. Two case studies from our intensive field survey may here exemplify what I mean, the first one concerning how to interpret and date a previously unknown industrial site in Xirolophos (PS 8) and the second one concerning the study of the immediate surroundings of a recently excavated Early Christian basilica at Paliokklisi of Zervochori (PS 27).

During the first field season in 2004 we detected a fairly large industrial site, PS 8, some 300 m to the northwest of the village of Xirolophos and ca. 500 m to the west of the Kokytos river. The site is located on the valley bottom at a place that still today remains wet and muddy during rain periods and thus in principle is unsuitable for settlements. The only other site detected in this low-lying area between Xirolophos and the Liminari hill is PS 2, which is located some 250 m to the northwest of PS 8 and which produced a similar scatter of burnt clay and lumps of slag. PS 8 measures at least 220x150 m, PS 2 only 25x20 m. In principle PS 2 and PS 8 may very well belong to the same concentration of activity, as the fields between the two find concentrations had very low visibility.

In order to get an idea of the distribution of finds at PS 8, the site was gridded into 10x10 m and 20x20 m squares, the larger ones being in areas with seemingly fewer finds. The find density (denoted as finds per 100 m<sup>2</sup>) for the squares was counted on the basis of 5 m<sup>2</sup> large sample circles located at the centre of each square. The distribution map clearly indicates the locations of six possible kilns (Fig. 2). Three of the kilns had very high find densities (Kiln A, 2020 finds/100m<sup>2</sup>; Kiln B, 1560 finds/100m<sup>2</sup>; Kiln C, 1460 finds/100m<sup>2</sup>).<sup>24</sup> These find concentrations were visible to the naked eye already from the fact that the soil was darker reddish-brown there than in the rest of the field. The three other possible kilns produced lower find densities (Kiln D, 920 finds/100m<sup>2</sup>; Kiln E, 760 finds/100m<sup>2</sup>; Kiln F, 400 finds/100m<sup>2</sup>), but still stand out clearly when compared with their surroundings.

None of the older inhabitants of Xirolophos were able to remember that anything had been produced at the site, which however they used to call *Keramareion* (Κεραμάρειον), i.e. pottery or tile workshop. Neither could the site be dated with certainty, as only a handful of undiagnostic pottery sherds were collected, most of them probably Early Modern in date, although some on preliminary study seemed Late Roman. Part of the slag collected was rather heavy and seemed to contain metal. In order to learn more about what really had been produced at the site, Yannis Bassiakos and Nikolaos Zacharias from the Demokritos laboratory of archaeometry in Athens were asked to analyse the slag.

According to the chemical analyses, some of the samples contained iron oxides. Still, no indications of metal working were detected in the samples, which therefore are to be attributed to a pottery or tile workshop. The samples can be identified as vitrified linings and wasters typically created at kilns for pottery and tile production. Thermoluminescence analyses date the site to the second half of the eighteenth century,

---

<sup>24</sup> The find density calculated for the centre of PS 2 is similar to these, being 1500 finds/100m<sup>2</sup>. PS 2 on the other hand produced smaller fragments than PS 8, a factor that influences the density figure.

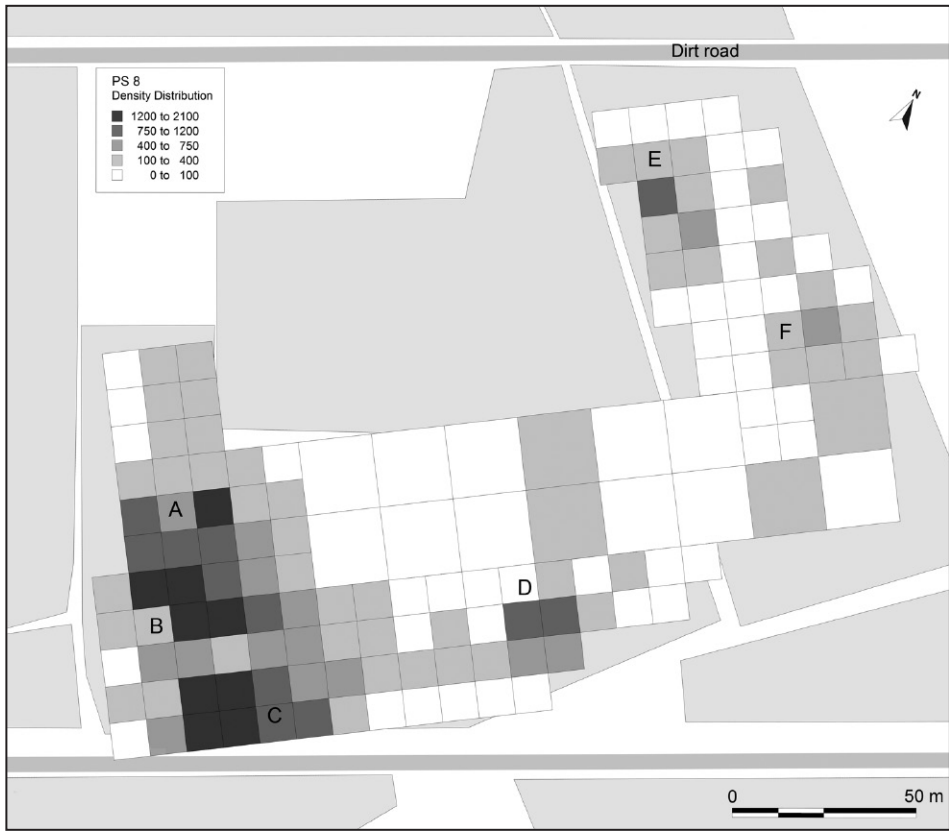


Fig. 2. Find density distribution map of PS 8, an Early Modern tile manufacture.

that is, to the Ottoman period.<sup>25</sup> Therefore Evangelia Balta and her team working through Ottoman sources were asked to look for any mention of such an installation. Interestingly enough, only one *kiremithane* – a place of tile and/or pottery manufacture – is mentioned in all of Thesprotia, and that one is in various yearbooks, or *salnames*, of the 1870s. This *kiremithane* was located in the *kaza* of Paramythia and can most probably be identified with our PS 8, which in that case would have stayed in use for at least a century.<sup>26</sup>

The second case study concerns the surroundings of the Early Christian basilica that was found and partially excavated in 2003 by the 8th Ephorate for Prehistoric and Classical Antiquities under the direction of Georgios Riginos at Paliokklisi of Zervochori.<sup>27</sup> During the intensive field survey we noted a cluster of small sites, most of them probably farmsteads, in the neighbourhood of the basilica. However, we also wanted to find out

<sup>25</sup> Three samples were taken from Kiln C and provided the following dates: 1774±28 (LUM 9/05), 1768±30 (LUM 10/05) and 1758±25 (LUM 11/05). The maximum time span given by these samples is 1733-1802. For further data see the appendix by Bassiakos and Zacharias at the end of this chapter.

<sup>26</sup> See appendix III in Balta, Yilmaz and Yaşar, this volume, where *kiremithane* is translated as “tile factory”.

<sup>27</sup> *ArchDelt* 2003 in press.

