UNIVERSITY OF THESSALY
DEPARTMENT OF HISTORY, ARCHAEOLOGY
AND SOCIAL ANTHROPOLOGY

OROPOS AND EUBOEA
IN THE EARLY IRON AGE

ACTS OF AN INTERNATIONAL ROUND TABLE
UNIVERSITY OF THESSALY
June 18-20, 2004

Edited by A. MAZARAKIS AINIAN
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VOLOS 2007
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ΠΑΝ
This book is dedicated to Nicolas Coldstream, my mentor in Early Iron Age archaeology.
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PREFACE

The idea of organising a Round Table at the University of Thessaly in Volos grew the summer of 2003 between the members of the archaeological teams working on the Early Iron Age sites of Oropos, Eretria and Lefkandi. Formal Symposia tend to be less productive and our aim was to bring together the scientific teams working at three in many ways related and extremely important Early Iron Age sites in order to discuss the numerous aspects of our respective data, and exchange ideas. Indeed, the time was ripe for such a meeting, since both the Eretria and Xeropolis excavations were —and still are— active, bringing to light new data, while several scholars, senior and younger, are working on the Early Iron Age material from these sites. At Oropos, where excavations had come to a momentary pause and work has been concentrating in the study in view of the final publication, we have recognized throughout the past years the strong connections —but also the differences— of the Geometric and Archaic settlement with the opposite Euboean coast, and with Eretria and Lefkandi in particular. Thus, the goal was not to have a Symposium aiming towards a wider public, but a specialised Workshop involving mostly the members the above mentioned teams. The conclusions of this meeting will certainly contribute towards a better understanding of the material culture of the area and of Early Iron Age Greece in general.

For the organisation of the Round Table I was assisted by various colleagues, students, as well as staff of our Department. Dr Theodora Rombos, Maria Panagou and Popi Chatzilazaridou, as well as Manuel Arjona Pérez, Jean-Sébastien Gros and Vicky Vlachou, took care of a series of practical matters; Dr Themis Dallas constructed the related website; Professors Nicolas Coldstream, Nota Kourou, Antikleia Moundrea-Agrafioti, Eva Simantoni-Bournia and Dr Penelope Agallopoulou presided in various sessions of the meeting. I thank them all.

Two of the contributions deal in general with the Euboeans, nine with Oropos, seven with Eretria and two with Lefkandi. The aim of the meeting was to include other Euboean sites as well, such as Chalcis and Viglaoueri. Unfortunately this goal was not achieved, though a poster was presented during the Round Table by Dr E. Sapouna-Sakellaraki concerning the latter site. Three important contributions, those of J. P. Descoeudres on Eretria in the 7th c. BC, of A. Psalti on the excavations of Geometric burials near the Agora of Eretria and of A. Ritsonis on the Early Archaic pottery of Eretria, were not submitted in order to be included in this volume. On the other hand, one paper published here was not presented during the Round Table (that of D. Ridgway), but it was judged important to host it in the acts.

The studies concerning Oropos present an overview of the data which will be included in the final publication. Since the latter will be in Greek, this volume constitutes a useful summary
in English of the work accomplished up to 2006. It has been able to reach this goal thanks to a number of Institutions which have generously supported the study of the material. I wish to address my sincere thanks to the “Archaeological Society”, the “Psycha Foundation”, the “Institute for Aegean Prehistory”, the “Shelby White – Leon Levy Program for Archaeological Publications” and the Municipality of Oropos. The joint programme of the European Community and the Greek Ministry of Culture “EPEAEK – Pythagoras” supported financially a number of the members of the Oropos study team, and covered most of the costs related to the organisation of the International Round Table of June 2004 and the present publication, as well as those of the archaeological exhibition which was set up at the University of Thessaly on the side of the meeting. The Department of History, Archaeology and Social Anthropology (IAKA) of the University of Thessaly also supported both the meeting and the exhibition. The publication of the Acts of the Round Table was made possible thanks to the Research Committee of the University of Thessaly which took the decision to meet the costs of editing and printing this volume. I wish to express my thanks to Vicky Vlachou and Anastasia Souliou who assisted me at various stages during the editing of the volume. I also thank Eva Charalambidou and Christina Mitsopoulou of the Laboratory of Archaeology of the IAKA Department of the University of Thessaly who supported me on various occasions while preparing this publication, as well as the contributors, for their collaboration and patience.

May 29, 2007

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Department of History, Archaeology and Social Anthropology
University of Thessaly, Volos, Greece
# ABBREVIATIONS

## ABBREVIATIONS OF TERMS

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## OTHER ABBREVIATIONS

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## DIMENSIONS

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<tr>
<td>AA</td>
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BIBLIOGRAPHICAL ABBREVIATIONS


Blandin, 'Tombes a inhumation' = B. Blandin, 'Recherches sur les tombes a inhumation de l'Hérôdon d'Éretrie', in Euboea, 135-146.


Boardman, 'Euboean Pottery' = J. Boardman, 'Early Euboean Pottery and History', BSA 52 (1957), 1-29.


EIA Aegean = N. Chr. Stampolidis & A. Giannikouri (eds.), Το Αιγαίο στην Πρώιμη Εποχή του Σιδηρού (Athens 2004).

ABBREVIATIONS


Erétrie guide = Érétrie, guide de la cité antique (Gollion 2004).


Kourou, NNN = N. Kourou, To Νότιο Νεκροταφείο της Νάξου κατά τη Γεωμετρική περίοδο (Athens 1999).

Kourouniotis, 'Αγγεία Ερέτριας' = K. Kourouniotis, 'Αγγεία Ερέτριας', AE 42 (1903), 1-38.

Lemos, Protagogeometric Aegean = I. S. Lemos, The Protagogeometric Aegean. The Archaeology of the Late Eleventh and Tenth Centuries BC (Oxford 2002).


Mazarakis Ainian, Rulers' Dwellings = A. Mazarakis Ainian, From Rulers' Dwellings to Temples: Architecture and Society in Early Iron Age Greece (1100-700 BC), SIMA 121 (Jonsersed 1997).


Mazarakis Ainian, 'Excavations' = A. Mazarakis Ainian, 'Recent Excavations at Oropos (Northern Attica)', in Excavating Classical Culture (Oxford 2002), 149-178.


Mazarakis Ainian, 'Contribution' = A. Mazarakis Ainian, Η συμβολή του Ωρωπού στη μελέτη των οικισμών του Αιγαίου της Πρώιμης Εποχής του Σιδήρου, in EIA Aegean, 369-387.


Above all, the tale of an excavation is the story of the people who, armed with patience, work hard in order to bring to light the stories of other people who lived long ago and shaped our civilization. These "stories" usually remain in the excavator’s memory and are rarely disclosed. Thus, the first scope of my paper is to relate just a few of them and to pay a tribute to all those people, eponymous and anonymous, who have faithfully followed all these years my tracks and supported, each in her or his own way, my aspirations. Despite the numerous practical difficulties which I have encountered throughout these years, which have sometimes led me to despair, Oropos still remains in my heart. To my mind, it represents an ideal case-study for an archaeologist, and this is why I feel that the students that have been trained in this specific dig have gained a valuable lesson, necessary to any good archeologist, i.e. that we are not treasure hunters but scholars who try to reconstruct the canvas of the past through bits and pieces of evidence which are there for us, provided that we learn how to recognize them and acquire the ability to see through the finds, however insignificant these might seem at first glance. As G. Chourmouziadis writes, “the past cannot be unearthed so easily! ... Archaeological excavation is not a treasure hunt. It is the endeavour of archaeologists to transform the soil into a historical account”. The lines which follow constitute a plea towards this direction*. 

The second scope of my paper is more critical, first towards myself and then towards people and institutions involved with the story of this project. Indeed, twenty years of ar-

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* This paper is offered to Maria Mourtiadou (Fig. 93), a devoted graduate student of mine, who suffered a severe injury in August 4, 2006, during the excavations at Oropos. Her accident, which she surpassed with great courage, motivated my decision to present for once not only the stories of ruins, but also those of the people lying behind their discovery.

All photos are by A. Mazarakis Ainian or the Oropos archives, with the exception of figs. 8-11, 13, 14, 62, 89 (2nd Ephorate, archives of A. Dragona).

1. Λόγια από χώμα (Skopelos 1999), 43, 50.
chaeological excavations and research at the site of Early Iron Age Oropos have elapsed (Figs. 1-7) and it is now time to draw back, look with a critical eye what has been accomplished and pose a series of questions. What is the place for EIA Oropos in the history of archeology and more specifically of that of EIA Greece? What are the basic preliminary historical conclusions which can be adduced? Which is the impact of these discoveries for our understanding of EIA Greece? Where does the line between fact and hypothesis lie and when should it be crossed? Can future research at this site offer additional clarifications to problems that have been posed and remain unsolved? Is the site worth preserving or should it be covered up?

THE HISTORY OF THE EXCAVATION

All started when the 2nd Ephorate of Prehistoric and Classical Antiquities gave the permit to the Organisation of School Buildings (O.S.K.) to build a High School at the west confines of the modern community of Skala Orpopou. Indeed, when the bulldozers struck incidentally the first walls of the EIA settlement in March, 1985 (Fig. 8-9), it immediately became apparent to Aliki Dragna (Fig. 10), to whom Basil Petrakos (Fig. 11) had entrusted the rescue excavation, that the site was of extreme importance for the understanding of the organization of communities in EIA Greece, both due to its excellent preservation and the variety and complexity of available data that it offered. The Ministry of Culture, following the proposal of the K.A.S. (Central Archaeological Committee), granted the permit to construct the school, under conditions. Schools II and IV were built, but the erection of School I was delayed and in the end postponed for the future (Fig. 12). The excavations were brought to a momentary halt in June 29, 1987, as on one hand the health of the excavator was deteriorating and on the other the negotiations between the 2nd Ephorate and the O.S.K. Committee appeared to have reached a dead end. The latter insisted in erecting the third building (School I) above the remains of the main part of the site, but the complexity and density of the architectural remains created severe practical problems towards reaching a consensus with the Ephorate and the K.A.S. This was due to the fact that during the excavation of the deep trenches for the foundations of the building, more architectural remains were brought to light and the Ephorate requested alterations of the original project. With one last document the 2nd Ephorate urged O.S.K. to continue the opening of the trenches for the foundations of the school, but the latter simply did not respond and work at the site ceased. Finally, the O.S.K. Committee did not proceed in erecting the third school building, I, according to the architectural project which anticipated the preservation of the EIA remains in the basement of the building, and ceased all correspondence with the Ephorate.

2. 2nd Ephorate 3020/25-7-85, following the request of O.S.K. Φ.473.2/6387/18-3-85.
3. It is noteworthy that these were the first EIA remains which were brought to light in the area. Moreover, the survey of the 1980ies in the surrounding area had failed to reveal traces of occupation dated between the LBA and the Archaic period. See Cosmopoulos, OSP, 42.
4. K.A.S. 41/26-11-85; ΥΠΠΟ/ΑΡΧ/ΑΙ/Φ02/61031/2275/12-12-85.
6. 2nd Ephorate 5282/7-1-92.
7. K.A.S. 35/7-10-86, ΥΠΠΠΟ/ΑΡΧ/ΑΙ/Φ02/40296/1640/8-10-86 and ΥΠΠΠΟ/ΑΡΧ/ΑΙ/Φ02/161/12/23-1-87.
The O.S.K. Committee raised once more the issue in November 1995, and made a suggestion how the school building should be built, taking into account the ancient remains. With its letter of January 22, 1996 the 2nd Ephorate demanded some minor changes in this project, but for unknown reasons the O.S.K. Committee remained silent once more.

As a 26-year-old doctoral student, I heard about this intriguing discovery and visited the site on October 30, 1985 and again on November 4, 1985. Aliki Dragona (Fig. 13) received me eagerly, showed me around the site, discussed with me the questions she was facing and shared with me her ideas about Homeric Graia. I admired how all by her own she directed a vast excavation, and managed to control a large team of workmen and to cope with the constant pressure of the construction entrepreneurs of the school. At the same time I was fascinated by the extent and perfect preservation of the architectural remains (Fig. 14); it was the first time I was looking at so many apsidal, oval and round buildings of the Geometric period.

The summer of 1987 the excavations stopped and the site was covered up with sand and earth, for protection. Dragona passed away in July 3, 1988. It appeared to me at that stage that the prospects for publication of this important discovery were slight.

Circumstances in the trajectory of ones career, as in life, are sometimes unpredictable. In the early 90ies I was hired by the 2nd Ephorate and Dr B. Petrakos assigned to me the recording of the finds from all the rescue excavations of the area of Oropos, which were kept at that time in the storerooms of the Museum of the Peiraeus. Inevitably, I fell upon the abundant material from Dragona's excavations. Dr Petrakos eagerly entrusted me the rights of publication when I asked for it. My first concern was to read the excavation diaries. Soon I realized that not only the stratigraphy was rather complicated (Fig. 15) but also that the excavation had not been completed. In order to reach the original goal, the publication, it was imperative to return to the site and uncover once more the remains in the hope of understanding the succession of architectural phases, It was decided, jointly with Dr Petrakos, that work should be resumed and that the new excavation programme should be conducted under the auspices of the Greek Archaeological Society. The Ephorate, eagerly gave its consent and Dr Penelope Agallopoullou (Fig. 16), responsible for the Oropia region, supported my ambitions thereafter in such a manner that one is not accustomed nowadays.

The new period of the systematic excavations lasted from 1996 to 2002. The first season of excavation the team consisted of myself, four inexperienced undergraduate students of the Ionian University, Nikos Kalliontzis (the draughtsman of the Ephorate), and a few workmen (Fig. 17-18). The following seasons the team grew significantly (Fig. 19) and included numerous undergraduate and graduate students from several universities from Greece and abroad, as well as young and senior specialists in archaeological sciences (Figs. 20-34). Several among them have become since my close associates in the Oropos project. Throughout these years we surmounted together a series of annoying practical problems, deriving usually from the
narrow-mindedness of (un)educated people. What struck me most was the indifference of the local people about their past and much of our effort has been to arouse their sensitivity on such matters. Yet, it was nature which finally brought to an abrupt halt the excavation project. Fires burned the forests of the hills overlying Skala Oropou (Fig. 35) and were subsequently followed by heavy rainfalls and snow. In the winter of 2001/02 the archaeological site was inundated and became a virtual pond, 2.50 metres deep (Fig. 36-37)\(^1\). It was as if history was being repeated: the engulfing of Homeric Graia beneath the mud for a second time. The following months all efforts were concentrated in pumping out the water, which was not as simple as we had originally anticipated, since water kept flowing in through underground streams. Work in the summer of 2002 was conducted under very difficult conditions (Fig. 38), despite the fact that water pumps had been placed into position, both in the Central and West Quarters. This was due to the fact that the table water had risen significantly, and excavation beneath ca. 3.50 metres from the actual surface had become problematic and there was a danger both of loosing valuable data and damaging the architectural remains. The next winter (2002/03) the even worse weather conditions accentuated the above described problems. Thus, a decision was taken to bring the excavations to a pause and partly cover the remains. This would on the other hand allow us to focus on the study of the finds: between 2003 and 2006 activities in the field were restricted to cleanings and preservation of the remains and all efforts were directed mainly on the conservation (Fig. 39-40) and intensive study of the finds in view of the final publication. On the side, a Geological survey was conducted under the direction of Peter James within and in the surroundings of the site (2002, 2004) (Fig. 41)\(^1\) and a Geophysical Survey in 2004, under the direction of Roger Doonan, in the area to the East of the excavations (Fig. 42)\(^1\).