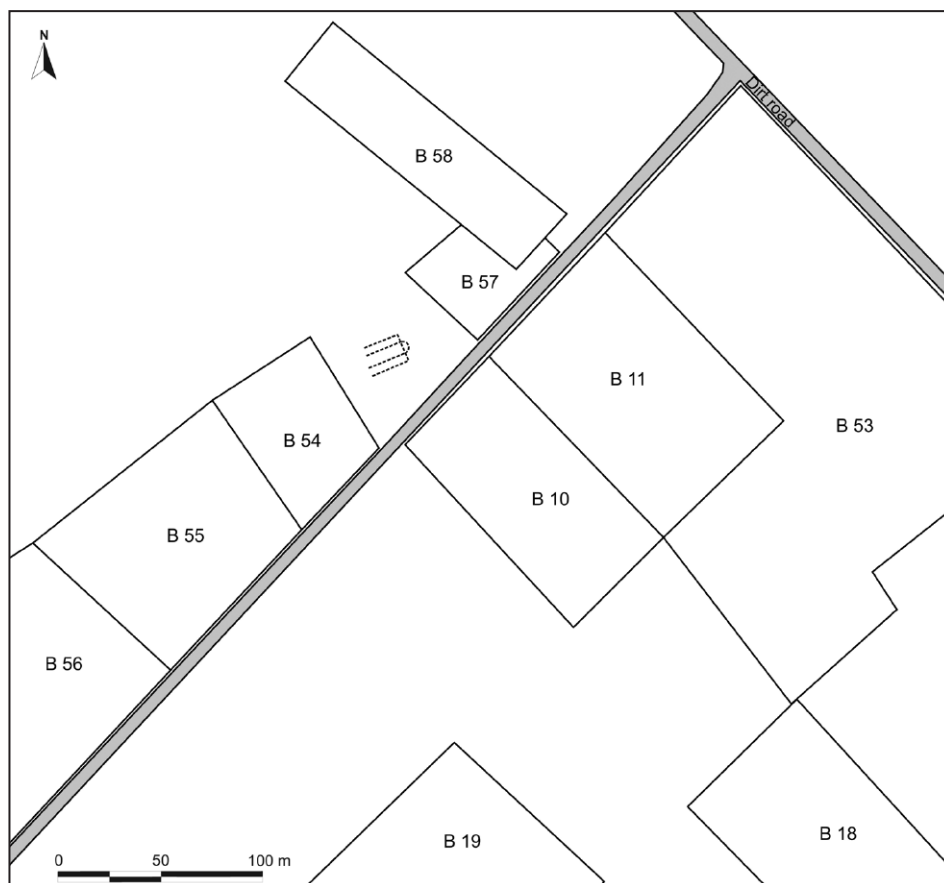


Fig. 3. General map showing the tracts walked in the vicinity of the Early Christian basilica Paliokklisi of Zervochori (PS 27).

whether there existed a hamlet or small village next to the basilica (Fig. 3). A thin scatter of finds was noted in tract B 10 stretching ca. 120 m to the southeast of the basilica, in tracts B 54 and B 55 stretching ca. 140 m to the southwest of it and in tract B 57 stretching ca. 50 m to the northeast of it. To the east of the basilica there were very few finds in tract B 11. On the other sides of the basilica, the ground was always covered by vegetation: to the north and northwest there is an olive grove, and to the south, between B 10 and B 54, where one would have expected a similar scatter of finds, there is a field overgrown by thick grass.

The finds in tracts B 10, B 54, B 55 and B 57 in general seem to date in the same way as the basilica, i.e. to the Late Roman period, and thus probably relate to it. Although no clear concentrations of finds could be noted while walking these tracts, their find density (between 1.6 and 3.8 finds/100m<sup>2</sup>) was still clearly anomalous as compared with other neighbouring fields (B 11, B 18, B 19, B 53, B 56 and B 58 scored densities of between 0.1 and 0.5 finds/100m<sup>2</sup>). Therefore we decided to grid B 10, the only field which was ploughed while re-visiting the site. The site was divided into 10x10 m squares and the find density was calculated as finds/100 m<sup>2</sup> in a 5 m<sup>2</sup> circle at each square's centre. This work revealed higher densities along the southwest long side of B 10, seemingly



indicating that the finds partly originate from structures in the neighbouring totally overgrown field. However, at two spots the finds spread further into B 10, thus creating two irregular concentrations (Fig. 4).



Fig. 4. The fields to the south and southeast of the basilica Paliokklisi of Zervochori (PS 27), showing the find density distribution in tract B 10 and some of the buildings, tentatively reconstructed by Tatyana Smekalova on the basis of her magnetometer survey in areas A, B and C.



In order to learn more about the find concentrations in B 10 and something about the neighbouring, overgrown field, we searched these and some other fields next to the basilica with a magnetometer. The magnetometer survey, conducted by Tatyana Smekalova, revealed two small possible houses close to the basilica itself and three further possible houses in B 10, two of which roughly correspond with the find concentrations noted while gridding that field (Fig. 5 with interpretation visible in Fig. 4). Unfortunately the field B 10 is demarcated from the overgrown field on its southwest side by a metal fence, which created disturbances for the magnetometer. Therefore we could not survey the slice of the fields that is located within 8-10 m of the metal fence. This proved to be regrettable, as the magnetometer survey revealed the clearest remains of a large house in the overgrown field, of which a part seems to continue into the area around the fence (Fig. 5 with interpretation visible in Fig. 4).<sup>28</sup>

The corn grown in B 10 since the re-partitioning of the fields some 10 years ago requires deep ploughing, which since then probably has destroyed the remains of the houses there rather badly. The house in the neighbouring field that has been left fallow for a longer time seems to be in a better state of conservation and would be worth further exploration. At any rate, the intensive field survey and geophysical survey reveal the importance of not only excavating the Early Christian basilicas and subsequently protecting the remains. In order to learn more about the people who built and congregated in them, we need to study also their immediate surroundings.

## Contextualising the first results

The present volume does not give a full picture of a special part of Thesprotian history or the past of the Kokytos river basin, nor does it constitute the final full report of part of the Thesprotia Expedition, such as the field survey or the historical research. Still, all the chapters included have been chosen with the aim of addressing the research questions asked by the Thesprotia Expedition. Some of the chapters throw light on periods previously considered “Dark Ages” in Thesprotia, whereas others add new information on periods previously well attested in the region, or set the new findings of the Kokytos river basin or Thesprotia into a broader context. The aim of this collection of studies is to create a general basis on which to build a regional history in the forthcoming volumes of the project.

It should be seen as a great success that several of the periods considered “Dark Ages” when planning the Thesprotia Expedition have now been identified, partly through excavations done by the local Greek archaeological authorities, partly by our own work. The first Mesolithic site (PS 3) of Thesprotia is here presented by Evangelos Tourloukis and Ourania Palli. This was found already in the first year’s field survey, together with a smaller Mesolithic site (PS 1). Yet another large Mesolithic site (PS 43) was found by us in 2007,<sup>29</sup> thus proving that the finds of 2004 are not unique for Thesprotia.

Light can now also be thrown on the Early Iron Age and the Archaic period in Thesprotia. Jeannette Forsén as well as Antonia Tzortzatou and Lila Fatsiou publish in their chapters several sites with finds spanning all of these periods, one of them, Mavromandilia

<sup>28</sup> For further details about the magnetometer survey, see the appendix of Smekalova, added to this chapter.

<sup>29</sup> The finds of PS 43 are currently being studied by Nena Galanidou.

of Prodromi, located in the Kokytos river basin itself. Irina Svana again shows in her contribution that the earliest finds of the small rural sanctuary of Kyra Panagia should be

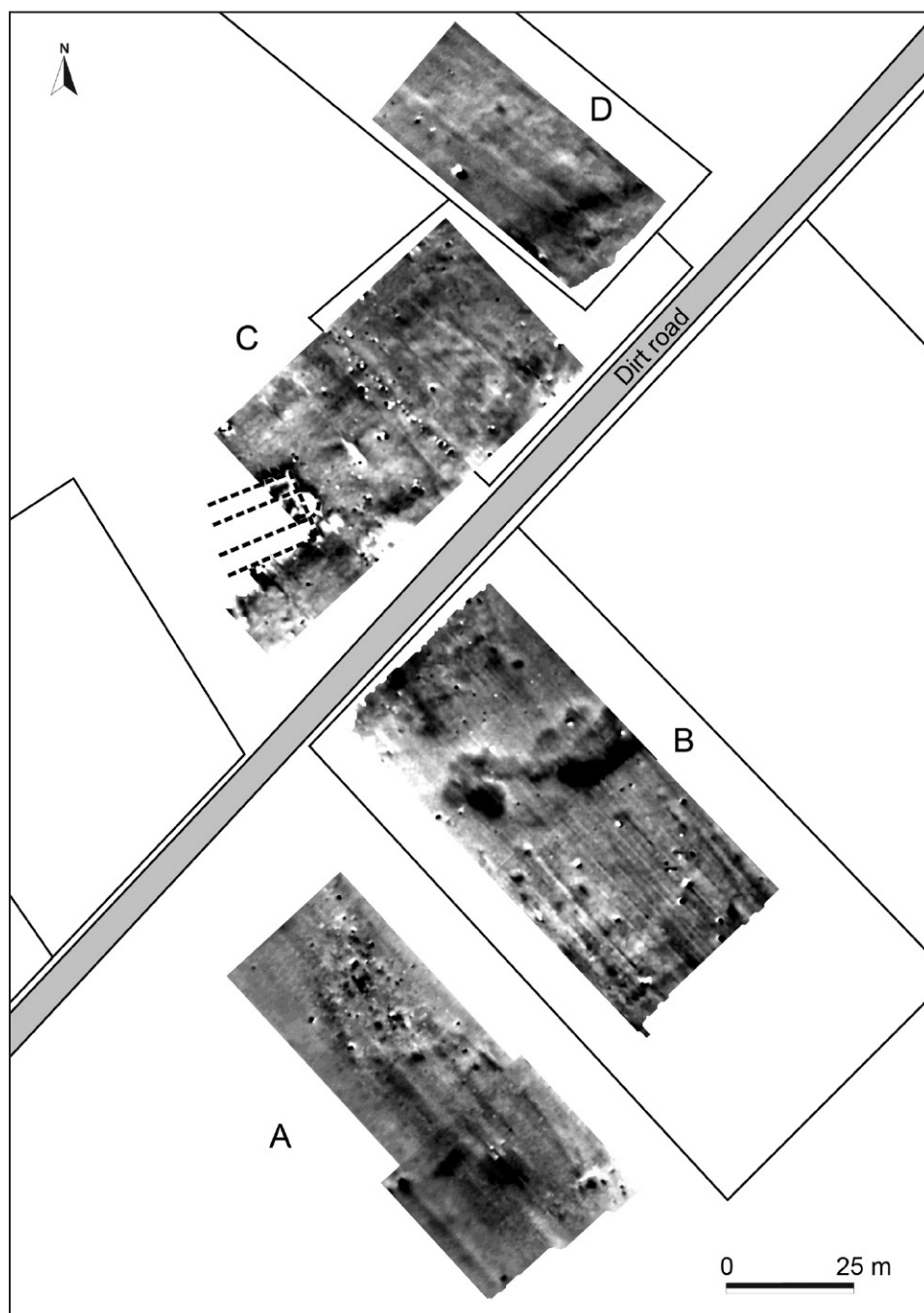


Fig. 5. Magnetometer map created by Tatyana Smekalova, showing the vicinity of the Early Christian basilica Paliokklisi of Zervochori (PS 27).

dated to the late sixth or early fifth century BC, which makes the sanctuary much older than the urbanisation process, the beginning of which in Epirus is dated to the second half of the fourth century BC.<sup>30</sup> Interestingly enough, the sanctuary also seems to have continued in use after the Roman destruction of Thesprotia in 167 BC.<sup>31</sup>

The contributions dealing with the Early Iron Age and the Archaic period emphasise how strong the influences from Corinth and the colonies along the coast were, on all of Thesprotia, from the eighth century BC onwards. These southern and western influences are documented e.g. through Thapsos ware pottery, Corinthian pottery and figurines, Corinthian and Korkyrean staters, and from the fifth century onwards also some Attic pottery. They are, however, blended at least during the Early Iron Age by other influences from inland, from the east and north, such as Boubousti ware. The general picture so far reached concerning external contacts corroborates, in a way, quite well what we know from previous work at Vitsa and Dodona further inland.<sup>32</sup> A kind of hybrid culture, based on mixed identities, is now slowly beginning to develop in Thesprotia.<sup>33</sup>

Special emphasis should be given to the fact that Tzortzatou and Fatsiou prove that two of the settlements or acropoleis of Thesprotia that were fortified in the Classical period actually have revealed some earlier finds (Mastilitza, late seventh to early fifth century; Pyrgos Ragiou, early sixth to mid-fifth century BC). Thus it is not impossible that also some of the other sites which were fortified in the late fourth century were in use at an earlier stage, although this has so far passed unnoticed due to the poor preservation of the finds. As a matter of fact, finds from the Archaic period now seem to occur also at Elea.<sup>34</sup> Future research may perhaps reveal similar findings from other large Thesprotian acropoleis as well.

Geo-archaeological work conducted by Mika Lavento and Maria Lahtinen, in the neighbourhood of the Early Iron Age through Classical (or even Hellenistic?) site Mavromandilia of Prodrumi, reveals in a very telling way how much the landscape has changed over only the last two or three millennia. To what degree such environmental changes also forced people to change their subsistence practices is still unclear. However, the great change in animal husbandry practices (from a cattle-dominated to an ovicaprid cum pig-dominated economy) between the Early Iron Age and the Hellenistic / Early Roman period, which Markku Niskanen presents in his chapter, clearly shows how much more we can learn from this field. Therefore the Thesprotia Expedition in 2007 to 2008 collaborated with a team directed by Henk Kars and Sjoerd Kluiving from the Free University of Amsterdam in collecting palynological data from the seasonal lakes in

<sup>30</sup> See e.g. Dakaris 1987; Ceka 1990, Corvisier 1991 or Sakellariou 1997.

<sup>31</sup> Svana, this volume, has several figurines datable to the first century BC. According to Lambrou 2006, 263, the sanctuary may have continued in use even until the early second century AD as evidenced e.g. by *terra sigillata* pottery.

<sup>32</sup> For an overview of the finds from Vitsa and Dodona, see e.g. Sakellariou 1997, 63-72.

<sup>33</sup> For the concept of hybridity, see e.g. Antonaccio 2003. The role of colonization in shaping a Hellenic identity in the eighth and seventh centuries BC has recently been played down by several scholars. Cf. e.g. Osborne 1998. New influences are rather seen as spreading through increasing trading contacts.

<sup>34</sup> Cf. e.g. the two silver pins published in the new archaeological guide book of Elea (Riginos and Lazari 2008, 73). The lower one belongs to Kilian-Dirlmeier's Type B IV dating to between the mid-seventh and early sixth century BC (Kilian-Dirlmeier 1984, 253-256). The second pin cannot be ascribed to any of Kilian-Dirlmeier's types, as on the basis of the photo it is unclear whether it ended in a disc (broken off?) or not. I owe Imma Kilian-Dirlmeier many thanks for discussing these two pins with me and confirming that they indeed are Archaic in date.

Thesprotia. The analysis of this work is still in preparation, but will produce much new information concerning environmental changes.