During this interim period a sad incident occurred. In the summer of 2004 the O.S.K. entrepreneurs decided to secure the foundations of School building II. The Municipality of Oropos had been notified about this decision, but not the 2nd Ephorate or the excavator. The morning of 4th of August, 2004, the door-lock of the site was forced and a bulldozer entered the site and started leveling a wide strip of earth at the North end of the Central Quarter\(^1\). This action was brought to our attention without delay, but some damage had been already accomplished. What is outrageous is that the bulldozer re-entered the site without notification for a second time, the 11th of August and finished off the damage. The architectural remains, especially Buildings II' and Θ, peribolos wall 61 and structure XXXVI suffered severe damages, with most prominent the partial collapse of the apse of the largest and most important Geometric building of the EIA settlement, Θ (Fig. 43). The walls were subsequently repaired (Fig. 44), with the exception of the round structure XXXVI which was totally dismantled by the JCB, but the original appearance of certain of these structures has been lost for ever.

12. Prakt (2002), 5, 8, pl. 3.
15. This incident reminds us of the similar one which occurred at Toumba-Lefkandi, the 15th of August 1980. A peculiar coincidence is that the ruins destroyed then also in the midst of the summer season with the initiative of a school teacher (!) date also in the EIA. One wonders whether, for the mind of non-specialists, such non-spectacular remains of the past are not considered as ancient monuments worth preserving. It is perhaps time for modern archaeologists to pass the message to modern communities. See C. N. Runnels, 'On the Destruction of Archaeological Sites', IFA 8 (1981), 91-93.
It has been decided that the time is now mature to resume excavation in order to reveal the remaining part of this unique extensive and well preserved EIA settlement of mainland Greece, while it is hoped that we will be able to locate and excavate also the necropolis attached to it. The other reasons for returning in the field are obvious: On one hand the study of the finds from the earlier excavation in the Oropos Museum has been completed, and the manuscript has been submitted for publication; the members of the team are preparing their individual contributions for the remaining volumes of the final publication. On the other hand, the table water has withdrawn again almost to the levels of the 80ies and 90ies. Moreover, we have now placed three permanent powerful water pumps which are connected with the main drainage system of the modern town, and the site is protected from inundation. Thus, excavations were resumed in August 2006 with two trial trenches which were planned in order to verify the results of the Geophysical Survey of 2004. The trenches were situated at some distance from the East extremity of the Central Quarter, inside the “Prisons’ Field” (Κτήμα Φυλακών), and aimed in finding the limits of the EIA settlement and locating one of its cemeteries. The results from the first trench, A, were disappointing, and the promising features detected after the preliminary decoding of the results of the Geophysics Survey turned out to be natural and not man-made as originally anticipated. The position of the second trench, B, was chosen by intuition (Fig. 45), since it lay outside the limits of the area of the Geophysics Survey. Surprisingly, the results there were positive (Fig. 46): a LG massive boundary wall and an ancient river, both of which doubtlessly mark the East limit of the settlement, were brought to light. It is believed that a few metres to the East of these features may lie the East Necropolis of EIA Oropos. Thus, through the new excavation programme we intend to continue the excavation of the settlement and hope to identify and investigate the related necropolis. This would be of extreme importance, since data from EIA sites are usually restricted either to burials or the settlements, but a combination of the two is still very rare. This combined information deriving from a systematic excavation will allow us for the first time to study a well excavated EIA settlement in relation to its cemetery.

EXCAVATION METHODS AND TECHNIQUES

The new excavation project had to deal with the fact that the site had been extensively excavated previously under the conditions of a “rescue” excavation, and backfilled. It was therefore necessary to adapt the excavation methods and techniques to a pre-existing status quo. The first task was to remove the fill of earth with which the remains had been covered. Usually, a layer of grey sand had been placed over the non-excavated areas, thus facilitating this fastidious work. A major problem was to understand the system which had been used for recording depths, which was not clearly stated in the old excavation diaries. The recording of the finds followed the system of the previous excavation, in order to assure continuity and consistency for those who would process the material in the future. The excavation progressed with the logic of areas, spaces and buildings, and no attempt was made to establish a grid.

16. A. Mazarakis Ainian & I. S. Lemos, Ανασκαφές Ωρωπού. Η Πρωτογεωμετρική και Υποπρωτογεωμετρική περίοδοι (Athens, in press).

The expansion towards the South of the Central Quarter revealed immediately the presence of an Archaic street, following an E-W direction. There was no point of investigating this long strip in squares either (Fig. 47).

In the West Quarter, on the contrary, we expanded the excavation towards the West, mostly on ground that had not been investigated previously. Thus, it was possible to establish a grid of squares measuring 5 by 5 metres (Fig. 49). Levels were measured from a new fixed point, which we have been able to correlate with the levels of the Central Quarter.

The Central Quarter was photographed from a helicopter of the Greek Navy in August 28, 1998, under the general command of the officer of the Navy Constantine Mazarakis Ainian.

MULTIDICPLINARY RESEARCH

A Geological Survey (2002) and coring (2004) was conducted in and around the site by Peter James (see Fig. 41). All samples were sent to Liverpool for analysis (see paper in this volume).

In 1997 a Magnetic Susceptibility Survey was conducted in Building A (Fig. 48) in order to ascertain that the edifice served as a metal workshop; in 1999 and 2000 Resistivity Surveys were conducted in the area of the West Quarter in order to trace features of potential interest worth excavation in priority (Fig. 51). In 2004, a similar survey was conducted in the area which is the focus of the new excavation (west extension of the West Quarter). A Geophysics Survey, combining Resistivity, Magnetometry and Ground Penetrating Radar, was conducted in 2004 to the East of the EIA site, in the vast "Prisons' Field" (see Fig. 42). The interesting preliminary results will be published in Praktika of 2004.

All the Geophysical Surveys were conducted by Dr Roger Doonan. Doonan also proceeded in the analysis of numerous pieces of slag and other materials connected with metalworking and has reached important results. Microstructural analysis has produced over 1000 data elements. Doonan's detailed work will be included in the final publication.

Analysis of various substances and vegetal matter has also been carried. Earth samples were collected by Maria Kousoulakou (Fig. 52) in order to be examined. Ashes, olive pips, etc. have been analysed at the Agricultural University of Athens and the Goulandris Museum of Natural History. Soil samples were taken from numerous hearth/pyrotechnical structures and have been handed over for analysis at the Fitch Laboratory. Dr Lena Aloupis conducted analysis of pottery samples with the aim of answering questions of provenance (see paper in this volume).

A detailed study of the numerous animal bones and sea shells was conducted and com-

18. It is worth noting here that when in the year 2000 we removed the fill with which the West Quarter was covered (Sector E of the old excavation), we were unable to find the Archaic house which had been excavated by Dragona [Mazarakis Ainian, 'Oropos (1985-87, 1996); 28-33, pls. 10-11]. The only logical explanation to this is that it was accidentally destroyed by the entrepreneurs of O.S.K. while backfilling the excavation trenches.

19. The first such attempt, of August 6, 1998, cannot be regarded to have been particularly successful (Fig. 50).


Importance of the Site

The site is of great importance for understanding the transition from the bronze technology to that of iron. Here, according to R. Doonan’s preliminary conclusions, copper and iron were worked side by side, apparently in the same areas, by the same people and sometimes using the same kilns. The excavation provides for the first time evidence for the organisation of craftsmanship in the EIA and offers a new insight on the debate about the connection of religion with metalworking. It has been argued that the cult activities, which are definitely attested in the midst of the working area, were addressed to the Telchines, mythical demons and metalworkers, and their sister, the Nymph Halia. Moreover, in the same area pottery kilns have been unearthed, proving that the quarter was not reserved exclusively for metalworking (which, however, was the primary occupation of the people living in the Central Quarter).

Large amounts of pottery have been unearthed, including several complete vases. The production is mostly local but influenced heavily from the Euboean LG and EA styles. The study will certainly help define the chronology of the LG-EA Euboean and Attic-Boeotian pottery styles, since all the material is stratified. In fact we have encountered at least 6 successive architectural phases within a period spanning ca. 150 years. The iron tools, that have been found in large numbers and presumably represent a local product, complement our knowledge on the procedures of metalworking. Other finds include bronze and lead objects, jewels, early graffiti (one in Euboean alphabet of the late 8th c.24), and substantial amounts of Orientalia, which denote contacts with the East.

Is Oropos Homeric Graia?

The idea that Oropos should be identified with Homeric Graia (II. 2, 498) was first formulated in the late 19th and earlier 20th century and was primarily based upon the literary sources. Indeed, according to the testimonies of Thucydides (2, 23, 3), Aristotle (St. of Byzantium, s.v. Tanagra and Oropos) and Strabo (9, 404), pre-classical Oropos is usually identified with Graia.


According to an old opinion the Graioi would have participated in the earliest colonisation movement of south Italy and would have joined the Euboeans in the foundation of Cyme. Since one of the main objectives of the Greeks who established themselves in the West, and on Pithekoussai in particular, was the trade of metals, it seems reasonable to argue that it is these Graians that the indigenous Italian people presumably first met and consequently all the newcomers became known to the local people, and thereafter to the western world, as Grai(c)i.

The debate concerning the identity of pre-classical Oropos could not be pursued further, and these suggestions could not be tested, unless new excavations would contribute towards this direction. Today, following the numerous discoveries, this hypothesis is strengthened by the numerous similarities that one observes between Oropos, Eretria and Pithekoussai (similar settlement organisation, industrial activities, cult practices, hero cults, burial customs, pottery production etc.). Nevertheless, the final answer to the question of identity of the EIA settlement has not been given yet.

WHAT KIND OF SETTLEMENT ORGANIZATION?

In order to reach firm conclusions about the nature of the remains unearthed at Oropos up to the present day, it is imperative to have an idea of the situation of these remains within the settlement and also to be able to reach an estimate of its extent. These issues, however, cannot be addressed for the time being, since neither the extent of the EIA community can be calculated, nor the limits of the site can be fixed, with the exception of the east limit, which was revealed in 2006.

Based on the present evidence, however, it is possible to suggest that the community was organised according to family units. Each of these would have resided within compounds, consisting of one or more dwellings — depending on the number of the members of the family — workshops, storage facilities, household shrines and animal pens. The number, type and size of the buildings appear to have been determined by several factors, such as the number of the members of the family and their wealth or social status.

These family units may be compared to the Homeric oikos such as the one of Odysseus. Each oikos unit would have consisted of a number of buildings surrounded by an enclosure wall (Homer's ἐρκός — erkos—, ll. 9, 476; Od. 22, 442). There was a main residential building (a μέγαρον — megaron—). We could imagine within the erkos dung heaps due to the fact that animals were presumably kept within it (ll. 24, 163ff.; Od. 17, 297), an altar of some other focus of cult (Od. 22, 334-335), associated perhaps with the practice of libations (ll. 16, 231; 24, 306), τὸλοι (Od. 22, 442-474) and chambers (θάλαμοι) which did not form part of the main megaron (ll. 6, 242-250; Od. 1. 425; 4, 718, 802; 23, 192ff.). The narrow corridors formed between the various architectural units and the periboloi could be the λαύρη (Od. 22, 136-138, 162-166).

Each household must have had a significant degree of economic autonomy, and probably in some instances going beyond self-sufficiency. Apart from agriculture (cf. numerous silos), herding (cf. animal bones) and fishing (cf. sea shells, hooks and net weights), activities definitely included metalworking, pottery production, spinning, weaving and perhaps dying.

LEFKANDI – OROPOS, ERETRIA – OROPOS. WHAT SORT OF CONNECTION?

Oropos was occupied at least from the late 10th c. BC onwards. The earliest nucleus of habitation was situated some 600 metres to the East of the O.S.K. plot, in the area of the O.T.E. plot. The pottery from the latter site dates from the LPG to the SPG III period and shows close affinities with the contemporary ceramic production of Lefkandi. Like the known cemeteries at Lefkandi, the area was abandoned in the SPG III phase, but was resettled in LG Oropos and Lefkandi, therefore, seem to follow a parallel historical trajectory, of which, however, we are missing several pieces which would allow one to understand better these issues. If Lefkandi can be identified with Strabo’s “Old Eretria” (9, 403; 10, 448), Oropos could be regarded already as an “Eretrian” (i.e. originally Lefkandian) outpost. It is perhaps not coincidental that when Lefkandi was abandoned, the population seems to have moved further to the East, at Eretria, opposite Oropos. It is during that time that a new period of prosperity is observed at Oropos, with the foundation of the extensive settlement at the O.S.K. property, which goes in pair with the expansion and prosperity of Eretria as well. Whether some of the first inhabitants of the LG community of Oropos came from Lefkandi is something that cannot be proven, though this seems likely enough.

THE IMPACT OF THE OROPOS EXCAVATIONS TOWARDS UNDERSTANDING BETTER EIA CULTURE AND HISTORICAL ISSUES

The excavations of the EIA settlement at Oropos have led to a reassessment of the evidence from other contemporary settlements. It was realized that the settlement pattern observed at Oropos is repeated at Eretria and, to a lesser degree, at other Euboena sites, such as Viglatouri or Xeropolis-Lefkandi. This pattern had not been clearly detected due to the fact that only small parts of the latter settlements had been unearthed up to the present day, while the data from the former site, though abundant, was fragmentary due to the nature of the research (mostly rescue excavations but also bad state of preservation of the remains due to the continuous habitation of the site). Indeed, the Homeric descriptions of the oikos are consistent with what has emerged from a number of sites, especially in the geographical area of the Euboean koine.

Oropos is the most extensive EIA settlement in Mainland Greece excavated with modern methods and techniques and involving multidisciplinary approaches. Our knowledge about the architecture and settlement patterns in EIA Greece has been significantly enriched and the new data lead to a positive debate (see A. Gounaris’ contribution in this volume, Fig. 53). The studies of the ceramics, which are currently under way, will contribute towards better refining the chronology of LG and EA pottery (both through an internal stylistic and typological ap-

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27. Mazarakis Ainian, 'Oropos', 181-191; see also Mazarakis Ainian & Lemos, op. cit. n. 16.
ENΔΟΝ ΣΚΑΠΤΕ. THE TALE OF AN EXCAVATION

proach, but also thanks to the fact that the material is well stratified, Fig. 54), and also towards identifying individual ceramic workshops of the EIA (Ph.D. thesis of V. Vlachou [Fig. 55] and X. Charalambidou [Fig. 56], in progress, and in this volume). Moreover, the attention paid to the coarse wares which are usually neglected in publications, will certainly bridge a gap in our knowledge of this category of pottery (Ph.D. thesis of J.-S. Gros [Figs. 57-58], in progress, and in this volume). The minor objects viewed in context offer a valuable contribution to the better understanding of the behaviour of an EIA community (cf. for example the paper by M. Arjona Pérez [Figs. 58] in this volume, and the study in progress of the metal finds by K. Kolotourou [Fig. 59]). Oropos will doubtless contribute towards raising issues which concern the technology of the metals industry and understanding better the impact of this kind of activity at the crucial stage of the rise of the polis (R. Doonan's work, in progress). It will also allow to advance our knowledge about subsistence strategies, through the study of the animal bones (paper of K. Trantalidou in this volume) and the mollusks (paper of T. Theodoropoulou [Fig. 60] in this volume) recovered at the site from stratified contexts.