The period stretching from the urbanisation process in the mid-fourth century BC until the Roman destruction of the region in 167 BC has been the focus of intense research. Still, there does not exist any agreement on how to interpret the political development in this period. Did the urbanisation process also lead to the development of *poleis* that continued to exist within the tribes and federal states,<sup>35</sup> or was the political power concentrated in tribal and federal capitals as has sometimes been maintained?<sup>36</sup> This final question is reconsidered by Peter Funke in his chapter, in which he shows that the few scattered written sources available are insufficient for supporting the latter interpretation. Comparisons with the Aetolian, Acarnanian and Achaean Confederacies rather seem to support the existence of a certain polycentrism even inside the tribes, with political meetings held on the basis of some rotation in regional sanctuaries and larger *poleis*.

The complex political organisation with *poleis* existing parallel with tribes and federal states makes it difficult to understand the settlement patterns of Thesprotia. How, for instance, are we to define a site like Agios Donatos of Zervochori, a small fortified acropolis covering an area of only 1.1 hectare? The site seems to be too small for a town.<sup>37</sup> Are we thus dealing with a fortified village, or perhaps only with the fortified stronghold of an aristocratic family as has been suggested for the fortification of Nekyomanteion<sup>38</sup>? On the basis of Mikko Suha's work, the walls of Agios Donatos can now be dated to the reign of Pyrrhus, i.e. to the first decades of the third century BC. Esko Tikkala's cautious suggestion that the frieze-epistyle blocks found at Agios Donatos could originate from a Macedonian-type, or Macedonian-influenced, barrel-vaulted chamber tomb may speak for an interpretation of Agios Donatos as the fortified stronghold of an aristocratic family. It is also possible that the monumental tomb at Marmara in some way is connected with the fortification of Agios Donatos, which is located at a distance of only ca. 2 km from Marmara and was built at roughly the same date.<sup>39</sup>

As the results of the intensive field survey have not been analysed in detail, we cannot yet discuss the settlement patterns during the Classical to Hellenistic periods more precisely. But several of the studies included in this volume constitute stepping stones for such a future analysis. To this category belong not only the chapters by Funke, Suha and Tikkala, but also the one by Yannis Pikoulas, which deals briefly with the ekistic network of the Kokytos river basin. According to Pikoulas, no pre-Roman cart roads similar to those known from southern and central Greece existed in Thesprotia. Thus the

---

<sup>35</sup> Funke, Moustakis and Hochschulz 2004 in general follow this line of thought.

<sup>36</sup> Dakaris 1972, 35-36, 120-122 and Preka-Alexandri 1999, 167, but also in more general terms by e.g. Riginos 2004, 66 or Riginos and Lazari 2007, 25.

<sup>37</sup> Cf. e.g. the Southern Argolid survey project's definition of a town in archaeological terms: "Large size (5.0 ha or more), fortification walls, religious sanctuaries, cemeteries, evidence of a built-up area of habitation within the walls..." (Jameson, Runnels and van Andel 1994, 249). Cavanagh *et al.* 2002, 163, 263-264, put the lower limit of a perioikic town/village in Laconia at 3.0 ha, whereas Forsén and Forsén 2003, 260-265 prefer a lower limit of towns in Arcadia at 10.0 ha.

<sup>38</sup> Baatz 1999, who uses the German term "Adelssitz".

<sup>39</sup> For Marmara, see Riginos 1996, 173-174, who suggests a date in the second half of the third century BC. Pietilä-Castrén 2008, 42-48, now suggests a slightly higher date, in the first decades of the third century. Marmara is located ca. 2 km to the southwest of Agios Donatos and ca. 5.5 km to the south of Elea.

road network and also the economic relations of Thesprotia would differ from those of the Greek core area, and rather resemble the situation known in Macedonia and Thrace.

The Thesprotia Expedition has identified and also studied in detail one large Early Roman site, constructed on top of the remains of the Hellenistic fortifications of Agios Donatos. The site was intensively surveyed in 2005, and trial trenches have been opened up at different places in 2006 to 2008. Apart from producing new evidence for how to date the Hellenistic fortifications (see the chapter by Suha), our work has also revealed the existence of a large Roman villa, which was established during the reign of Tiberius or possibly Augustus. The villa, built on two long terraces opening towards the south, is at least 140x30 m large, with the walls constructed in *opus incertum*. Fragments of wall paintings, stamped roof tiles, and palmette antefixes as well as large amounts of Italian terra sigillata, glass and small finds (e.g. fibulae) of bronze, bone and lead are witnesses of the relative wealth of the site.<sup>40</sup>

As a first glimpse of the rich finds of the villa on Agios Donatos, Janne Ikäheimo publishes 12 *planta pedis* stamps on Arretine ware, all found in a trial trench in the Hellenistic tower, which was reused as part of the villa, perhaps as some kind of storage room. Furthermore, Markku Niskanen's study of the animal bones found in the tower in 2006 gives us an idea of the rich and diverse diet of the inhabitants of the villa, which included wild game, fish and different sorts of sea shells. More detailed studies on other aspects of the villa will follow in the next volumes of the Thesprotia Expedition series.

The villa on Agios Donatos of Zervochori needs, of course, to be put into a larger context, which is difficult due to the few publications on Early Roman finds from Thesprotia. However, there must have existed a link to the *colonia* Photike, which is located just to the north of the study area of the Thesprotia Expedition. The only aspect of Photike that has been included in our project is therefore a re-study of the inscriptions found at the *colonia*. As a result of this work, Erkki Sironen publishes 10 inscriptions, some of which are previously unpublished and others for which he suggests new readings.

William Bowden gives in his chapter some idea of the more general lines of development in Roman and Late Roman Epirus, seen from the view of the British archaeological field work at Butrint. The early phases of the villa at Diaporit constitute a good, although slightly later, parallel to the villa on Agios Donatos of Zervochori, and other similar villas exist e.g. at Riza and Strongyli in the neighbourhood of Nikopolis. According to Bowden, the sharp decline in public architecture in the third century AD needs to be contrasted with the continuation of activity in the sphere of private building, exemplified at Butrint by the Triconch palace, a luxurious peristyle house of the third to fourth centuries AD. The large number of Early Christian basilicas of the fifth and sixth centuries AD he sees as a mere shift in how the well-off invested their surplus resources. Churches had quite simply replaced the opulent private residences as the means through which elites competed with each other.

There can be no doubt that the Kokytos river basin went through roughly the same development as the one described by Bowden, although so far we have no examples of rich private residences of the third and fourth centuries AD. The few Middle Roman sites in the valley are small farmsteads. Perhaps the larger private residences concentrated in

---

<sup>40</sup> For preliminary reports of the work on the Roman villa, see the reports in *Archaeological Reports*: Forsén 2006, Forsén 2007, Forsén 2008 and *AR* 55, 2009, in print (report of 2008 season).

and close to Photike, an area which has not been studied and published in detail.<sup>41</sup> Large Early Christian basilicas are however numerous in the Kokytos river basin, just as all over Greece. Niki Vasilikou publishes here a new basilica recently excavated by the 8th Ephorate for Byzantine Antiquities at Krystallopigi close to Photike. Around the basilicas new settlements slowly developed, creating a totally new settlement pattern in the region, which deserves further study beyond the example of Paliokklisi of Zervochori described above.

Asterios Aidonis and Anestis Emmanouil break new ground in their chapter by publishing the first palaeodemographic data of a cemetery (98 graves) of Late Byzantine date in Epirus. Further such studies are a clear desideratum because, through a comparative study of similar complexes, we would be in a better position to understand the living circumstances of the ordinary people. The sample from Doliani reveals, rather unsurprisingly, a high infant mortality rate. More striking is the low young adult (21-35 age interval) mortality documented at Doliani as compared with sites in Croatia. This indicates a less violent environment than one perhaps would expect for Thesprotia in the fourteenth and fifteenth centuries, the period of Albanian immigration and Ottoman conquest. This seeming contradiction can only be explained through a study of several other contemporaneous cemeteries.

Thesprotia was for most of the Early Modern period, beginning in the fourteenth century, located at the very borderline between Ottoman and Venetian domains, with the Ottomans dominating the inland and the Venetians several outposts along the coast. Mika Hakkarainen gives in his chapter a general overview of the Venetian influence on the mainland, which stretched much further inland than the outposts along the coast. The interaction between the two very different cultural zones will be studied in greater detail in the coming volumes. In this volume we pay attention to the Ottoman presence in Thesprotia only during the nineteenth century. Timo Sironen publishes what may be the only remaining Ottoman sepulchral stele from Paramythia, while Evangelia Balta, Fehmi Yilmaz and Filiz Yaşar present a full picture of the economic and social history of all of Tsamouria at that time based on Ottoman administrative documents. This study will be of utmost importance as a prelude to their coming work on the Ottoman tax registers for the sixteenth and seventeenth centuries.

## Concluding remarks

This volume is but the first stage on the route towards a regional history of Thesprotia. The final harbour is still far away and can only be reached after a long, adventurous and interdisciplinary voyage. Forthcoming volumes of the Thesprotia Expedition will bring us further on this odyssey. But already now, on the basis of the first three years of the project, we have been able to show that Thesprotia no longer should be regarded as the distant periphery, but rather as a dynamic frontier zone,<sup>42</sup> where political, ethnic, cultural and linguistic influences met and fused into new realities.

---

<sup>41</sup> Recent rescue excavations at Maroutsí in the neighbourhood of the Photike revealed a rich Roman farmstead (possibly a villa?) with finds stretching from the reign of Nero to Valentinian I in the late fourth century AD (Riginos 2004, 71).



## Appendix I

### Chemical analyses and luminescence dating of slag from PS 8 at Xirolophos (Yannis Bassiakos and Nikos Zacharias)

The Group of Paleoenvironment and Ancient Metals Studies (GP-AMS) of the Laboratory of Archaeometry “Demokritos” undertook analytical and dating work on appropriate samples of ceramic and related finds, collected by the Thesprotia Expedition and kept in the archaeological storeroom of the village of Gardhiki in Thesprotia. Most of the finds (*ca.* 80% of the total) comprise artificially vitrified earthy material, while the rest consists of fragments of linings, irregular masses, ceramic tubular constructions etc., which strongly indicate that these finds are remains of past pyrotechnological activity.

The tasks set for the present authors were:

- a) to undertake chemical analyses as support for a documentary interpretation of the technological activities that resulted in the above materials;
- b) to study absolute dates for the materials and determine the age of those activities.

*In situ* measurements for determining the local natural radioactivity were made, by using a calibrated portable NaJ(Tl) scintillometer SPP-2NF. The measurements were performed at the site PS 8 (locally known as *Keramareion*) itself, next to the village Xirolophos. These measurements were needed for the estimation of the dose rate (DR), an essential parameter to be used for the calculation of the age of the finds, by means of the thermoluminescence technique. The measured values in the soil of the field at PS 8 varied between 50 and 55 counts per second, which correspond to dose rates of 4.2 to 4.9 mGy/a, a value consistent with the radioactive potential of the geological formations of the so-called “Ionian Geotectonic Unit” that prevails in the wider Paramythia area.<sup>43</sup>

Approximately 200 pieces corresponding to the best-preserved part of the collected slag were visually inspected in the storeroom before selecting the ones to be used for analytical and thermoluminescence dating studies. Prior to sampling work the natural radioactivity of the archaeological finds was measured with the same scintillometer as above, and no particular deviation from the stated field measurements was noted. This is an indirect indication that the raw argillaceous and other materials used to produce these finds originated from the same geological environment of the aforementioned “Ionian Geotectonic Unit”, and therefore that the materials came from a local source.

Nineteen samples were collected for analytical and TL-dating studies and taken to the laboratory when the appropriate archaeological permission had been issued. They were all examined under a binocular stereoscope and a polarizing optical microscope, while 13 of them were further treated for SEM/EDX chemical analysis.

According to the extracted results, two samples were from calcareous ceramic fragments with high levels of iron oxides, in the range of 15-25%. Such a percentage

---

<sup>42</sup> The concept of a frontier is here used in the way defined by Lattimore 1962 for inner Asia, as the zone existing on both sides of a boundary. The frontier is typically inhabited by communities of border-crossers, people who willingly adapt influences from both sides and partly make their living on being experts at transgressing from one side to the other.

<sup>43</sup> Stavropodis and Bassiakos 1981; I.G.S.R. (IGME), Geological map of Greece 1:50,000, Paramythia sheet, Athens 1966.

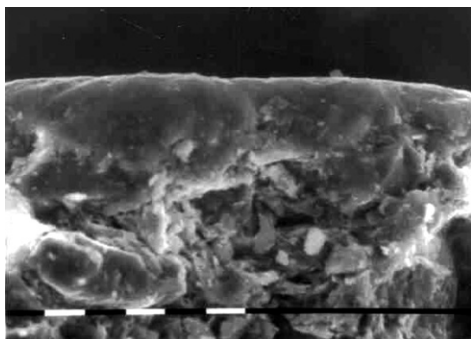


Fig. 6. Photomicrograph of sample PS-8 [(33)-(2)] under the SEM: Externally vitrified layer (exposed to the higher temperature, close to 1200°C) covers less vitrified internal masses. The subdivisions of the bar correspond to 10 micrometers each.

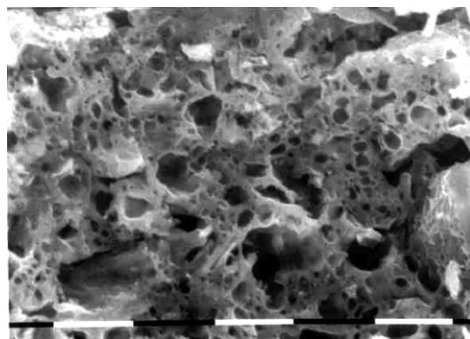


Fig. 7. Photomicrograph of sample PS-8 [(D)-(2)] under the SEM: Totally vitrified and collapsed clay mass, exposed to temperatures over 1200°C. The subdivisions of the bar correspond to 10 micrometers each.

of iron content is remarkably high (though not rare) for ceramic fragments. By contrast, in terms of pyrometallurgical activities, physico-chemically similar remains related to iron production (that is, metallurgical slags of various types) contain much more iron oxides, at least 45%.<sup>44</sup> The other 17 samples correspond to pyrotechnologically treated clays or earth (also containing high iron oxides), whose texture has collapsed because they were exposed to temperatures near or above 1200°C. In terms of structure, the clay minerals that once constituted the main component of the former clays have been partly or thoroughly vitrified (Fig. 6 and Fig. 7 respectively), while intense blotting is very often apparent and observed under both optical and electron microscopes. Quartz fragments and remains of former calcitic inclusions (not intentionally added to the clay mass) are frequently observed as thermally ‘mobilised’ diffusions, or in the form of irregular grains, in sizes between 0.01 and 2.0 millimetres. In all analysed samples the iron content stays below 30% (by oxides) while the siliceous components predominate (40 to 60%) and the rest is shared mainly between lime and aluminium oxides.