Oropos may also contribute in understanding better the custom of “intra mural” child burials in LG times, which, contrary to what one observes during the earlier PG period, seems restricted to just a handful of sites in the Aegean. The actual reasons behind such burial “exclusions” are discussed by V. Vlachou in this volume. The “diversity” observed in the attitude towards death of the Oropians30 and the Eretrians31, versus the Lefkandians, deserves however an additional comment. During the recent excavations at Xeropolis it became apparent that the custom of burring infants and children within the settlement was not in place there; on the contrary two child burials of the LG period were excavated at the foot of the Xeropolis hill, suggesting an organized necropolis for children at the fringes of the settlement32. If Eretria, in its early phases of development, was mostly populated by Lefkandians, this contrast in the treatment of the dead children is indeed puzzling and difficult to understand. Moreover, at Lefkandi organised cemeteries both for children and adults were the norm from the SM period onwards. This could serve as an argument against the theory that Lefkandi was “Old Eretria”, since at the latter site the distribution of burial grounds is more loose and diverse than at Lefkandi. What seems more probable is that Eretria was already populated by a community which had no connection whatsoever with the one residing at Lefkandi. At the most one could suggest that we witness towards the end of the 8th c. BC an influx of population from Lefkandi, which merged with that already established at Eretria33. The reason of the gradual decline and abandonment of Lefkandi may have been its involvement in the Lelantine war, as suggested by several scholars. It is perhaps the historical circumstances and the sudden population growth that led the Eretrians to the decision to create an outpost on the opposite coast of the South Euboean Gulf, at Oropos. These Eretrians, which may have been joined by some refugees from Xeropolis-Lefkandi, would have mingled with a preexisting community, the Graians,

30. V. Vlachou, Ο Ωρωπός των Πρωτής Ιστορικών Χρόνων μέσα από τις παιδικές ταφές, Unpublished MA thesis, Univ. of Athens, (2004), and in this volume.
32. I. S. Lemos, AR (2005-2006), 62-63, and also in this volume.
33. See also Lemos, Protogeometric Aegean, 202-203.
who were living in the area since at least the 10th c. BC, and with which both they and the Lefkandians were seemingly in friendly terms and shared long-lasting common interests.\footnote{W. Gomme, *A Historical Commentary on Thucydides* II (Oxford 1956), 81, had already suggested that the first inhabitants of Oropos were the Graians, who subsequently came under the control of the Eretrians.}

**FACT AND HYPOTHESIS**

Oropos has offered a large amount of new data, which have been put together in a preliminary form and have led me to a series of new ideas, which occasionally bear some far fetching implications regarding the understanding of the material culture of the EIA. It is true that at the present stage of research some of the ideas that have been put forward go further than the actual factual presentation of the data and enter into the sphere of subjective interpretation, including a certain degree of hypothesis. For instance, is the idea of “compounds” correct, and if yes, does it represent a more generalised model of organisation of EIA communities or not?\footnote{See, for instance, P. Themelis’ criticisms in the discussion in *EIA Agean*, 388-389.} What was the role of the Oropians in the colonisation of the West?\footnote{See criticisms by Jameson & Malkin, *op. cit.*, n. 26.} Or, consequently, if Oropos is indeed Graia, did the Graians play a role in the transmission of the ethnic name of the Greeks to the West? In the end of the line, how far is it permitted to proceed with theories of this kind? The answer to the question is, as far as I am concerned, that as long as the archaeological data allows the formulation of well founded ideas and theories, even if these might be rejected in the future if the archaeological data is further treated and therefore better understood, they should indeed be presented and consequently tested. The progress of the study, which in terms of modern scientific approaches can only be but time consuming, will doubtless lead to a refinement of these original ideas, but it is imperative to treat the archaeological data with a major goal in mind, that is to say to answer questions of historical and cultural nature, even if there is a risk in such an approach. Boldness is indeed one of the constituents of research that allows science to progress.

**THE POTENTIAL OF FUTURE RESEARCH**

Why continue excavating at Oropos? Is not the data recovered to the present day enough in order to progress significantly our understanding of EIA Greece? On one hand there are a number of remaining questions and problems which future excavations might help in clarifying. On the other, there are missing data: the necropolis of the EIA has not been located yet, the extent and limits of the Geometric-early Archaic settlement are practically unknown\footnote{With the exception of the E limit (*op. cit.* n. 17).}, the extent and layout of the Archaic settlement still constitutes a desideratum. Excavation *per se* is indeed to be avoided. But excavation which aims towards achieving specific goals is definitely required and welcomed. Bearing all this in mind, it is obvious that the excavations at Oropos have to be pursued. This said, one should acknowledge that even if some of the aforementioned questions find an answer, new questions will arise. Indeed, excavation rarely solves only problems, it also generates new ones. The point is to be able to realize at which point an
excavation should be halted, and such decisions are unfortunately often determined by other factors, not necessarily related to research priorities.

THE PRESERVATION OF THE SITE

The site seems to have monetarily escaped from the threats of nature and human action. But it is clear that a decision has to be taken soon about the destiny of the site (Fig. 61). In a multifaceted and polyphonic society it is not always possible to formulate common positive beliefs regarding ancient remains and their multiple meanings. Most of the people and institutions involved in the fate of the archaeological site of the EIA at Oropos were confronted with a dilemma: should priority be given to the development projects or to the archaeological investigations? Moreover, should funds be invested in order to preserve the site and make it accessible to the public, or should the remains be backfilled? The Ministry of Culture proposed solutions for continuing the construction of the school, under the condition that the ancient remains would not be disturbed but remained silent to all proposals that would involve funds also from its side. The Archaeological Society supported the excavation, initially with funds, but subsequently, following a more general policy due to budget cuts, ceased to finance the project, though continued to offer its moral support. Fortunately, other institutions, such as “INSTAP” and the “Psycha Foundation”, continued to show an interest in the project, and it is thanks to their generous funds that the excavation was able to continue throughout these years. Study, however, was able to progress both thanks to the dedication of my young collaborators, and also the funds by the “Shelby White – Leon Levy Program for Archaeological Publications” and the joint Programme of the European Community and the Greek Ministry of Education “Pythagoras”. It is a relief that the Archaeological Society in 2006 decided to support once more the project, not only in order to meet the costs of excavation, but also those required for the maintenance and preservation of the site. The Organisation of School Buildings has finally abandoned the project of constructing the third building of the High School, presumably judging that an archaeological excavation is a time consuming procedure with unpredictable delays which would inevitably lead to money losses. The team of archaeologists (Figs. 62-88) managed for a while to guarantee the rescue and preservation of the remains, but was in the end obliged to partially cover them and to temporarily abandon the idea of creating a model open-air museum, due to lack of funds. Some politicians became interested in this specific archaeological site, only when the intriguing hypothesis concerning the identification of the site with Homeric Graia and the story of the birth of the ethnic name “Graikos” was brought to their attention. Yet their support, until today, has not progressed further than that of unfulfilled promises. Lastly, the local community, initially, did not appear

38. Yet, the 2nd Ephorate, and Drs B. Petrakos, G. Stainhauer, V. Vassilopoulou and P. Agallopoulou in particular, have offered valuable support related either to the costs or the practical matters concerning the preservation of the site.

39. The “Kostopoulos Foundation”, as well the Municipality of Oropos, also funded the Oropos project on certain occasions.

40. Despite the well-known criticisms concerning this specific foundation, it cannot be denied that without this financial help the study of the Oropos material would have been greatly delayed.

41. Among them the Ministry of Culture, which remained indifferent to my plea for support (ΥΠΠΟ/3895/
to recognise the importance of the ancient ruins and remained indifferent about the fate of the site; gradually, however, there has been some increase of interest, which occasionally takes the form of support in favour of efforts of appraisal and rescue of the remains.

Today it is clear that there are only two ways to deal with the question of the future of the site. Either substantial funds should be raised in order to cover over the main part of the architectural remains and create a "site museum" under School Building, or the majority of the remains should be backfilled in order to be protected from deteriorating. Being realistic, since the latter solution is most likely the one that we will have to opt, the continuation of the excavation becomes even more imperative. This will on one hand allow to recover new data which otherwise will not become available (substantial architectural remains have been recovered in the West Quarter but await to be investigated) and on the other it will contribute in keeping the site in a good state throughout the period that the excavation will last, as a significant portion of the funds will be diverted towards this goal.

On the other hand, despite the fact that the main preliminary results of the excavation have been presented both to the academic world and to the wider public, and the final publication is well on its way, the actual finds are not on display, due to the lack of a local museum. A successful temporary exhibition of the results of the excavation was mounted in 2004 at the University of Thessaly, in Volos (Figs. 90-92). The finds are now back in the storerooms, "buried" for a second time, awaiting better days. It is reassuring, however, that independently of this, the ideas which these seemingly insignificant objects of the past bear, cannot be obliterated. It relies to all of us, especially to the younger scholars, working on these scraps of material evidence from a distant past, to pull up from oblivion these ideas and make the finds and the ruins narrate their own stories.

"...the remains of the past have no voice and each one of us lends them his own".

(J. Sakellarakis, *Digging up the Past*, Athens 1999, 29)

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42. Vangellis Iliaskos, in particular, has offered valuable help the past years.
43. The study has been greatly facilitated by the personnel working in the "Oropos Museum": Katerina Chatzilia, Giorgos Chatzipetrou, Kostas Skitzis and the late Takis Styliaras. The latter (Fig. 89, first from left) was perhaps the person who valued most the antiquities of Oropos, but few people were able to realize this. The archaeologist of Oropos, Aris Kyriazis, has greatly facilitated the last years our work.
44. "Archaeological Quests. Excavations at Homeric Graia". The exhibition, prepared together with Dr Marlen Mouliou and with the help of most of the collaborators of the Oropos excavation and that of numerous students of the University of Thessaly, lasted from June 18 to Sept. 26, 2004. A leaflet was published in Greek and English. The related website can be accessed at http://extras.ha.uth.gr/oropos/.
**AN UP-TO-DATE BIBLIOGRAPHY OF EIA OROPOS**


**In press**


**Articles and other studies by A. Mazarakis Ainian**


'Ενεπίγραφο αλιευτικό βάρος των γεωμετρικών χρόνων', *AE* 138 (1999), 143-153 (in collaboration with A. Matthaiou).


'Recent Excavations at Oropos, Northen Attica', in *Excavating Classical Culture*, 149-178.


'O Ωρωπός κατά τους Πρώιμους Ιστορικούς Χρόνους', in *EIA Aegean*, 369-389.

**The Oropos excavations and its implications are also extensively discussed in my following papers**


'Ερετρία: Αρχιτεκτονική, πολεοδομία και κοινωνική οργάνωση κατά τους Γεωμετρικούς χρόνους', in A. Mazarakis Ainian (ed.), *AETHSE* 1 (2003), 955-977.


Excavation reports


Short excavation reports


Websites concerning Oropos


Publications – studies by other members of the Oropos team (excluding those of the present volume)

Fig. 1. Map of the Oropos and Euboea in the EIA.

Fig. 2. Topographical plan of the areas excavated between 1985 and 2006 (N. Kalliontzis, A. Gounaris, Th. Theurillat).
Fig. 3. General plan of the excavation up to 2002 (N. Kallontzis & A. Gounaris).
Fig. 4. Plan of the Central and South Quarters, 2003 (N. Kalliontzi).
Fig. 5. Plan of the West Quarter, 2003 (A. Gounaris).
Fig. 6. General view of the Central Quarter from the SW (2001).

Fig. 7. General view of the West Quarter from the South (2001).

Fig. 8. The beginnings of the 1985 excavation. The Central Quarter viewed from the West.

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Fig. 15. Stratigraphical section beneath the Archaic street (2003).

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Fig. 17. The first days of the excavation of 1996. Uncovering Building IA. View from the North.

Fig. 18. The draughtsman Nikos Kalliontzis assisted by Kostas Skitzis, and other workmen (1996).

Fig. 19. Excavations at the West Quarter, 2001. View from the SE.
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Fig. 27. The 1st team of 2000.

Fig. 28. The 2nd team of 2000.

Fig. 29. The 1st team of 2001.

Fig. 30. The 2nd team of 2001.

Fig. 31. The 1st team of 2002.
Fig. 32. The 2nd team of 2002.

Fig. 33. The 1st team of 2003.

Fig. 34. The 2nd team of 2003.

Fig. 35. The hills above Oropos after the fire of the summer of 1999 (Katerina Kolotourou and Panagiotis Kagaras).

Fig. 36. The Central Quarter after the inundation of the winter 2001/02. View from the South.

Fig. 37. The West Quarter submerged (winter 2002). View from the South.
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Fig. 39. Preserving the architectural remains (Building B-Γ beneath School Building IV).

Fig. 40. The conservator Thodoris Mavridis (Oropos Museum, 2004).

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Fig. 63. Observing the buldozer (X. Charalambidou, 2000).
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Fig. 71. "Class" with A. Gounaris (2000).

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Fig. 93. Maria Mourtiadou with Alexandros Gounaris (August 1, 2006).
INTRODUCTION AND AIMS

The Early Iron Age site at Skala Oropou lies on a narrow coastal plain (Fig. 1). In common with many locations in Greece, its environment has changed markedly during the Holocene. Configuration of the Gulf of Euboea and level of the sea have changed significantly; erosion in the hills behind the site has caused sediments to accumulate on the plain. Where valleys reach the north Attica plain, alluvial fans have formed, one burying the EIA site at Skala Oropou with 3m of mud. Another fan lies to the east of this, and to the west of the site is the distal slope of the much larger river Asopos fan (Fig. 1). The area is prone to moderate earthquakes, and the plain and lower reaches of the valleys are susceptible to flooding.

In addition to being coastal, the EIA settlement appears to have been located to take advantage of water flowing from the hills, but whatever benefits it brought, the stream flowing through the site1 caused problems for the villagers: there are remains of flood defences and high thresholds to buildings, and sand and gravel had been deposited within the EIA buildings2. There were also signs of destruction which may have been caused by flooding or earthquake. A picture therefore emerges of a settlement built within the path of a stream which was probably, as today, seasonal and small, yet capricious and potentially dangerous, prone to high energy flash floods. Following abandonment of the site in ca. 500 BC the style of deposition was of mudflow type. The sea, ever lifeline of Oropos, threatened tsunamis, at least one of which has occurred in the Gulf of Euboea3. Relative sea level in the Gulf has risen through the Holocene, though accumulation of the alluvial deposits on the plain caused the shore to recede from its position nearest to the hills4.

* We are grateful for the generosity of the British Academy (grant SG-35665), for the permits granted by the I'ΕΜΕ and the 2nd Ephorate of Prehistoric and Classical Antiquities, for the laboratory assistance of David Wells, Bob Jude and Emily James, for Sandra Mathers expertise with the figures, and for the support throughout of Alexander Mazarakis Ainian – who is in no way responsible for any flaws in the paper. Prof. John Murray helped with identification of forams.

1. We use the name “Lagovouni” for the stream and its fan.
2. Mazarakis Ainian, 'Excavations'.
The aim of our investigation was to describe the environment of Oropos and, as far as we were able at this stage, to assess the nature and causes of its change from before, during and following occupation of the EIA site. Our specific objectives and approaches were:

1. To reconstruct environmental change at the location of the site prior to its establishment. This was attempted through analysis of three sediment cores taken in the Central and West Quarters of the excavation (Fig. 2).

2. To assess the nature of the mudflow sediment which buried the site, the time of its deposition, and whether it represents one or a few events arising from sudden change, or the progressive development of the stream-catchment system, four fan sections exposed in the excavation areas were analysed (Fig. 2).

3. To understand the nature and possible causes of the erosion which led to the burial of the site, we examined the stream catchment and sampled its sediments and soils (Fig. 8). Is there evidence that the erosion may have been widespread or concentrated in certain areas? Possible sources of the fan sediments within the catchment were considered by comparing them with catchment soils and sediments.

4. To assess whether waters from the river Asopos flowed near the EIA site, we examined sediments of the plain immediately to the west of the fan.

In this paper we present only a selection of our data and make a modest contribution to addressing the above questions, but a precise chronology of events has yet to be defined.

GENERAL CHARACTERISTICS OF THE ENVIRONMENT OF OROPOS

The site lies 350m from the present sea shore, on the gentle slope of the alluvial fan (Fig. 3). The Lagovouni catchment, approximately 2.3km², extends 3.5km upstream of the site to its highest point, 163.3m above sea level. The catchment comprises two areas, the upper, southern, having gentle to moderate slopes, in contrast to the greater relief of the lower, northern area. Between the two areas, the Lagovouni stream has cut a striking gorge ca. 60m below the summits of two hills, the one to the west called “Alepovouni”. The hills of the catchment are developed in Neogene sandstones, conglomerates and marly limestones. Sediment exposures on the steep hillsides and in the gorge-sides reveal weakly to moderately cemented, bedded gravels, the clasts comprising particularly limestone, but also schist, quartzite and other minor rock types. Sediment matrix varies from clay to sand, and from white to reddish-brown. The few exposures on gentler slopes show > 2.3m of reddish-brown clays, which classify as clay loams and, in surface horizons, as silty clay loams, but which are very sticky and plastic. The chief agricultural crop in the catchment is grain, with olives and some vines on coarser soils of the hills. There are no agricultural terraces. Stony soils of the steep slopes and hilltops carry pine and a grass-herb vegetation. The Neogene sediments have been eroded by hillslope and fluvial processes to deposit sediment on the plain and in the Gulf. Soils of the Lagovouni fan are reddish-brown, stony, fine loams. The plain to the west has olive brown clay loams.

which are cultivated intensively. Modern building activities have much altered the surface of
the Lagovouni fan, and in places the stream-course is now concealed.

Seismic activity has been an important geomorphological agent in the area. The Gulf of
Euboea graben has developed probably during the last million years. In the early Holocene
there appear to have been two basins, separated by a transverse ridge between Oropos and
Eretrea. During the last 9000 years relative sea level has risen by at least 25m. Walls sub­
merged by the sea at 1 to 2m depth, at Kamaraki, ca. 5km east of Skala Oropou, are interpreted
as the remains of a Roman harbour, but it is not clear how they relate to the sea level of Roman
times. Several east-west trending faults occur in the area and influence relief. Earthquakes cen­
tred on land and offshore have reached an intensity of >Ms 6.0 during the last three centuries.
Evidence of destruction in the EIA village is attributed to flooding. Earthquake damage is
also a possibility, but cannot be verified. That tsunamis can be generated in the Gulf is attested
by the record of one in the Gulf of Malia (part of the North Euboean Gulf, at Thermopylae)
during the 6th century AD, so it is quite possible that the EIA site suffered tsunami inundation
at some time.

From meteorological data for the region, Cosmopoulos gives 432mm for mean annual
rainfall and average monthly temperatures of 9°C and 27°C for January and August, respec­
tively. In recent times, forest fires and rapid urbanization in parts of the catchment have in­
creased the risk of hillslope erosion and flooding. Severe rainstorms may occur: Mr Adonis, an
elderly resident, described much damage to buildings and the valley as being ‘like a sea’ during
al. reported that 200mm of rain fell in 48 hours at this time.

METHODS

Techniques used in field and laboratory are listed in Table 1. Coring at archaeological
sites is fraught with problems. A light, manoeuvrable corer had to be used on the EIA site
because of the many surviving structures, but the gouge became stuck in stony sediments at
one location. Nevertheless, three cores were obtained. Four sections through the fan overlying
the site were cut back into the vertical exposures around the excavation areas. A construction
site provided one section on the plain (A, Fig. 8). Sediment exposures in the catchment were
described and topsoil and sediments sampled at 50 locations in the catchment and on the
plain. Soils and sediments were analysed for particle-size (<2mm), colour, organic matter con­

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7. Ibid.
8. E. Cambouropoulos, *Παλαιογεογραφική και Γεωμορφολογική εξέλιξη κατά το Ολόκαινο. Σχέση φυσικού περι­
9. Cosmopoulos, OSP, 70.
11. Mazarakis Aimian, 'Excavations'.
14. Gournelos et al., *op. cit.* n. 5.
tent, relative concentration of secondary carbonate, and mineral magnetic properties. Non-destructive magnetic analyses provide information on the concentration, magnetic grain-size and mineralogy of magnetic minerals, properties which reflect the combined effects of parent material mineralogy, weathering, pedogenesis and drainage on the soil's properties\textsuperscript{15}. We find that the measurements efficiently capture soil variations in the study area. Soil types (Fig. 8) were defined by cluster analysis of mineral magnetic properties, with further subdivision based on geology, texture and colour. Mineral magnetic properties of sediments aid identification of topsoil-derived material in the stratigraphy, as opposed to "non-soil" sediment, such as that scoured from stream channel banks and beds\textsuperscript{16}. Distinctive magnetic signatures may also indicate a particular sediment source within the catchment\textsuperscript{17}. \textit{In situ} topsoils buried in sediment stratigraphy may be inferred from organic matter concentration and mineral magnetic and morphological properties. Particle-size distribution of sediments and soils is an important factor in their rheological properties and erodibility, and also indicates style of deposition. The nature and concentration of pedogenetic carbonate in the fan sediments may indicate the extent of time-dependent pedogenesis in deposits.


### Method and Units

<table>
<thead>
<tr>
<th>Method</th>
<th>Units and abbreviation</th>
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<tr>
<td>Soil and sediment particle-size distribution of &lt;2mm material.</td>
<td>% weight. Sieve and pipette method after removal of organic matter and carbonates. Clay: ≤2μm; Silt: &gt;2-63μm; sand: &gt;63-2000μm. Textural definitions of US Dep’t Agriculture used.</td>
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<td>Qualitative assessment of carbonate content.</td>
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<tr>
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<td>Saturated isothermal remanent magnetization (at 1T).</td>
<td>SIRM (10^{-5}) Am(^3) kg(^{-1}). Highest magnetic remanence that can be induced in a large field. Reflects concentration of all remanence-carrying minerals, mineral assemblage and magnetic grain size.</td>
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<tr>
<td>Cluster analysis of mineral magnetic data (using X(<em>f), (%X</em>{fd}), SIRM, ARM, % Hard, Soft).</td>
<td>Hierarchical cluster analysis, with squared Euclidean distance as dissimilarity measure and Ward’s clustering method, using SPSS software. Cluster membership of samples is mapped.</td>
</tr>
</tbody>
</table>

Prior to analysis, each sample was examined under \(10\times\) magnification for micro-morphological features, artefact fragments and presence of microfossils. Extractions made for diatoms proved negative.

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Soils and sediments of catchment and plain, fan sediments, and samples of Central Quarter cores were analysed. Samples from Core W1 were retained for analysis of microfossils.

**Table 1.** Field, laboratory and data analytical methods.


RESULTS

Relative elevation of sediment sections and cores taken at the site is shown in Fig. 4; selected properties of sections and sediment cores in Figs. 5 and 6; and particle-size distribution of sediment and core samples in Fig. 7.

Sediment cores through the site

A marked transition occurs in all cores between reddish-brown, mud (with clay, clay and silt loam and loam matrix) and underlying sand or gravel with matrix varying from sandy loam to sand (Figs. 5 and 7). As expected, this transition is echoed in most properties measured (Fig. 6). Fossils in Core W1 confirm the lower sand units to be marine, but were not observed in the coarser, lower units of Cores C1 and C2: from the elevation of the latter, however, we judge at least their lowest units to be marine. The top of Core W1 was at +1.40m above present sea level (a.p.s.l.), the deepest sherd (believed to be Geometric) at +0.55m a.p.s.l. The junction between sandy clay/clay loam and sand lay at +0.48m, which accords with the finding that the first occupation level in the West Quarter (dated as second half of the 8th century) lay over sand. We were not able, however, to identify the base of the archaeological strata, a feature of archaeological cores we have found elsewhere. Within the sand at -1.33m a.p.s.l. were abundant marine molluscs and foraminifera (Fig. 5). The junction between marine and terrestrial sediment was not clear in the core, however, and may lie above -1.33m a.p.s.l., in which case the land surface in the Geometric period was very close to the level of the sea at the time. In the Central Quarter cores, gravel rather than sand was exposed beneath the mud, and here also, the junction between fluvial and marine sediment is not clear.

Mineral magnetic properties of the core sediments (see Fig. 6 for Core C2) will have been affected by diagenetic reduction of iron where the sediment is wet for much of the year, and will reflect the very low clay content of the sand and gravel units. The mud units (which differ between cores in the elevation of their lower junction) have mineral magnetic characteristics similar to those of the mudflow fan above the site: high X$_{tr}$ and %X$_{tr}$ reflecting relatively high concentration of magnetic minerals, particularly fine secondary (pedogenetic) ferrimagnetic species, such as magnetite and maghemite. As may be expected, X$_{tr}$ and % X$_{tr}$ decline sharply in the sand and gravel units.

Fan sediments

There are two salient features of the fan sediments: 1) they are largely reddish-brown, clay-rich mudflow sediments with a relatively high ferrimagnetic signature, which would normally indicate a (likely widespread) soil source (as opposed to deeper, little weathered sediment) in the Lagovouni catchment, and 2) there is no clear bedding and no unconformity throughout most of the stratigraphy. Apart from a buried soil A horizon between 30 and 60cm in Section C2 (Fig. 5), there is no evidence in soil structure or in distribution of calcium car-

20. Mazarakis Ainian, 'Excavations'.
22. The most abundant foraminifer was Ammonia beccarii, a common Mediterranean shallow marine shelf species. This was kindly identified by Prof. John Murray, University of Southampton.
bonate, organic matter or illuviated clay, of a significant hiatus in sediment accumulation. In Sections SW2 and SC2 (Figs. 6 and 7) there is an upward increase in % clay and an increase in soft magnetic character and % LOI, the last two of which would normally be interpreted to reflect an increase in topsoil-derived material in the sediment. A general upward increase in % Hard occurs in both sections, with low absolute values throughout, indicating some admixture of non-ferrimagnetic minerals with the magnetically softer material. Whether the muds lie unconformably over the gravel units exposed at depth in Sections C1, C2 and W2 is not clear. The flood gravels shown near the base of Section C2 occurred within the structures excavated at the south end of the Central Quarter, and extended across an Archaic street which runs East–West at the south margin of the Quarter.  

**Sediments and soils of catchment and plain**

The cluster analysis defines two major clusters of samples (A and B, Fig. 8), each subdivided (A1+A2 and B1+B2). With further subdivision based on geology, five distinct soil types emerge and are mapped in Fig. 8. These are also differentiated by colour and texture, giving a meaningful soil classification. The soils are: 1. reddish brown and red silt loams, silty clays, silty clay loams and loams, covering most of the catchment; 2. reddish brown and red silt loams and clay loams of the Lagovouni fan; 3. olive brown, silty clays, silty clay loams, clay loams and clays on the distal sediments of the Asopos fan to the west of the site; 4. brown, sandy loams of the southern extremity of the catchment and 5. brown, stony, loamy sand soils of hill and spur-top locations largely at the perimeter of the catchment and of limited extent. There is a mixture of iron mineralogy and of magnetic grain size in all soil types, but soils 1 and 2 are distinctly magnetically softer than 3-5, with higher concentration of magnetic minerals and higher % X_{fdr}. Higher values of % Hard and of SIRM/X_{fdr} detect a higher contribution of goethite- and haematite-type minerals in soils 3 and 4, the latter having the harder character of the two. In Section B (Fig. 8), reddish-brown clay loam at 2.20m depth has a very soft magnetic character: the highest $X_{fdr}$ (243 $10^{-8}$ m$^3$ kg$^{-1}$) of all samples we analyse and high % $X_{fdr}$ (9.0) and Soft (1372 $10^{-5}$ Am$^2$ kg$^{-1}$). The values for the soil at 65cm depth are $X_{fdr}$ (242 $10^{-8}$ m$^3$ kg$^{-1}$), % $X_{fdr}$ (7.8) and Soft (1161 $10^{-5}$ Am$^2$ kg$^{-1}$). This is the reverse of the normal near-surface enhancement of the effect of fine, secondary, ferrimagnetic minerals.

**Comparison of catchment and plain soils with mudflow and core sediments**

Distribution of samples in the four mineral magnetic clusters is shown in Fig. 8 for catchment, fan, cores and plain. Nearly all of the mudflow fan sediments belong to the same group as catchment soil Type 1 (magnetic clusters A1 and A2), and resemble them in range of particle size (Fig. 7). One sample near the base of the exposed sediment in each of three sections has magnetic characteristics similar to those of soil Types 3 and 4. Many of the core samples have an affinity with soil Types 3 and 4 (Cluster B), though a number fall in cluster A2, which includes soils of Type 1 concentrated in part of the northern and in the central-southern portions of the catchment (Fig. 8). The upper units of the cores overlap with catchment and fan sediments in their particle-size range (Fig. 7). Despite the close proximity of the two Central Quarter cores, there are significant differences in magnetic properties, which may reflect diagenesis as much as original sediment mineralogy.

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DISCUSSION

Because of the small number of cores through the site and the present lack of sediment-dating, the following interpretations are tentative.

Geomorphological change at the site

Relative sea level in the Gulf has responded to eustatic change and tectonic subsidence, the position of the shore also being affected by sediment deposition from the Lagovouni and Asopos streams. By ca. 6000 BP in other east Mediterranean locations, including areas of tectonic subsidence, relative sea levels may have been similar to, or within a few metres of, those of the present 24. Earlier in the Holocene, the shore had lain to the north of its present position at Oropos, then moved south at least to the location of the EIA site, to be pushed back northward by fluvial deposition, which had built an elevation of at most 1.88m when the Geometric site was established. The possibility of marine inundation of the site by tsunami or severe storm cannot be ruled out. The contrast between cores of the West and Central Quarters, with gravel occurring in the latter, indicates complexity in the pre-Geometric environment. In Core C2, early deposition of muds over gravels occurred. A reasonable explanation for gravels in the lower core units of the Central Quarter would be a storm ridge of beach gravel which did not extend across the location of Core WQ1 25. It is not clear whether any of the gravel units in the Central Quarter cores relate to gravels described in the West Quarter as comprising a 10m-wide channel deposit 26.

The floods which plagued the EIA settlement brought sand and gravel by fast-flowing stream waters. Damage was caused by the floods, and possibly by earthquake and tsunami. The gravels which spread across the Archaic street of the Central Quarter abandoned in ca. 500 BC 27 were the last to be deposited. Following this, ca. 3m of reddish-brown mud buried the site.

Source of alluvial sediments

The terrestrial sands and gravels deposited within the EIA site before the shift to a wholly mudflow style of deposition have similarities with the brown, stony Types 4 and 5 soils in the Lagovouni catchment (Fig. 8). A significant, intrinsic development in the sediment budget of the catchment of unknown but pre-late Archaic date was the cutting of the gorge by the Lagovouni stream (Fig. 3). This mobilized a considerable volume of coarse Neogene material, which may be represented in the gravels of the sediment cores.

We are not able to assess the impact of the river Asopos upon the area of the EIA site. Today the river turns sharply across the plain to the West, but in the past it has turned equally to the East, discharging sediment to form the gentle, distal fan-slopes to the West of the site (Fig. 1). The finest-textured soils in the study area are the olive-brown Type 3 soils developed on these slopes (Fig. 7) and on the flatter plain up to the boundary of the Lagovouni fan.

24. Kraft et al., op cit. n. 4, 185.
25. We are grateful to Dr Andy Plater for this suggestion.
26. Mazarakis Ainian, 'Excavations'.
27. Ibid.
We have no data for coarse Asopos sediments to compare with those of the sediment cores. The deposition of the thick mudflow deposits over the site marks a significant event or development in the dynamics of the Lagovouni hillslope-stream system, apparently during late- or immediately post-Archaic times. The source of the mudflow sediments was the red-dish-brown clay and loams of Type 1 soil (Fig. 8). A substantial volume of sediment with a fairly strong ferrimagnetic signature would normally be interpreted as being of topsoil source, indicating probably extensive erosion in the catchment following land cover disturbance caused by deforestation, cultivation or even heavy grazing. Such erosion appears to have occurred in the Lagovouni catchment, despite the cohesive nature of the sticky, probably smectite-type clays, which reduces their erodibility. The mineral magnetic data from Section B, however, do not confirm a uniquely topsoil source and indicate possible significant mass movement of hillslope soils and sediments in the catchment. There are no landslide/flow scars (just as there are no stabilized gullies) in the smooth slopes of the present landscape, but these may have been removed by ploughing.