In no case did iron slags or any other microscopic or chemical evidence indicate metalworking in the examined samples. Hence, these are attributable to activities of a pottery/tile workshop, and they correspond to vitrified linings (i.e. the internal clay mantle placed in the internal surface of the kiln walls). They are rather usual finds created during the operation of furnace(s) for pottery or tile production.

According to the results of the TL-dating on three samples, undertaken in our laboratory (a separate report with more details has been submitted to the Finnish Institute) this pyrotechnological activity for ceramic production is chronologically placed in the second half of the eighteenth century, namely during the late stages of the Ottoman era in the Paramythia area.

<sup>44</sup> Tylecote 1976.



## Appendix II

### Magnetometer Survey at Paliokklisi of Zervochori (Tatyana Smekalova)

Magnetometry is a non-destructive method for quick investigations of ancient sites.<sup>45</sup> The idea of carrying out a magnetometer survey next to the Early Christian basilica at Paliokklisi of Zervochori (PS 27) was inspired by the positive results, which I had obtained on a number of sites in Greece (Kalydon, Tegea, Asea, Arachamitai, Kyparissia)<sup>46</sup> and on other sites of different historical periods in many countries.<sup>47</sup>

#### *Magnetic anomalies and archaeological remains*

Magnetic fields exist around us all the time. We cannot see or feel them, but we can measure them with sensitive instruments called magnetometers. The intensity of Earth's magnetic field is three times as great in the polar region (approximately 70,000 nT) as in the equatorial region (25,000 nT). Elsewhere on the Earth, the global magnetic field parameters are between these limits.

If the earth consisted of a uniform material, the magnetic lines of force would be evenly distributed between the poles; in a small area, they would be parallel. However, since various materials in the earth have different magnetic susceptibilities due to their composition, the Earth's magnetic lines of force are distorted. The local disturbances of the global magnetic field are called magnetic anomalies.

Iron constitutes about 6% of the Earth's crust. Most of it is dispersed through soils, clays and rocks as chemical compounds which are very weakly magnetic. Man's activity in the past (especially the use of fire for heating, cooking, production and industry) has changed these compounds into more magnetic forms, creating special patterns of anomalies in the Earth's magnetic field that can be detected with sensitive instruments.

Iron oxides and hydroxides, which normally exist in clay and soil in nonmagnetic forms, transform during heating into more magnetic forms. Therefore one can observe positive anomalies over fireplaces, kilns, slag blocks, ovens etc.

The variations in magnetic susceptibility between topsoil, subsoil and rocks (the topsoil is normally more magnetic than the subsoil) affect the Earth's magnetic field locally, making it possible to detect ditches, pits and other silted-up features, which were dug a long time ago and then were backfilled or silted in with topsoil. They will produce a positive magnetic signal; conversely, less magnetic materials introduced into the topsoil, such as limestone or sandstone masonry walls, are detectable by the subtractive effect that gives a negative signal.

The magnetometer survey is especially useful for the investigation of archaeological sites with stone buildings, because of the big contrast in magnetic properties between nonmagnetic limestone and marble walls and the slightly magnetic filling of the rooms. Walls built of limestone or marble blocks that have been introduced into the topsoil

---

<sup>45</sup> I would like to thank Björn Forsén and the other members of the Thesprotia Expedition team for their constant help and support during the field work and for organising the working and living conditions in Thesprotia.

<sup>46</sup> Dietz and Moschos 2003; Dietz 2003; Forsén *et al.* 2008.

<sup>47</sup> E.g. in Ukraine (Smekalova and Maslennikov 1993), Egypt (Smekalova 2002) and elsewhere (Smekalova, Voss and Smekalov 2003; Smekalova, Voss and Smekalov 2008). The method itself is described in greater detail in these reports.

give strong negative magnetic signals from -10 to -50 nT. The amplitude of the negative anomalies of the wall may vary depending on the magnetic properties of the cultural layers in different parts of the site.

Rooms with ovens, pits and pithoi inside, filled with earth, pieces of tile, ceramic vessels, ashes etc., are reflected on the magnetic maps as positive anomalies with an intensity of 20 to 50 nT. Pithoi give local positive anomalies with amplitudes of 50-100 nT. Streets, if they were covered by sherds of pottery or tiles or by metallurgical slag, should also give positive anomalies with amplitudes of 10 to 100 nT, depending on the amount of material on the street.

Furnaces and kilns create strong positive anomalies (40-600 nT) with smaller negative anomalies immediately to the north of the main positive signals. Such objects, constructed of clay bricks which were fired during their functioning, possess their own thermo-remnant magnetisation, whose direction corresponds to that of the ancient Earth magnetic field. Heaps and pits, filled with broken pottery, slag and ashes that normally are located close to pottery kilns and furnaces, are visible in the magnetic field as intensive positive anomalies (80-150 nT) with smaller negative additions to the north of the positive peaks. The same goes for pits, cisterns and wells filled with broken pottery, ash, burnt soil etc., although the positive anomalies in those cases are lower (50-75 nT).

#### *Equipment and working method*

The magnetometer survey was carried out with an Overhauser gradiometer (magnetometer with two sensors) produced by Gem systems (Ontario, Canada), the model GSM-19 v.6.0 of February 2003. The measurements were made along straight parallel lines, the space between the lines being 0.5 m. The magnetometer was operated in “walking-mode” measuring every 0.2 second and the distance between the measurements along the lines was not more than 0.1-0.2 m. The height of the sensor above the surface of the ground was about 0.3 m.

Two Gem magnetometers were used during the survey. The first one served as the main instrument, being moved on the plot and measuring the magnetic field along the lines of the coordinate system. The second magnetometer was left standing at a place further away taking measurements automatically each 5 seconds in order to control the temporary daily variations of the Earth’s magnetic field. The necessary calculations were performed at the end of each day on a computer.

#### *Interpretations*

Four areas (A to D) were surveyed to the south and northwest of the basilica (Figs. 4-5) that has been partly excavated by the Greek Archaeological Service. The aim of the survey was to try to reveal whether a possible settlement existed around the basilica. On the grey-scale map the positive anomalies are marked with dark colour whereas the negative ones in their turn are marked with light colour. The contour interval is 5 nT.

In area C next to the basilica there are quite strong anomalies at the location of the excavated walls of the basilica, because they and the apse are constructed with a mixture of layers of tile and limestone. There is also a linear negative-and-positive anomaly, which is crossing the whole field to the east of the basilica. This anomaly is caused by the remains of a modern iron fence that once divided the field in two separate parts. In area C there are only two possible houses faintly visible with the walls showing up as negative anomalies in light colour.

In area D there is a rather strong long and wide positive anomaly, which crosses the southern part of the plot of the magnetometer survey in a diagonal direction. It is probably a long depression of uncertain date, possibly a ditch, which is filled with more magnetic soil. There are also quite a big iron object and, perhaps, two pits on the plot.

In Area B it is interesting to see which effect the process of ploughing has on the magnetic field when it is measured at a small height. In the northern half of the plot, located next to the road, which was surveyed before the field was ploughed, almost no narrow linear anomalies of the ploughing are visible. In the southern half of the plot, where the survey was conducted after the surface had been ploughed a first time, the magnetic field is on the other hand clearly disturbed by long anomalies of both positive and negative sign, which are caused by the earthen ridges left after the plough.

Apart from the disturbances created by ploughing there are several strong positive anomalies in area B, which probably are created by pits filled with magnetic material. There are also rather distinctive linear negative anomalies, caused by stone walls. These linear negative anomalies could be interpreted as the remains of at least three houses. The walls of the houses are built in different directions, thus indicating that they might have been constructed at different periods of time. The only building that is constructed nearly parallel to the basilica, thus indicating contemporaneity, is the house next to the basilica.