In the absence of dating, the order of timescale over which the major part of the mudflow fan was deposited above the EIA site may be indicated by pedogenetic effects in the fan sediments and their lack of bedding. That timescale appears to have been relatively short, and may even have been one major event or sequence of events in quick succession.

CONCLUSION

In his survey of the Oropos area, Cosmopoulos found Bronze Age findspots on summits at the periphery of the Lagovouni catchment (Fig. 1), and evidence of only sparse Bronze Age habitation from the third millennium in the wider survey area (to the east of the Lagovouni catchment)28. At Skala Oropou, however, there appears to have been a Mycenaean settlement29. A lack of any sign of habitation and the impression of abandoned countryside from the twelfth to the end of the sixth century across Oropia contrasts with the impressive EIA remains at Skala Oropou30. Presumably, the inhabitants of the EIA settlement farmed its hinterland. The Classical period, nevertheless, surely saw an expansion of farming, with intensive use of the land continuing through Early and Middle Hellenistic periods. The ancient acropolis of Oropos was located on Loumperdi Hill (Fig. 1), and those who farmed the land may have lived within the town of Oropos31.

It is tempting to reconstruct fluctuations in settlement history of the Oropos area and to suggest a relationship between intensity of land use and responses in the stream catchment system and their impact upon the EIA site at Skala Oropou. A marked increase in human activity in the 5th century may well have been a factor in catchment erosion. Whereas erosion may have been selective in some environments in Greece32, conditions in the Lagovouni

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29. Ibid., 42.
30. Ibid., 42.
31. Ibid., 58.
catchment are conducive to erosion capable of complete destruction of archaeological evidence: considerable numbers of (undiagnostic) ceramic artefacts were carried to the EIA site by post-Archaic mudflow. An increase in cultivation or grazing in early Classical times would have increased the sensitivity of hillslopes. Triggers to erosion could have been extreme rain events, an unfortunate combination of deluge and seismic activity, or a significant shift within the hillslope-stream system. Unfortunately, we cannot judge the timescale without dating of the fan sediments.

It may be as futile to seek correlations between erosion histories at Oropos and other Greek locations as it is to compare movements of sea and land between this and other coastal locations. In almost all respects, the EIA site of Skala Oropou and its environment seem quite unique.
Fig. 3.

Fig. 4.
Fig. 5.
AN UNSTILL LANDSCAPE. RECONSTRUCTION OF ENVIRONMENTAL CHANGE AT OROPOS

Fig. 6.

Fig. 7.
CURVILINEAR VERSUS RECTANGULAR?
A contribution to the interpretation of the evolution in architectural forms in Greece during the Protogeometric – Geometric – Archaic periods based on a study of the constructions at Oropos

Alexandros P. Gounaris

A. INTRODUCTION

"From curvilinear to rectangular"
The above succinct heading summarizes the evolution in the architectural plan of structures in Greece, mainly houses, during the Protogeometric, Geometric, and Archaic periods, as it is typically presented in scholarly, introductory and education bibliography and literature. As a rule, specialists —in the past as well as in the present— have without exception ascribed buildings with curvilinear plan to the PG, EG, and MG and buildings with rectangular

ABBREVIATIONS:
Fageström, GLAA: K. Fageström, Greek Iron Age Architecture: Developments through Changing Times (Göteborg 1988).

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plan to the LG and, chiefly, to the Archaic. At first, this assumption was warmly embraced, with many specialists believing in the generalization of the principle as it related to architectural evolution in Greece and Asia Minor of constructions dating not only early historic but from much earlier times as well — including, in fact, the entire prehistoric chronological spectrum⁴. The validity of this argument, however, was soon to be questioned in reference to constructions of Bronze Age⁵ date as well as constructions dating to the PG-G⁶.

Bearing in mind the schematization and abstraction of the above assumption, the *prime aim of our study* is first to verify this proposition in the geographical area of Mainland and Insular Greece (in the PG-G-Archaic exclusively), and secondly, if found valid, to examine the various associated interpretations. However, to the degree that the proposition is found invalid — as will be documented further below —, an alternate proposition will be offered to interpret the evolution in architectural forms during these periods.

The opportunity for this study was made possible thanks to the progress of research and by the new architectural finds on the O.S.K. property at Skala Oropou, which until now (2006) was the site with the most densely and best preserved structures of the Geometric period in all of Mainland Greece. Moreover, considering the close proximity between Oropia and Euboea (the latter being the location of the three most significant sites to have yielded structures of a similar date — Lefkandi, Eretria and the relatively remote site of Viglatouri), the finds at Skala Oropou offer considerable advantages for attempting meaningful comparisons with Euboean architectural constructions.

Observing the architectural finds from the coastal area of Oropia (Fig. 1-6), one readily comes to the conclusion that their architectural plans confirm a transition from curvilinear to rectangular forms within a short period time (LG-EA): the Late Geometric circular, ellipsoid, apsidal, and horseshoe-shaped buildings were recovered in the Central and West Quarters of the excavation, along with an Archaic house of complex rectangular plan in the West Quarter and the partially excavated Archaic rectangular buildings that came to light arranged in a row along the Archaic road of the South Quarter. At Skala Oropou, even though curvilinear constructions do not cease to exist until after the beginning of the Archaic, we see a predominance of rectangular plans and complex rectangular Archaic plans which appear to prevail over simple, single or double-roomed, roofed curvilinear Geometric plans. Nevertheless, such comparisons would appear more plausible if made between simple curvilinear Geometric plans and simple rectangular Archaic counterparts — not directly between simple curvilinear constructions and complex rectangular ones, especially when one of the latter is described as

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⁴. For an initial presentation of this viewpoint, see C. A. Boëtius, 'Mycenaean Megara and Nordic Houses', *BSA* 24 (1919-1920, 1920-1921), 161 n. 1.

⁵. From the initial stages of this study, this suggestion was not accepted as a general rule concerning all geographical regions and prehistoric periods (ibid. 161-184) For an initial critical account of relevant research: E. Baldwin Smith, 'The Megaron and its Roof', *AJA* 46 (1942), 101 n. 3.

⁶. The acceptance of the pattern "from curvilinear to rectangular" in architectural evolution is not at all common in scholarly research, especially as far as temples are concerned. In relation to structures of the latter category, an important discourse has taken place, according to which the same issue is examined on a completely different basis: "from the *temenos* with an altar and without a temple to the 'temple & altar *temenos*'". Ch. Sourvinou-Inwood supports this by criticizing the view of I. Morris and F. de Polignac who seem to accept the rarity of sanctuaries in the "Dark Ages": 'Early Sanctuaries, the Eighth Century and Ritual Space: Fragments of a Discourse', in N. Marinatos & R. Hägg (eds.), *Greek Sanctuaries: New Approaches* (London & New York 1993), 1-17.
a rectangular house of *pastas* type⁷. In the absence of simple rectangular constructions, the comparison made between curvilinear plans and complex rectangular ones only is also part of the general problem.

Comparison between the Geometric and Archaic structures at Oropos and others in the southeastern Mediterranean region is further aided by the relatively high quality of the architectural records of the contemporary structures recovered at the site⁸, even though there are still many gaps in the documentation of the Archaic architectural constructions⁹.

In reference to the evidence from Oropos, the following questions arise:

- Does the above conclusion concerning the morphological evolution of the Oropos constructions — “from curvilinear to rectangular” — confirm any of the similar interpretations that have been suggested for the same phenomenon in Mainland and Insular Greece?
- And, *vice versa*, can the above conclusion be justified on the basis of any of the interpretations that have been suggested for the rest of Greece?

In other words: could the classic deductive method of interpretation, according to which “what applies to the whole also applies to a single part”, hold true in this case as well?

The answers to the above questions constitute the *second aim of our study*.

Most certainly, scholars who have contributed to the interpretation of the architectural evolution in the PG–G–Archaic are treated unfairly when charged with considering the parameters of “time” (the period between 1050 and 500 BC) as well as “space” (the geographical area of Greece, Italy and Asia Minor) to be a unity, as if they were “the whole”¹⁰. To the contrary, PG–G–Archaic specialists very early on proceeded with more analytical classifications of architectural types in time and space. They distinguished curvilinear and rectangular plans in two periods¹¹ (PG–EG–MG on one side, and LG–Archaic on the other); distinguished these two different forms of architectural plans in various geographical areas¹²; and proceeded with

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⁹. For an account of these gaps, see by F. Lang, *Archaische Siedlungen in Griechenland. Struktur und Entwicklung* (Berlin 1996), 78-103. See also Mazarakis Ainian, *Rulers’ Dwellings*, 112 n. 688.
¹¹. Weickert, *op. cit.* n. 8, classifies architectural constructions of various functions into two categories, according to their plan (curvilinear - rectangular). He ascribes them to a period between early historical times and the end of the A, and recognizes both categories of architectural plans during four distinct chronological phases [I. Geometric period (from the very beginning until 750 BC), II. Orientalizing period (ca. 750-600 BC), III. first half of the 6th century BC, IV. second half of the 6th century BC].
¹². Barletta, *Origines*, 29. She acknowledges the early appearance of curvilinear forms, the gradual replacement of curvilinear types by rectangular ones in the later periods, but also notes that such preference is clearly regional — she means geographical (A.G.) —, the first type being more popular in Mainland Greece and the second type in
a more detailed classification of these two architectural types. If the specific typology of architectural plans in time and space is somewhat ineffective, this may be related to the absence of functional distinctions between curvilinear and rectangular constructions (temples, houses, workshops). Finally, it should be noted that, until the present discourse, the transitional character of the EIA allowed researchers to express some more dogmatic suggestions, analogous to that cited at the beginning of this paper:

"From rulers’ dwellings to temples"15

"From huts to houses in Early Iron Age Greece"16

"Des petits habitats de l’époque mycénienne à la cité-État d’époque historique"17

As a rule, the above pairs of juxtaposed terms reflect deeper and more weighty issues. They occasionally refer to other transformations and transitions taking place in an economic, social, or political field during the same periods. For instance:

"From pasture to polis"18

Our own assumption (“from curvilinear to rectangular”) is clearly distinguished from such suggestions, and the terms “curvilinear” and “rectangular” are neutral, cleared of any other significance.

In response to this matter and to make our approach more precise, the specific question will be presented in the form of a direct quotation from A. Mazarakis Ainian in his analogous study:

“What were the reasons for the transformation of the rather humble, curvilinear huts of the earlier period into well-built rectangular houses during the Early Archaic period?”19

His answer is as follows:

“It seems reasonable to assume that the reasons were multiple, the process of urbanisation, the introduction of new building techniques and the requirements of the owners of the houses being perhaps the most important ones.”20

We rephrase the above question, only this time eliminating the terms “humble ... huts”
and “well-built ... houses” and at the same time keeping and comparing the characteristics “curvilinear” and “rectangular”, which constitute genuine, objective features. We are now ready to re-examine the above answer, taking into consideration a set of additional factors and attempting to separate subjective from objective features. Above all, in our interpretation, we attempt to distinguish primary factors from secondary or modifying factors affecting the architectural evolution from curvilinear to rectangular.

In the following pages:
- We present a brief outline of the proposed interpretations of architectural evolution in Greece during the PG-G-Archaic (Part B-I).
- We examine the validity of these suggestions on the basis of the architectural evidence from Oropos (Part B-II).
- We reconsider the validity of these interpretations in comparison to the conclusions resulting from previous examination (Part B-III).
- We propose a final interpretation and pattern of evolution on the basis of the previous evidence (Part C).

B. ANALYSIS

B-I. Interpretative approaches to the transition from curvilinear to rectangular structures in Greece during the PG-G-Archaic periods

Interpretative approaches to the transition from curvilinear to rectangular constructions during the PG, G and Archaic periods in Greece are here classified under one of four categories based on the primary factor used in their approach. These are: the cultural factor, the geographical factor, the anthropological factor and, lastly, the factor which (conventionally, as a necessity but probably ineffectively — it must be admitted) is called ideological.

The sequence applied here for the examination of these factors is not inadvertent. Overall, it represents an evaluation of the specific factors. Some specialists would prefer a different sequence than the one specified here, a more “physical” one: “land” first, followed by “man”, and in the end, with reference to “social superstructure”, culture and ideology. However,

21. We accept the distinction of factors suggested by A. Rapoport, House Form and Culture (Englewood Cliffs N.J. 1969), 47. However, we do not accept his suggested classification system, i.e. the one-sided characterization of socio-cultural factors as primary, on the one hand, and that of climatic conditions (by which he means: “the physical environment which makes some things impossible and encourages others”), methods of construction, available materials, and technology as secondary or modifying factors, on the other.

22. Among the relevant general bibliography introducing the various factors that contribute to the formation of the traditional house-type, the following classic studies are noted: Rapoport op. cit. n. 21; P. Deffontaines, L’homme et sa maison (Paris 1972). Specifically among studies related to the discussion about the morphology of house plans in antiquity, in a general and global range, we single out the fundamental study of F. Oelmann, Haus und Hof im Altertum: Untersuchungen zur Geschichte des antiken Wohnbaus (Berlin & Leipzig 1927).

23. Factors affecting the shapes of houses, their decoration, their placement within the community, and their use by residents or visitors, according to D. Sanders, ‘Behavioural Conventions and Archaeology: Methods for the Analysis of Ancient Architecture’, in S. Kent (ed.), Domestic Architecture and the Use of Space (Cambridge 1990), 44: climate, topography, available materials, level of technology, available economic resources, function, and cultural conventions.
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this case study is not about the interpretation of a phenomenon in architectural evolution emerging evolution in time and space ex nihilo. It deals with Protogeometric and Geometric structures in Greece. Consequently, along with the geographical and human environment, is a co-existent cultural background, i.e. the architectural heritage of the preceding period. Moreover, there are certain cases where among the debris of IIIB settlements, the cultural background exists even prior to man-made environment, as interruption in the occupation of these settlements during the LH IIIC, the SM, and even the PG is certified. The cultural setting paves the way for the man-made environment, educating the new dwellers of the G in architecture. Therefore, this analysis should begin with an examination of the cultural factor.

B-I-1. The cultural factor: buildings are constructed and change in plan according to tradition

The most widely accepted interpretation of the architectural transition now under examination is based on the impact of the prehistoric culture on the successive Protogeometric–Geometric culture. It is based on the identification of prehistoric and early historic culture in Mainland and Insular Greece as a continuous, undivided unity, a living organisation with periods of prosperity and decline. According to this conventional view, culture flourishes in the Mycenaean age, then declines during the successive era — the so-called “Dark Ages” — and is reborn by the end of the G. Respectively, in the field of architecture, the magnificent Mycenaean rectangular structures cease to function. They are succeeded by humble curvilinear Protogeometric constructions made of perishable materials. The exceptional character of the remains discovered at Lefkandi cannot reverse this general impression. Thereafter, towards the end of the G and about the beginning of the Archaic, although curvilinear constructions do not completely disappear, we see simple single, double and three-roomed rectangular buildings appear again; once the Archaic gets fully underway, we see complex rectangular buildings24. Specialists compare these plans with Mycenaean counterparts, going as far as comparing each LH architectural type with a post-Mycenaean counterpart25. This method, which is more descriptive than explanatory, takes as its upper chronological horizon, a period before the Mycenaean age by introducing to the discussion curvilinear constructions that date to the MH, at least in the form by which the latter are identified in the peripheral regions of the Mycenaean world26. Thus, the interpretation on the basis of the cultural factor takes a more complete form:

- The models for the LG–Archaic rectangular plans are identified among the abandoned constructions of Mycenaean palaces, i.e. the central rectangular structures of the palaces27, commonly called megara28.