Area A turned out to be the most interesting plot. This place was chosen after a “free search” magnetic survey of the area, when some rather strong magnetic anomalies were noted at the highest point of the field. The magnetic field on this plot is quite anomalous. The long negative anomalies form the walls of a rectangular structure, of which probably only one corner is visible. The rest of the building is situated closer to the modern iron fence between the two fields, in a zone where it was impossible to carry out the survey because of disturbing strong magnetic ‘noise’ from the fence. In the rectangular building (a farmstead or villa?), several rooms located in rows are visible. The inner spaces of the rooms, probably filled with fragments of tiles, ceramic vessels and so on, are visible in the map as local positive anomalies.

Apart from the large rectangular building there are some wide positive anomalies further on to the south in area A, located outside the building itself. They could be caused by some depressions (pits or well), filled with more magnetic soil in a way resembling the feature visible in area D.

## Bibliography

- Alcock and Cherry 2004 = S.E. Alcock and J.F. Cherry (eds.), *Side-by-Side Survey. Comparative Regional Studies in the Mediterranean World*, Oxford 2004.
- Antonaccio 2003 = C. Antonaccio, 'Hybridity and the Cultures within Greek Culture', in C. Dougherty and L. Kurke (eds.), *The Cultures within Greek Culture. Contact, Conflict, Collaboration*, Cambridge 2003, 57-74.
- Baatz 1999 = D. Baatz, 'Wehrhaftes Wohnen. Ein befestigter hellenistischer Adelssitz bei Ephyra (Nordgriechenland)', *AntW* 30 (1999), 151-155.
- Bikas 1997 = M.A. Bikas, *H Βέλλιανη και η Αρχαία Ελέα (Ιστορία – Αρχαιότητες)*, Thessaloniki 1997.
- Bintliff and Sbonias 1999 = J. Bintliff and K. Sbonias (eds.), *Reconstructing Past Population Trends in Mediterranean Europe (3000 BC-AD 1800)*, Oxford 1999.
- Bintliff, Howard and Snodgrass 2007 = J. Bintliff, P. Howard and A. Snodgrass, *Testing the Hinterland. The Work of the Boeotia Survey (1989-1991) in the Southern Approaches to the City of Thespiiai*, Cambridge 2007.
- Bowden 2003 = W. Bowden, *Epirus Vetus. The Archaeology of a Late Antique Province*, London 2003.
- Cabanes 1976 = P. Cabanes, *L'Épire de la mort de Pyrrhos à la conquête romaine 272-167 av. J.C.*, Paris 1976.
- Cabanes 1987 = P. Cabanes (ed.), *L'Illyrie méridionale et l'Épire dans l'Antiquité I*, Adosa 1987.
- Cabanes 1993 = P. Cabanes (ed.), *L'Illyrie méridionale et l'Épire dans l'Antiquité II*, Paris 1993.
- Cabanes 1999 = P. Cabanes (ed.), *L'Illyrie méridionale et l'Épire dans l'Antiquité III*, Paris 1999.
- Cabanes and Lamboley 2004 = P. Cabanes and J.-L. Lamboley (eds.), *L'Illyrie méridionale et l'Épire dans l'Antiquité IV*, Paris 2004.
- Cavanagh et al. 2002 = W. Cavanagh, J. Crouwel, R.W.V. Catling and G. Shipley, *Continuity and Change in a Greek Rural Landscape. The Laconia Survey I (BSA Suppl. 26)*, London 2002.
- Ceka 1990 = N. Ceka, 'Städtebau in der vorrömischen Periode in Südillyrien', in *Akten des XIII. Internationalen Kongresses für Klassische Archäologie, Berlin 1988*, Mainz 1990, 216-229.
- Cherry, Davis and Mantzourani 1991 = J.F. Cherry, J.L. Davis and E. Mantzourani, *Landscape Archaeology as Long-Term History. Northern Keos in the Cycladic Islands* (Monumenta Archeologica 16), Los Angeles 1991.
- Choremis 1980 = A. Choremis, Μετάλλινος οπλισμός από τον τάφο στο Προδρόμι της Θεσπρωτίας, *AAA* 13 (1980), 3-19.
- Corvisier 1991 = J.N. Corvisier, *Aux origines du miracle grec. Peuplement et population en Grèce du Nord*, Paris 1991.
- Dakaris 1972 = S. Dakaris, *Θεσπρωτία* (Ancient Greek Cities 15), Athens 1972.
- Dakaris 1987 = S. Dakaris, 'Organisation politique et urbanistique de la ville dans l'Épire antique', in P. Cabanes, *L'Illyrie méridionale et l'Épire dans l'Antiquité I*, Adosa 1987, 71-80.
- Davis 1998 = J. Davis (ed.), *Sandy Pylos. An Archaeological History from Nestor to Navarino*, Austin 1998.

- Dietz 2003 = S. Dietz, 'Kalydon', *Danske Museer* 2003/6, 4-12.
- Dietz and Moschos 2003 = S. Dietz and I. Moschos, 'Jagten på Kalydon', *Sfinx* 2003/1, 9-14.
- Forsén 2006 = B. Forsén, 'Demos Paramythia, the Thesprotia Expedition', *AR* 52, 2006, 83-84.
- Forsén 2007 = B. Forsén, 'Thesprotia Expedition', *AR* 53, 2007, 47-48.
- Forsén 2008 = B. Forsén, 'Thesprotia Expedition', *AR* 54, 2008, 62.
- Forsén and Forsén 2003 = J. Forsén and B. Forsén, *The Asea Valley Survey. An Arcadian Mountain Valley from the Palaeolithic Period until Modern Times* (Acta Instituti Atheniensis Regni Sueciae 4°, 51), Stockholm 2003.
- Forsén *et al.* 2008 = B. Forsén, J. Forsén, T. Smekalova and E. Tikkala, Το αίνιγμα της Αγίας Παρασκευής Αραχαμιτών, in Y. Pikoulas (ed.), *Ιστορίες για την αρχαία Αρκαδία. Proceedings of the International Symposium in Honour of James Roy*, Stemnitsa 2008, 223-230.
- Franke 1961 = P.R. Franke, *Die antiken Münzen von Epirus I. Poleis, Stämme und Epirotischer Bund bis 27 v.Chr. Katalog und Untersuchungen*, Wiesbaden 1961.
- Funke, Moustakis and Hochschulz 2004 = P. Funke, N. Moustakis and B. Hochschulz, 'Epeiros', in M.H. Hansen and T.H. Nielsen (eds.), *An Inventory of Archaic and Classical Poleis*, Oxford 2004, 338-350.
- Hammond 1967 = N.G.L. Hammond, *Epirus. The Geography, the Ancient Remains, the History and the Topography of Epirus and Adjacent Areas*, Oxford 1967.
- Hatzopoulos 1980 = M. Hatzopoulos, 'Photicè. Colonie romaine en Thesprotie et les destinées de la latinité épirote', *BalkSt* 21 (1980), 97-105.
- Hodges, Bowden and Lako 2005 = R. Hodges, W. Bowden and K. Lako, *Byzantine Butrint. Excavations and Surveys 1994-1999*, Oxford 2005.
- Jameson, Runnels and van Andel 1994 = M.H. Jameson, C.N. Runnels and T.H. van Andel, *A Greek Countryside. The Southern Argolid from Prehistory until Present Day*, Stanford 1994.
- Kilian-Dirlmeier 1984 = I. Kilian-Dirlmeier, *Nadeln der frühhelladischen bis archaischen Zeit von der Peloponnes* (Prähistorische Bronzefunde XII.8), Munich 1984.
- Kokolakis 2003 = M. Kokolakis, *Το ύστερο γιαννιώτικο πασαλίκι. Χώρος, διοίκηση και πληθυσμός στην τουρκοκρατούμενη Ήπειρο (1820-1913)*, Athens 2003.
- Krapsitis 1991 = V. Krapsitis, *Η ιστορία της Παραμυθιάς*, Athens 1991.
- Lambrou 2006 = V. Lambrou, Οικιστική οργάνωση του Θεσπρωτικού χώρου κατά τη Ρωμαϊοκρατία, *EpChr* 40 (2006), 257-275.
- Lattimore 1962 = O. Lattimore, *Studies in Frontier History. Collected Papers 1928-1958*, London 1962.
- Mee and Forbes 1997 = C. Mee and H. Forbes (eds.), *A Rough and Rocky Place. The Landscape and Settlement History of the Methana Peninsula, Greece*, Liverpool 1997.
- Moore 2000 = M.G. Moore, *Surveying Epirote Pottery. Ceramics, Cuisine, and Social History in Southern Epirus, Greece, 300 B.C.-A.D. 500*, Unpubl. PhD diss., Boston University 2000.
- Mouselimis 1976 = S.G. Mouselimis, *Ιστορικοί περίπατοι ανά την Θεσπρωτία*, Thessaloniki 1976.
- Mouselimis 1980 = S.G. Mouselimis, *Αρχαιότητες της Θεσπρωτίας*, Ioannina 1980.

- Mouselimis 1994 = S.G. Mouselimis, *Ιστορία της Φωτικής. Ιστορική και αρχαιολογική έρευνα*, Athens 1994.
- Nicol 1984 = D.M. Nicol, *The Despotate of Epiros, 1267-1479. A Contribution to the History of Greece in the Middle Ages*, Cambridge 1984.
- Osborne 1998 = R. Osborne, 'Early Greek Colonization? The Nature of the Greek Settlement in the West', in N. Fisher and H. van Wees (eds.), *Archaic Greece: New Approaches and New Evidence*, London 1998, 251-269.
- Papagianni 2000 = D. Papagianni, *Middle Palaeolithic Occupation and Technology in Northwestern Greece* (BAR-IS 882), Oxford 2000.
- Philippson 1956 = A. Philippson, *Die griechischen Landschaften. Der Nordwesten der griechischen Halbinsel I. Epirus und Pindos*, Frankfurt 1956.
- Pietilä-Castrén 2008 = L. Pietilä-Castrén, 'A Methodological Note on "Rectangular Heroa"', in L. Pietilä-Castrén and V. Vahtikari (eds.), *Grapta Poikila II. Saints and Heroes* (PMFIA XIV), Helsinki 2008, 33-51.
- Preka-Alexandri 1999 = K. Preka-Alexandri, 'Recent Excavations in Ancient Gitani', in P. Cabanes (ed.), *L'Illyrie méridionale et l'Épire dans l'Antiquité III*, Paris 1999, 167-169.
- Psimouli 1998 = V. Psimouli, *Σούλι και Σουλιώτες*, Athens 1998.
- Riginos 1996 = G. Riginos, 'Ausgrabungen in antiker Eleatis und ihrer Umgebung', in P. Cabanes (ed.), *L'Illyrie méridionale et l'Épire dans l'Antiquité III*, Paris 1999, 171-180.
- Riginos 2004 = G. Riginos, 'Die neuesten archäologischen Forschungen im Verwaltungsbezirk von Thesprotien', in P. Cabanes and J.-L. Lambolley (eds.), *L'Illyrie méridionale et l'Épire dans l'Antiquité IV*, Paris 2004, 65-73.
- Riginos and Lazari 2007 = G. Riginos and K. Lazari, *Ελέα Θεσπρωτίας. Αρχαιολογικός οδηγός του χώρου και της ευρύτερης περιοχής*, Athens 2007.
- Sakellariou 1997 = M.B. Sakellariou (ed.), *Epirus. 4000 Years of Greek History and Civilization*, Athens 1997.
- Samsaris 1994 = D.K. Samsaris, *Η ρωμαϊκή αποικία της Φωτικής στη Θεσπρωτία της Ηπείρου*, Ioannina 1994.
- Smekalova 2002 = T. Smekalova, 'Magnetic Testing Using Oberhauser Gradiometer GSM-19WG and Cesium Magnetometer MM-60', in C. Hope and G.E. Bowen (eds.), *Dakhleh Oasis Project: Preliminary Reports on the 1994-1995 to 1998-1999 Field Seasons*, Oxford and Oakville 2002, 31-41.
- Smekalova and Maslennikov 1993 = T. Smekalova and A.A. Maslennikov, 'Cadaster of Geophysical Maps of Bospor Sites in the Coast of Azov Sea', in A. Vogel and G.N. Tsokas (eds.), *Geophysical Exploration of Archaeological Sites* (Theory and Practice of Applied Geophysics 7), Braunschweig and Wiesbaden 1993, 27-35.
- Smekalova, Voss and Smekalov 2008 = T. Smekalova, O. Voss and S.L. Smekalov, *Magnetic Surveying for Archaeology*, Wormianum 2008.
- Souaref 2001 = K. Souaref, *Μυκηναϊκές μαρτυρίες από την Ήπειρο*, Ioannina 2001.
- Soustal 1981 = P. Soustal, *Nikopolis und Kephallenia* (Tabula Imperii Byzantini 3), Vienna 1981.
- Stavropodis and Bassiakos 1981 = I. Stavropodis and Y. Bassiakos, 'Ραδιομετρική διασκόπηση της Ηπείρου και των Ιονίων νησιών', *Ορυκτός Πλούτος* 10 (1981), 25-48.



- Svana 2004 = I. Svana, 'Une agglomération rurale de l'époque hellénistique dans la plaine de Paramythia en Thesprôtie', in P. Cabanes and J.-L. Lamboley (eds.), *L'Illyrie méridionale et l'Épire dans l'Antiquité IV*, Paris 2004, 209-213.
- Swaddling 1979 = J. Swaddling, 'The British Museum Hoard from Paramythia, North Western Greece: Classical Trends Revived in the 2nd and 18th Centuries AD', in C. Bérard and P. Ducrey (eds.), *Bronzes hellénistiques et romains: tradition et renouveau* (Cahiers d'archéologie romande 17), Lausanne 1979, 103-106.
- Tartaron 2004 = T. Tartaron, *Bronze Age Landscape and Society in Southern Epirus, Greece* (BAR-IS 1290), Oxford 2004.
- Tylecote 1976 = R.F. Tylecote, *A History of Metallurgy*, London 1976.
- Voss, Smekalova and Smekalov 2003 = O. Voss, T. Smekalova and S.L. Smekalov, 'Using Magnetic Prospecting for Investigation of Roman Age Iron Smelting Sites with Slag Blocks in Denmark', *Archaeometallurgy in Europe. Proceedings of the International Conference on Archaeometallurgy in Milan*, 24-26 September 2003, Milan 2003, 53-62.
- Wiseman and Zachos 2003 = J. Wiseman and K. Zachos, *Landscape Archaeology in Southern Epirus, Greece I* (Hesperia Suppl. 32), Princeton, NJ 2003.
- Zarinebaf, Bennet and Davis 2005 = F. Zarinebaf, J. Bennet and J. Davis, *A Historical and Economic Geography of Ottoman Greece. The Southwestern Morea in the 18th Century* (Hesperia Suppl. 34), Princeton, NJ 2005.