25. This has been attempted by A. Mazarakis Ainian, who has previously suggested an extended typology for rectangular constructions (anta buildings and oikoi) (Mazarakis Ainian, Rulers’ Dwellings, 259-269).


27. Coldstream, GG, 321, 324. He distinguished two types of rectangular constructions: a) square or broad rectangular with structural elements deriving from the Minoan palaces as well as the Mycenaean megaron (p. 321); and b) long and rectangular, the descendant of the Mycenaean megaron and the ancestor of Doric and Ionic temples (p. 324).

28. According to P. Darque: the inefficiently termed megara, see P. Darque, 'Pour l’abandon du terme
The models for the PG–EG–MG curvilinear plans are identified among the mysterious MH constructions, i.e. the humble curvilinear huts. There is an equally contradictory analogy between PG–EG–MG curvilinear and LG–Archaic rectangular plans as between MH curvilinear and Mycenaean rectangular plans.

The two following observations pertain to the above:

- In reference to the lower chronological limits of the prehistoric period with which we are dealing, i.e. the LH IIIC: some curvilinear plans of the LH IIIB–C appear like jarring notes in the published tables of architectural plans. However, in general, they do not seem to disturb the general picture of a regular succession in architectural forms. The same impression is given when observing some Archaic curvilinear constructions, which, although penetrating into the repertoire of rectangular plans of the Archaic Period, are regarded as exceptions to the rule. Nevertheless, certain specialists believe that the LH IIIB–C curvilinear constructions represent much more, and it is exactly this point that clarifies the issue: the existence of curvilinear constructions is interpreted as the survival of an early building tradition in various parts of Greece located at considerable distances from the palaces and, furthermore, that some inhabitants of “Dark Age” Greece are the descendants of residents of apsidal houses of the LBA.

- In reference to the upper chronological limit of the prehistoric period with which we are dealing, i.e. the beginning of the Bronze Age, this evolutionary-cycle scheme (decline followed by prosperity — prosperity followed by decline and so on) that begins in the MH reaches completion even before the MH in light of significant constructions of an EBA date. In this way, through the distinction of these analogies (MH/PG and LBA/LG), decay in MH architecture and culture as well as cultural unity in Greece during prehistoric and early historical times is even more stressed. Above all, a common tribal substratum of the population is recognized as the carrier of this cultural and building production, and, what is more, as an essentially Greek substratum. Finally, an uninterrupted evolution in the design of the apsidal house is noted (oblong and open at the narrow side of the façade, closed and apsidal at the rear part).
Some specialists believe it to be the development of an architectural type that reaches back to and is connected with the coming (?) of the first Greeks\textsuperscript{37}.

A first critical remark: the description of similarities between types of plans from different chronological periods does not constitute an interpretation of its own development, in particular when there is not an absolute similarity; but even when such similarity occurs, specifically in relation to the Mycenaean megaron, it is noticed exclusively and solely at the core of the Mycenaean palace. When one carefully observes the three well-known Mycenaean complexes (Mycenae, Tiryns, and Pylos), and especially when examining these only, it immediately becomes evident that the rectangular core is structurally connected with the grid shaped by the remainder of spaces in the Mycenaean palace through a system of walls.

Consequently, at a second stage of analysis, arises the matter of interpreting the detachment of the rectangular Geometric building from the daedalic, palatial, grid-type of LH IIIB. In this case, other more specialized means of analysis are required.

In the course of this explanatory approach, a second classification of deeper partial propositions is formed. According to it, two categories are distinguished. They emerge when the function and building techniques of Mycenaean and post-Mycenaean constructions are used as criteria for their formation.

**B-I-1-a.** The first category comprises propositions attempting to interpret the evolution in architectural plans on the basis of changes in the functions taking place in the interior. In this case there are two sub-categories of interpretation: the first one interprets the emergence of rectangular plans as product of the evolutionary distinction of functions taking place in the interior of the Mycenaean megaron, while the second one as result of the changes in functions taking place in the interior of the PG apsidal constructions. Specifically:

**B-I-1-a-i.** According to the first sub-category, the transition "from the Mycenaean rectangular megaron to the rectangular temple" is attributed to a certified change from the function inside the palace exercised by the Mycenaean anax-priest and his companions to the function exercised during the Geometric period by citizens as worshipers inside the temple and around the altar\textsuperscript{38}. This type of ceremony is noted during the first phase of the building's cult function, while the next related ritual takes place around the altar but outside the temple\textsuperscript{39}. Consequently, the free-standing rectangular form of the Geometric phase results from the detachment of the megaron-type from the complex plan of the Mycenaean palace precisely due to the distinction of functions and the discrimination of individuals with a leading role in the ritual processes during these two periods.

**B-I-1-a-ii.** According to the second sub-category, the acknowledgement of a break in

37. Coldstream, GG, 304, who dates it at about 2200 BC. About the problems arising from the theory of the "coming of the Greeks" and the interpretation of archaeological issues concerning the EH III, see Forsen op. cit. n. 34, 257.


functions rather than functional continuity is selected as an instrument for analysis. In this way, the most significant differences in plan and the various morphological gaps between the LH IIIC and the Geometric constructions are justified as well. Curvilinear buildings are connected with the dwelling of rulers' families during the PG and Geometric periods. From the early 7th century BC onwards, functional requirements in the interior of the houses result in not only simple rectangular but also complex rectangular plans.40

B-I-1-b. The second category comprises approaches attempting to interpret the evolution in architectural plans on the basis of changes in specific types of building techniques of the roof. A key to understanding the interpretation connected with the detachment of the Geometric rectangular building from the plan of the Mycenaean palace is the evidence of a ridged, sloping roof over the central Mycenaean palatial hall.41 Since its existence and detachment in the interior of the Mycenaean palace has been proved, it is logical to accept the succeeding typological phase, in which, during the Geometric period, the rectangular plan emerges, with ridged roof, free-standing — discharged from all secondary constructions of the Mycenaean megaron.42

There are some secondary critical observations that must be made in reference to the above. They are as follows:

- In reference to B-I-1-a-i: This particular suggestion does not cover the gap in the role of the ruler or priest during the PG. It is a weakness of the argument that results in corresponding weaknesses to explain not only the plans but also the nature of the significant constructions that emerge during the PG.

- In reference to B-I-1-a-ii: The second approach bridges this gap. It explains it on the grounds of cultural decline during the PG and the simplified form of the architectural plan. However, the particular design, i.e. the apsidal, is not explained.

- In reference to B-I-1-b: An obvious question arises from such a technical interpretation of the phenomenon: if the builders of the LG adopted this free-standing rectangular plan via the LH III complex construction, why do their predecessors in the PG, EG or MG not adopt this type, but eventually come to adopt a completely different form instead, that of the free-standing apsidal construction?

In seeking to define a common denominator for the above three problems of interpretation, we find no other solution than to adopt the term “megaron” from the Homeric tradition in order to define the central building of Mycenaean palaces and, above all, for the widespread application of this term to every free-standing, oblong building, whether it be rectangular or apsidal in plan.43

B-I-2. The geographical factor: buildings are constructed and change in plan from exterior to interior

For a number of historians of architecture, not only of Greek architecture of the PG, G

40. Mazarakis Ainian, 'HtH', 155-156.
41. Sp. Iakovidis, 'Mycenaean Roofs: Form and Construction, BCH Suppl. 19 (1990), 147-160. He classifies and provides relevant bibliography (pp. 147-148) in reference to both views: the flat roof-type and the sloping roof-type of the Mycenaean megaron. He supports the second theory.
42. Baldwin Smith, op. cit. n. 5, 117. However, the circular argumentation of his interpretation becomes evident, as he falls into the mistake of using Geometric clay models, probably in order to prove the existence of the sloping roof-type of the Mycenaean megaron.
and Archaic but especially of traditional architecture (or in other terms: non-academic architecture, or even non-learned), the geographical factor is considered to be a contributing factor in the formation of the constructions' exterior shell. Thus, from the exterior — specifically downwards and inwards from the roof — precisely due to the form of the exterior shell, the geographical factor affects the formation of a dwelling's interior.

Before we further discuss its contribution to the problem of interpretation, it is necessary to clarify the term "geographical factor", which comprises a number of implications, as follows:

a. The natural geography of the area where curvilinear and/or rectangular constructions are erected.

b. The climatic conditions in the wider geographical area of Greece — the buildings' place of construction.

c. The eco-system of the specific area (soil, subsoil, flora) as the resource for the buildings' construction materials (and possibly also for the manufacture of the construction tools).

B-I-2-a. To understand the effect of the natural geography of the area in which curvilinear and/or rectangular constructions are erected, it is useful to examine this area in the light of the following three scales of analysis:

- as a settlement site where the constructions are erected (micro-scale)
- as a geographical district to which the settlement belongs (medium scale)
- as a region in Greece comprising the settlement's geographical district (macroscale)

Consequently, depending on the spatial scale of the analysis, the following remarks can be made:

B-I-2-a-i. In reference to the micro-scale examination of the space where the constructions are erected, i.e. the site of the building's installation, we discern four different parameters:

- the soil in, or the ground on which the constructions' foundations are built
- the area's water resources
- the topography of the site where the constructions are erected
- the micro-climate of this site

Some explanatory suggestions related to these parameters are presented, as follows:

• In relation to the composition of the soil and the form of the ground:
  - Rocky soil, which is uneven, difficult for the preparation of foundation surfaces favours the agglomerative development of the buildings' plan. It begins with a nucleus to which spaces are added; the roof, therefore, is most likely broken (i.e. not a whole undivided unit). The adding development of the plans and the division of roofs, in turn, are suited to the selection of rectangular forms for spaces added in close contact.
  - Alluvial soil (soft soil), generally level or only slightly uneven, normally permits uniform foundation beds and a uniform outline of plan as well as an unbroken rooftop. Uniform roofs favour the dividing arrangement of houses, in which added rooms/compartments do not directly touch the main core but are instead juxtaposed so as to preserve a distance. The dividing arrangement, with the resultant uniformity of the roof, is suited to the selection of curvilinear forms for the initial divided shells.

44. For an analysis concerning the geographical-factor effect on the form of traditional dwelling, see Rapoport, op. cit. n. 21, 18. He terms it "physical type of explanation" involving climate, the need for shelter, materials and technology and site.
It is obvious that two methods of laying out the foundations as well are connected to these two types of soil:

- With the first type, rocky soil, we see rectangular stone foundations, varying in general dimensions (length, width and height) depending on the slope of the ground, which accompany the development of divided rectangular plans.

- With the second type, alluvial soil, we see the insertion of wooden supports or piles in general, as well as the construction of partition walls made of reeds and clay, which accompany the development of curvilinear plans, with undivided single-level floors.

Considering that the use of wood in curvilinear foundations is not an efficient solution due to its perishable nature, a level terrain does not exclude the use of a stone foundation for curvilinear plans too. The replacement of wooden elements by stone does not automatically demand a modification in the form of the plan. Consequently, soil as a factor affecting the foundation of a construction cannot alone interpret the form of its plan.

- In relation to water resources:
  Beginning with lake settlements, the history of architecture built on, next to or inside water is often identified with the history of man struggling to control the element of water. Constructions dated to EIA in proximity to water are not unknown in Greece, particularly in the environs of the mouths of rivers in Macedonia on the Thermaic Gulf. Oropos and Eretria, however, are even earlier and may serve as the beginning of this section.

- In relation to topography:
  The topography of a settlement's site, which is formed by curvilinear and/or rectangular constructions, is an element that intrudes into the interpretation of the diverse forms of settlements — we might dare to say: their "urban" form. Experts interpret morphological differences in house architecture in light of differences in the settlements' form. More specifically, as a rule, the contrast "top of a hill-slope of a hill, or valley" due to spatial narrowness or amplitude accordingly determines the contrast "dense construction-sparse construction". More specifically:

  - Dense construction of houses on hill tops, i.e. sites with limited surfaces for foundation and construction development, is connected with the construction of buildings in close contact. In turn, this particular model of construction favours rectangular buildings, since the construction of curvilinear buildings in close yields less spatial economy, i.e. results in the loss of space due to the "non-functional" spaces created by the junction of curvilinear walls.

  - However, the opposite model of sparse construction, on the slopes of hills or in valleys, is not necessarily combined with free-standing curvilinear buildings, since this model may

45. Concerning the foundations of EIA constructions: Fageström, GIAA, 99.
47. According to Hellmann, op. cit. n. 2, 65-66: "Ce dernier (i.e. le vieux plan absidale ou ovale), qui suppose un toit en bâtière s’est mieux conservé pour des maisons d’habitation dispersées; car il est mal compatible avec l’urbanisation grandissante: ainsi à Asine et dans l’Ancienne Smyrne, où le plan rectangulaire s’impose toutefois peu à peu". An analogous conclusion is stated by Barletta, Origines, 30. Certainly, this question rises: which are the reasons leading to the growth of urbanization during the Geometric period?
48. Notes on the disadvantages of settlements with curvilinear buildings: Coldstream, GG, 304; he himself makes an intervention in ASAtene 59 (1981), 344 (interventi) [footnote by Mazarakis Ainian, 'LBA buildings', 287 n. 54].
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--although rarely— comprise similar rectangular ones. Consequently, the pattern of free-standing houses, rectangular or curvilinear, in connection with sparse construction cannot be justified solely by a flat landscape, since both types of plan can easily be combined with this type of terrain. Diversity in the development of house plans from curvilinear to rectangular on relatively level ground must be interpreted according to other criteria.

- In relation to the micro-climate of the site, the significance of local wind patterns should be noted as they relate to various types of constructions.

In relation to curvilinear constructions, references can be found in the relevant bibliography concerning the selection of the apsidal “aerodynamic” shape for buildings even during the PG period. Because the apsidal shape is resistant to winds, especially when the apsidal end stands facing the force of the wind.

In relation to rectangular constructions, the strong Aegean winds that blow over the islands, in combination with the selection of wind-swept hills for building refuge sites, led to the creation of open-air spaces protected from winds. Such spaces were produced “from the negative”, in other words as enclosed spaces created by the houses’ roofed spaces. The possibility of fragmentation in house plans, their development in contact, and their manoeuvring on the landscape favours the development of a system of open-air spaces protected from winds. Examples of such can be seen in Zagora and Karphi. The type of plan most appropriate for this is the rectangular, despite the rounded corners occurring in the first settlement (Zagora) and the small curvilinear sections of walls in the second (Karphi).

Except for the above two approaches interpreting these two patterns using the wind as a criterion in a static mode, i.e. only at the point of their emergence, the formation of yet another pattern of evolution, this time an intermediate pattern, is interesting. This pattern reveals itself in a curvilinear type of construction with a curvilinear or rectangular extension attached at the entrance, a sort of anteroom protecting the interior of the house from the wind. In this way, an oblong mixed type is created, which consists of two continuous spaces, a curvilinear one and a second, either rectangular or curvilinear. This is an early type announcing the succession from circular forms, through horseshoe-shaped or apsidal forms towards the oblong rectangular types.

B-I-2-a-ii. When it comes to considering the medium scale of examination of the geographical space—the geographical district of the settlement—as an instrument for understanding the transition from curvilinear to rectangular constructions, specialists have arrived at no immediate hypotheses to connect geography and architecture. For instance, emphasizing stressing the contrast “mountainous space-flat space” in the natural environment does not automatically explain the formation of the contrast “curvilinear building-rectangular form” in house architecture.

B-I-2-a-iii. Within the medium scale of examination of the geographical space, with refer-

49. Concerning this, the number of rectangular plans of free-standing houses in relevant catalogues of EIA architectural plans is characteristic: Mazarakis Ainian, *Rulers’ Dwellings*, 433 pl. IV, 434 pl. V, 435 pl. VI, 436 pl. VII.

50. Based on the above comment of M.-Ch. Hellmann, it is concluded that, on such (regular) ground, there are other factors that determine the diversity in house plans, such as the need for urbanization.


52. See shapes in the article by Holland, *op. cit.* n. 28, 325 fig. 1; 326 fig. 2 III.
ence to the significance of the area's location in Greece, the conclusions are quite assertive: the predominance of rectangular plans is affirmed in southern Greece, chiefly in the Cyclades and Crete. Consequently, the transition from curvilinear to rectangular buildings is distinguished only in Mainland Greece.

In relation to this point, though, we should make an obvious observation, yet a critical one: the acknowledgement of a phenomenon does not necessarily mean an immediate identification of its interpretation.

B-I-2-b. It would seem then at this point that a better approach could be made through the inspection of the climatic conditions in the wider geographical region of Greece at locations where the constructions under examination here are found.

- In southern Greece, particularly in the islands, climatic conditions make it necessary to take measures constantly to save water and thus contribute to the implementation of the flat-roof type as a domestic water gatherer and to its incorporation in the domestic water-supply system (collection of rain water from the roof, transfer through a conduit and into storage in a pithos). In turn, a flat roof is typically combined with shapes rectangular in plan and (almost) never with a curvilinear plan.

- In contrast, in northern Greece, climatic conditions impose the use of a sloping-roof because it helps to alleviate the weight of the snow on the frame of the house. In any case, curvilinear constructions are immediately connected with sloping roofs and, accordingly, with regions of heavy snowfall. Rectangular constructions can be joined to both flat- and sloping-roof types (single-pitch roof, double-pitched roof, roof with one hipped end, roof with hipped ends). Consequently, according to this suggestion, northern Greece (or the North in general) appears as the lone place of origin for curvilinear constructions.

- Consequently, in southern Greece, the climatic factor imposing the flat-roof type appears to explain the prevailing rectangular plan. Whereas, in the North, since the sloping roof is not used solely with curvilinear buildings — in other words, it cannot be excluded from buildings of rectangular plan — the climatic factor does not seem to be similarly significant for the formation of building plan.

B-I-2-c. In reference to the ecosystem of the site (in this case the soil-sub soil-flora system) as the population's main resource for construction materials, the next question emerges: is it possible for the ecosystems of two different regions in Greece, which provided the very construction materials themselves, to tally with two basic PG architectural types (curvilinear and rectangular)?

In reference to this point, two remarks may be made concerning the construction materials connected with curvilinear buildings:

- Wood, because it is flexible, is particularly suited for the roofs of curvilinear buildings,

53. Barletta, Origines, 29.
54. An introduction to this matter: G. A. Megas, Η ελληνική οικία. Ιστορική αυτής εξέλιξις και σχέσις προς την οικοδομήν των λαών της Βαλκανικής (Athens 1949); id., Εισαγωγή εις την λαογραφίαν (Athens '1978), 125. He distinguishes two climatic zones, the north temperate, to which Mainland Greece belongs, and the desert zone, to which Crete, Cyprus, the Dodecanese and the Cyclades approach. Within the first, buildings have sloping or pitched roofs (gable roof or saddle roof) and within the second, flat roofs.
particularly for covering circular plans and curvilinear components, such as apsidal ends. Moreover, on a wooden roof, wooden elements projecting from the perimeter can help protect the walls from rain, particularly important if the walls are made of mud/clay. Thus, the climatic factor (rain-snow) arises again, this time in combination with a particular building material — wood — and with its abundance — forests and what their existence implies from a geographical standpoint. It is because of this that the wooded temperate zone in Mainland Greece has been identified as the birthplace of sloping-roof constructions — initially covering curvilinear buildings and, later on, rectangular buildings as well. Over the course of time, in fact, the use of wood in the construction of sloping roofs will never be abandoned within this geographical zone. What would be abandoned, however, for another, external reason is the curvilinear plan.

- On the other hand, during the chronological era (PG–G), limestone, and schist in particular, can be used to cover circular constructions but only by the employment of corbelled courses, while the employment of buildings technique using limestone as a roof material does not appear for the apsidal ends of curvilinear constructions.

As for the construction materials connected with rectangular buildings, the following point should be noted:

- In the PG–G, stone as a building material is suited mainly for the construction of foundations, particularly if the superstructure consists of clay in any form (e.g. bricks, pisé, reeds/branches coated in clay). When local stone occurs in abundance, it may be substituted for the clay materials used in the superstructure. A construction fully made of stone — not including the roof — could then be created, with a limited need for wood. Such a stone construction could be the natural answer for districts with deficiencies in wood. Flat roofs are employed exclusively with rectangular buildings and require smaller quantities of wood than sloping roofs.

In conclusion, although both wood and stone can be used as construction material for buildings of either rectangular or curvilinear plan (and can not be excluded as building material in either), a preference for wood is discerned among curvilinear constructions and a preference for stone among rectangular ones. Furthermore, even though wood occurs in southern Greece, its combination in the construction of superstructures with malleable clayish materials to be found in abundance in northern Greece creates yet another correspondence between construction materials, building techniques, types of plans, and different geographical regions in Greece: chiefly wood-clay and stone in northern Greece and primarily stone and to a lesser extent wood-clay in southern Greece.

Consequently, by compiling all of the above factors related to geography, which are supposed to determine the architectural forms in the PG, G and Archaic, we arrive at a variety of possible interpretation, which are as follows:

- Buildings that are curvilinear in plan find their geographical birthplace in the North, spreading from there to southern Greece.

- Curvilinear buildings emerge in northern Greece and rectangular buildings in southern

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57. On wood in EIA architecture: Fageström, GIAA, 103-105.
Greece. Their plan is determined by parameters of geographical diversity in a logical process.

- Buildings that are rectangular in plan find their geographical birthplace in the South, spreading from there to northern Greece.

At this point, the following crucial issue appears: the principal aim of our discussion is to explain the evolution of architectural plans in the PG–G–Archaic, not how to interpret the early forms of these plans during the same chronological periods in any particular geographical region. This matter has occupied the greater part of the relevant chapter. Consequently, if we also wished, having acknowledged geography as defining the early form of constructions, to understand the original cause for its change, we should identify significant changes among the individual elements that affect the geographical factor. It is generally accepted that the physical geography, the climatic conditions, and the ecosystem of the wider geographical region of Greece remained stable during PG–G and even the subsequent periods. Nevertheless, in reference to the micro-scale of examination of each individual space in detail, some changes —i.e. those that are in connection to micro-environment— that are caused by special events cannot be excluded. It is possible that these changes in turn may affect corresponding changes in architectural plans.

To form a cohesive interpretation involving these events, we must take a look at another set of factors. Among such, the anthropological factor comes first.

B-I-3. The anthropological factor: buildings are constructed and change in plan from interior to exterior

In opposition to those who accept the contribution of geography to the interpretation of house construction and development “from its exterior towards the interior”, historians of architecture acknowledge that the anthropological factor contributes to the formation of the dwelling in the opposite direction, “from its interior towards the exterior”, i.e. from its interior spaces towards its outer frame. Through the effects of human activities on the arrangement of interior space, they note that man contributes to the exterior house form. The various elements that make up the “anthropological factor” are: food preparation, heating, behavior patterns and activities according to family relations inside the dwelling (mainly reproduction), storage and domestic workshops.

B-I-3-a. Food preparation (mainly cooking) and heating.

For almost a century now, the interpretation of the evolution of house architecture since prehistoric times as developing “from the interior” revolves around the deciphering of the meaning of the hearth on the basis of all the values it comprises. Apart from the hearth’s symbolic values, its common, everyday function and its effect on the formation of the house’s exterior are of interest. Among the examples of interpretation several are selected:

60. Fageström, GIAA, 111: “Geographically there seems to be something of a borderline between Eretria on the one hand, where apsidal houses seem to have been held on to for very long, and Zagora on the other, which already from the MG was populated by people living in rectangular houses”.


62. For an introduction to the anthropology of the dwelling, see Defontaines, op. cit. n. 22.

63. In relation to this approach, the study of D. Mackenzie, ‘Cretan Palaces and Aegean Civilization. IV’, BSA 14 (1907-1908), 343-422, is useful.
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• A stable hearth in the interior of the dwelling requires constructions for drawing out the smoke. One of these is the sloping roof, which narrows at the top, being a type of de facto interior chimney. This affects the vertical form of the house. As for the horizontal, the preservation of the hearth's fire requires a degree of isolation of the room. The sloping roof and the isolation of the hearth's room lead to the megaron type (regardless of the plan of the house's rear wall). A stable hearth indicates that there is a constant need for heating. Such a situation is imposed by cold climatic conditions in northern Greece.

• On the contrary, a movable hearth allows independence from a sloping-roof type and, consequently, flexibility in the house-plan. During the summer season, the possibility of transferring the hearth outside the roofed dwelling relieves residents from extra heat inside the rooms.

A movable hearth also suggests there is no need for permanent heating. Such a situation is imposed by warm climatic conditions. As a result, it secures the diffusion of the flat-roof type in southern Greece its related rectangular house-plan.

B-I-3-b. Behaviour patterns and activities according to family relations inside the dwelling – reproduction.

The monumental apsidal building at Lefkandi presented an opportunity to reconsider the old theory referring to the nomadic anthropological background in PG architecture: that large oblong curvilinear dwellings are suitable for occupation by members of a large blood-related group. Kindred groups with numerous members constitute the social base of a nomadic society with a transhumant economy, i.e. stock-raising. As a result, to justify the modification in house-plan, the following model of evolution is posited: conversion from stock-raising to agriculture means the break up of a large kindred group into mononuclear families, created through the analogous splitting of land allotments. Fragmentation of a large kindred group into mononuclear families also means the division of the large dwelling into smaller houses, at first curvilinear in plan64.

This particular approach justifies some decrease in the size of dwellings but not the transition from curvilinear to rectangular constructions. We need to look at additional factors to justify this change.

B-I-3-c. Storage.

The interior of the apsidal ends of curvilinear structures is appropriate for storage use, particularly for storing agricultural products inside pithoi arranged one next to the other65. The placement of pithoi at the back end of the house creates the apse.

B-I-3-d. Domestic workshops.

No house type, either curvilinear or rectangular, can be connected to a specific category of domestic handicraft. Any sort of small industry can be practiced inside both curvilinear and rectangular structures. Such activities seem to be connected more to the development of the house in a vertical axis, in other words, how it develops from the ground up, in eleva-

64. P. Calligas, 'Η Ελλάδα κατά την πρώιμη Εποχή του Σιδήρου', AAchr 2 (1987), 17-21, describes the PG kindred group, to which he refers as "oikos". He notes the decrease in the significance of stock-raising and the growth of agriculture as elements of the transformations taking place after the mid 9th century BC, but he prefers to acknowledge the ancient Greek "polis" as the successive institution after "oikos".

65. This view finds its starting point in an analogous suggestion expressed by specialists in MH apsidal constructions: S. Hiller, 'Early and Late Helladic "Megara": Questions of Architectural Continuity in Bronze Age Greece', in R. Hägg & D. Konsola (eds.), Early Helladic Architecture and Urbanization (Göteborg 1986), 86.
tion, rather than the plan. As previously noted, the use of a fixed interior hearth generally requires a chimney. The earliest primitive form of a chimney is the type of roof that becomes narrower at the top, eventually developing into a sloping roof.

Consequently, moving ahead with a synthesis of the above anthropological factors, we arrive at the conclusion that curvilinear and rectangular buildings are connected with the nature of the permanent or temporary installation of those dwelling within: curvilinear buildings are associated with transhumants (nomads) and rectangular buildings with permanent settlers (generally farmers)\(^66\). This, however, is a simple, initial response. The following questions are thus posed:

- Where do the tribal carriers of curvilinear houses originate and where in Greece is this movement headed?
- When does this specific movement that diffuses these architectural types take place?
- Who are the carriers of these constructions?

The answers to these questions represent different interpretative methods within the framework of the anthropological approach to the issue. The possibilities are:

- In relation to where: **provenance** and **direction**:
  a. The users of curvilinear and rectangular constructions are inhabitants of Greece. The users of curvilinear and sloping-roof constructions set out from northern Greece and moved in a southerly direction\(^67\). In this case, the South does not include the Cyclades or Crete where curvilinear constructions are unknown. It means the actual economical centre of the South at that period, to which the tribal carriers of this architecture are moving. That we have a migration of users of rectangular flat-roof constructions from southern Greece who moved in a northerly direction cannot be suggested.
  b. The users of curvilinear dwellings originated from outside of Greece, as it is defined in the Classical period, coming either from the North or East, or the South but certainly not, in any case, from the West\(^68\).

- In relation to when: **chronology**:
  a. This movement takes place only once, during prehistoric times\(^69\).
  b. There have been various waves of migration during early historical times\(^70\).
  c. Or, always in prehistoric and early historic times but periodically, during the year and over the course of the centuries\(^71\).

- In relation to who: the **carrier**:

\(^66\) According to Holland, *op. cit.* n. 28, 329: "The rectangular flat-roof is a permanent structure and belongs to a fixed habit of life, while the round, demountable, sloping roof bespeaks a nomadic or semi-nomadic origin".


\(^69\) Mackenzie *op. cit.* n. 63, 400.


\(^71\) P. Halstead, 'Μεσογειακή ορεινή οικονομία στην Πύνος-μετακινήσεις ανάμεσα στο παρόν και το παρελθόν', in V. G. Nitsiakos (ed.), *Η επαρχία Κόνιτσας στο χώρο και το χρόνο* (Konitsa 1996), 64-66.
a. The carriers of sloping-roof constructions in Greece, either rectangular or curvilinear in plan, move from the North in a southerly direction and are nomads-shepherds. 

b. The carriers of flat-roof constructions of rectangular plan moving from the South in a northerly direction are unknown since such a movement cannot be substantiated.

c. The carriers of sloping-roof constructions of rectangular plan, or are responsible for the renovation of curvilinear constructions, generally arrive from the North, are Dorians.

d. The carriers of sloping-roof constructions of rectangular plan are a mixture of tribes, newcomers and early settlers.

So, to conclude:

- The diffusion of curvilinear constructions in PG–G architecture reflects on the dominance of these tribes in this period’s society; while
- the prevalence of rectangular constructions in Archaic architecture reflects the transformation of nomadic tribes into permanently installed tribes, the mixture and gradual incorporation of nomads into the early permanent population or eventually the transformation of the PG nomadic stock-raising economy into the Archaic agricultural economy.

B-I-4. The ideological factor: buildings change in plan according to foreign patterns and against tradition

The evolution in the architecture of curvilinear and rectangular buildings of the PG–G—it would be daring to note: of the hut-type constructions—has been hitherto described as an evolution in architecture without architects. The user himself constructs his second shell of protection, his house, in the same way that he manufactures the first, his clothing. He accomplishes this based on his personal experience, the know-how he has inherited from his elders and through simple mental processes of a logical inspiration. He must always consider the needs and limitations during construction—i.e. the parameters previously analyzed. For a variety of important reasons, these were the ones to determine the architectural forms and their evolution from curvilinear to rectangular.

The following question then arises: can the PG–G–Archaic dweller formulate the plan of his house or of a cult structure following rules that do not abide with these needs, employing principles of construction that go against, and prevail over, such restrictions? And, in this way, can he end up with patterns that contrast with those imposed by the building tradition up to that point?

My means of answering this question can be found in the meaning of the ideological factor—a meaning difficult to define—is introduced as the final instrument for explaining the transition "from curvilinear to rectangular". This factor can comprise elements of metaphysics as well as logic and in reference to this, the following are noted:

- Circular constructions, isolated or in co-existence with rectangular ones, may make material in the physical landscape the deep cosmological beliefs about life and death of their users. When this solidification occurs in relation to cosmological beliefs concerning a deity...
or something sacred, different forms than those used for secular constructions may be used. According to this suggestion, curvilinear constructions of foreign provenance and imposed in PG-Greece cannot be detected.

- Rectangular constructions, in particular constructions of an inappropriate architectural scale that co-exist with curvilinear ones may make physical, within the settlement environment, the imposition of foreign architectural patterns, creations of foreigners that are considered superior in some way (technologically or artistically, for example). When this materialization of foreign architectural models occurs, the architecture is used by the dweller to impose and reinforce status.

From this point onwards, we speak of architecture as having architects. Nevertheless, during the PG, it continues to be an architecture without architects, or at least without stone, or wood masons distinguished within the community as a professional group.

- The earliest rectangular constructions, however, especially when they are constructions of a communal function that require group activity and co-ordination of actions, require special skills for the processing of materials and their assemblage, and have the demonstration of monumentality as a goal of their erection, then, these constructions comprise elements of planning on the part of their creators. In this specific case, the constructors may not be identified with the occupants. It is possible that this intentional mental process would lead to the adoption of architectural features out of harmony with past needs, geographical limitations of the site, tribal cultural features — in short, local tradition. These architectural features constitute the very beginning of non-traditional architecture, a learned architecture that was imposed on the local traditional architecture after the Geometric period.

Under such conditions, the adoption of rectangular forms may be induced by the intentional adoption of foreign architectural patterns, unknown to the building tradition of societies that traditionally, until that moment, were practicing their own architecture, an architecture without architects, the architecture of humble curvilinear buildings, the architecture of wood. From this point onwards, we refer to an early-academic, monumental architecture of another period, the mature Archaic.

At this point, to discover the birthplace of this architecture scholars look in the direction of:

- The north-east Peloponnese, the region where roof-tiles are invented, the most distinctive and notable Greek creation, the keramos. By the employment of roof tiles, the double-pitched roof (or roof with hipped ends) is introduced and, by such means, the rectangular house plan.

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77. Introductory evidence on materialization of cosmological beliefs in house-planning: Defontaines, op. cit. n. 22, 215-217.
78. J. J. Coulton, Ancient Greek Architects at Work: Problems of Structure and Design (Ithaca N.Y. 1977), 32-33, discusses the matter in relation to Egyptian architecture, and eventually rejects this view concerning Greek architecture in the 8th century BC.
79. Ibid., 15.
80. Monumentality, monumentalization: for an analysis of terms by Barletta, Origines, 21-52 (sparsely).
81. From the rectangular constructions repertoire, Geometric Zagora on Andros offered the opportunity to A. Coucouzelis, in Building Communities, BSA Suppl. (in press), to develop a discussion on the interpretation of settlement urban-planning detecting evidence of planning. See also id., 'From Tribe to State in the Greek Iron Age: The Archaeological Evidence From Lefkandi and Zagora, in EIA Aegean, 461-480.
82. Coulton, op. cit. n. 78.
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- The Cyclades, since it is from here that the local stone masons diffuse the use of stone\(^8^3\). With this activity, any wooden element can be replaced and, in turn, the curvilinear plans can change as well.
- And, most certainly, the Orient\(^8^4\).

**B-II. Validity of the interpretative approaches to the transition from curvilinear to rectangular constructions in the district of Oropia during the PG–G–Archaic**

Some preliminary explanations in reference to the documentation in use should be made now.

A brief description of the buildings that form part of this documentation is presented in the attached Table 1. It contains a catalogue of thirty (30) constructions (A–ΛA), all of which are curvilinear except for one, Building Z. For the sake of economy in the accompanying footnotes, and to substantiate the features of each building, we refer to Table 1 and the attached analytical bibliography at the end of this section.

Out of the thirty (30) buildings, fourteen (14) of these, which came to light during the second season of excavation in the West Quarter, i.e. from Building IH to Building ΛA (Fig. 2), provided little evidence due to the brief character of their publication until now (2006)\(^8^5\).

As for the remaining sixteen (16) buildings, which are located in the Central Quarter (Fig. 3), we note the following:
- Three (3) buildings, Buildings Δ, IB and IE, have been excluded from this discussion on the grounds of their terribly poor state of preservation after excavation.
- Five (5) circular buildings, Buildings ΣΤ, H, II, ΙΔ and IZ, as well as a single rectangular building, Building Z, which is attached to circular Building ΣΤ, are examined as parts of a special group due to the peculiarity of their shape and, primarily, to their limited diameter.
- Seven (7) curvilinear, non-circular buildings, Buildings A, B–Γ, E, Θ, I, ΙA and ΙΣΤ, provide the most distinctive evidence.

As for the rectangular buildings, until today, only House A–Δ of the West Quarter has been extensively published\(^8^6\), and forms the other obvious point of comparison for curvilinear structures.

In the following four sub-chapters (B-II, -1,-2,-3,-4), the architectural evidence from Oropos is analyzed in correspondence to the above four interpretative approaches (B-I, -1,-2,-3,-4) to the transition "from curvilinear to rectangular" during the PG–G–Archaic periods.

**B-II-1. The contribution of the prehistoric cultural factor to the interpretation of architectural evolution in the buildings at Oropos during the PG–G–Archaic**

**B-II-1-[a-b].** Comparisons between MH–Mycenaean and PG–G–Archaic architecture in the district of Oropia cannot be attempted, since both MH–Mycenaean and PG–G–Archaic architectural finds are absent from Sohoria, the presumed regional centre in the MH and

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\(^8^3\) Barletta, Origines, 106.
\(^8^4\) W. Burkert, *Die orientalisierende Epoche in der griechischen Religion und Literatur* (Heidelberg 1984), 40-41. In this occasion, the evidence is not exclusively archaeological.
Mycenaean period. This absence is due to a lack of archaeological field work at the site, and does not constitute a real gap. At the same time, beneath the site at Skala Oropou, the Geometric regional centre, no Mycenaean finds have yet been located, which finds would be necessary in order to make comparisons with Geometric finds from the same site.

Under such conditions, as it is impossible to employ the prehistoric cultural factor for interpreting the evidence, it is noted that the Mycenaean centre of Oropia at Sohoria, or even Lofos Taktikou, is different than the Geometric centre located in the district of Skala Oropou. In the end, all the above data are noted on the understanding that the specific Geometric centre in the district of Oropos does not lie over the unexcavated Mycenaean Sohoria.

Even beyond the subject of architecture and settlement composition, in that of settlement distribution, it is certain that the relatively centralized settlement pattern of the LH differs from the absolutely centralized pattern of the G. This characteristic may also reflect on architectural differences between these two periods.

Last, but not least, the element that completely disables the contribution of the prehistoric-early historical cultural factor to the interpretation of the transition “from curvilinear to rectangular” is a gap of crucial importance in the records of finds dating from LH IIIC, SM and the greater part of PG up to the end of the 10th century BC in Oropia. Despite the certain location of occupation strata from the LPG and SPG, corresponding architectural remains at Skala Oropou have still not been discovered to this day (2006).

B-II-2. The contribution of the geographical factor to the interpretation of the architectural evolution of the constructions at Oropos during the G–Archaic

In accordance with the earlier analysis of individual elements of the geographical factor, which affect the morphological evolution of PG–G–Archaic constructions throughout Greece, we examine the effect of the natural geography (B-II-2-a), climate (B-II-2-a), and eco-system

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87. Cosmopoulos, OSP, 112.
88. Cosmopoulos, OSP, describes the site at Lofos Taktikou (p. 88) as a “major site”, while the site at Sohoria (p. 112) as a “large site”. Moreover, he recognizes at Lofos Taktikou a wider range of artifacts, including fine-decorated pottery as well as the possible existence of a cemetery. However, the site at Sohoria seems to be distinguished mainly due to its significance since the MH.
89. Cosmopoulos, OSP, 72. He notes three large sites dating to the LH. They possibly belong to villages (Lofos Taktikou, Sohoria, Skala Oropou). He admits that neither of these two sites (Lofos Taktikou, Sohoria) appears to have been an administrative centre of the sort found in the “advanced” districts of Messenia, the valley of Argolis, or Boeotia. According to him, it would seem reasonable to suggest that Oropia was under the control of a neighbouring palatial centre, and suggests Thebes.
90. The Geometric settlements distribution pattern can be recognized as nucleated only if the district of Skala Oropou–Nea Palatia of the same period is considered uniform. Mazarakis Ainian, ‘Oropos (1985-87, 1996)’, 118, 121, reaches a preliminary conclusion, according to which during the Geometric period two communities were settled in Oropos, at a distance of 600m; the earlier one further to the East, and the more recent further to the West. According to M. B. Cosmopoulos, ibid., 73: “The settlement pattern thus emerging in the Dark Age is type c nucleated and consists of one primary center functioning as a financial, industrial and presumably, administrative nucleus, with urban religious activities in honour of the Telchines and the nymph Halia”.
91. Ibid.
92. Publication of the LPG and SPG pottery from the property of OTE: Mazarakis Ainian, ‘Oropos’, 181-191; references to the LPG and SPG pottery from the property of O.S.K.: Mazarakis Ainian, ‘Excavations’; as well as a preliminary publication of analogoue pottery in Prakt (2000), 59-60, fig. 4.
(B-II-2-c) of Oropia on the evolution of Geometric–Archaic houses on the O.S.K. property at Skala Oropou.

**B-II-2-a.** The contribution of Oropia’s natural geography to the interpretation of the morphological evolution of the Oropos constructions during G–Archaic.

In correspondence to the consideration of natural geography as an element affecting the evolution of the PG–G–Archaic constructions throughout Greece, the effect of Oropia’s natural geography is examined in the light of three different scales of analysis of the space at Oropos space (i. micro-scale, ii. medium-scale, iii. macro-scale).

**B-II-2-a-i.** The area of the Oropos Geometric–Archaic constructions in micro-scale: the estuary of the Asopos River.

As elsewhere, when examining the evolution of PG–G–Archaic constructions in Greece and when considering the micro-scale of the area where they are erected, the effects of three individual elements of the Oropos area need to be examined: a) the ground of the O.S.K. property, b) the topography of the property, and c) the micro-climate of the site.

a. The soil of the O.S.K. property as the foundation floor of the Oropos constructions.

As noted in the excavator’s publications, the settlement seems to have been founded on sandy, virgin soil93 and we cite here, from the relevant preliminary report by P. James and M. Kousoulakou94, that:

- Erosion and deposition of the clay-rich mudflow sediment overlying the site may have occurred during one major event, or series of temporally close events between the Iron Age and Classical times95.
- The evidence from the excavations of flood defences and flood damage, and especially the eventual burial of the site by mudflow, attests to the hazardous nature of the settlement’s position in the line of stream-flow from the inland catchment.

From the above, a preliminary conclusion can be formed: due to the perilous character of the settlement site, it is logical to expect the inhabitants to intervene subsequently with repeated measures to the architecture of their dwellings, especially since not an individual but recurring major floods and mudflows were taking place in the settlement.

b. The topography of the O.S.K. property as foundation and development surface for the Oropos constructions.

Given the alluvial character of the soil, we can be certain that the foundation surface of the ground was relatively flat. Even in areas where this is not the case, as for example towards the south where the ground slopes upward as documented by excavation96, leveling would have been an easy task, although in some cases it appears that an uneven house floor and, consequently, the ground, did not seem to bother the builders97.

c. The micro-climate of the O.S.K. property.

94. P. James & M. Kousoulakou, Geomorphological Reconnaissance Study of Holocene Landscape Change in the Area of Skala Oropou, Northern Attica, Greece (unpublished report to A. Mazarakis Ainian).
95. Such may include: a) disturbance of the hill-slope vegetation and soils by wood-cutting cultivation or grazing, b) an extreme storm, or exceptional period of heavy rain, c) adjustment of slopes “intrinsic” to valley development, d) a severe earthquake, e) a combination of more than one event.
The existence of humidity at the site is certain, not only due to its proximity to the sea but also because it was near the alluvial fan created by the Asopus river in the region. The population of Geometric Oropos seems to have coped with water erosion, underground water and rain in three ways:
- by constructing stone foundations\(^98\),
- by constructing sloping roofs projecting beyond the outer line of the buildings' stone foundations\(^99\),
- by coating exterior walls (an interior wall has also been found coated)\(^100\).

As for wind protection, we note that in most buildings the entrance faces South (A, B, Γ, Θ, I, IΑ), in fewer buildings it faces East or West (Α, E, ΣΤ-Z, H), while in no buildings does it face North. Can the two rectangular extensions at the entrances of two buildings, one out-of-doors in Building Θ with space Θ3, the other roofed in Building ΣΤ with space Z, be characterized as constructions offering protection from the wind? Further below, it is concluded that they relate more to protection against water flow.

**B-II-2-a-ii.** The area of the Oropos constructions during the G–Archaic considered in medium-scale: the South Euboean gulf.

With respect to the medium-scale environment of Oropos, we must make mention of the findings concerning the rising water level in the Euboean gulf since the end of the Final Neolithic\(^101\). The exact location of the coastline during the Geometric period in the district of Skala Oropou has not yet been clearly defined\(^102\). The combination of the rise in sea level in the North and mud deposition in the South naturally leads to questions concerning the formation of estuary coastal lakes. As a result, just as measures were taken against the threat of flood from inland, corresponding measures against the threat of flood from the sea too were most likely taken.

**B-II-2-a-iii.** The area of the Oropos constructions during the Geometric–Archaic in macro-scale: central Greece.

How does Oropia's location along the east coast of central Greece affect the formation of house-plans at Oropos and their evolution? Immediate correlations between the location of Oropia in central Greece and architectural plans at Oropos are not effective. Comparisons with other constructions in central Greece are possible, even though the repertoire of central-Greek constructions during the PG–G has significant gaps, particularly in the field of house architecture. Parallels from Eretria in Euboea are too close and too strongly related to the Oropos constructions for comparisons at such a large scale. To the West and North up to Thermon and North to Kynos in east Lokris, the rare occurrences of architectural plans are not sufficient to bridge this gap. The important Attic parallels at Lathouriza and Thorikos are of special interest. Those at Lathouriza show the co-existence of curvilinear and rectangular constructions within

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\(^{98}\) All plans of the buildings depict a foundation.

\(^{99}\) The post-holes that were found indicate the existence of supporting elements in the circumference of curvilinear buildings and the extensions of sloping roofs.

\(^{100}\) Mazarakis Ainian, 'Οροπος (1985-87, 1996)', 74.

\(^{101}\) E. Cambouroglou, Ερέτρια: Παλαιογεωγραφική και γεωμορφολογική εξέλιξη κατά την Ολόκαινο. Σχέση φυσικού περιβάλλοντος και αρχαίων οικισμών (Athens 1989), 168 fig. 110, 210.

\(^{102}\) For the location of the coastline during the Geometric and Archaic periods, see Mazarakis Ainian, 'Οροπος (1985-87, 1996)', 118 fig. 21.
the same settlement, while at Thorikos rectangular plans are noted during a period when in Oropos apsidal plans clearly prevail.

Consequently, if one desired to proceed with comparisons between Oropos and Thorikos, an evolution towards rectangular forms would become evident, without the development of shapes from curvilinear to rectangular at Thorikos during the PG–G. We could now refer to an intermediate zone between the islands and the mainland. This in fact is the area of west central Greece.

B-II-2-b. The climate of Oropia.

Oropia's climate is generally characterized as temperate Mediterranean with warm dry summers and humid, mild winters. As a factor in the formation of house-planning in antiquity, however, Oropia's climate requires a more detailed description. The great difference between the climate of Attica (dry) and that of Boeotia (humid) is of interest here. The district of Oropia, which belongs neither to Attica nor Boeotia, forms a climatological border between the two and constitutes a completely unique region from a microclimatic aspect, particularly when its geomorphological opening to the sea is taken into account. This intermediate character of Oropos' climate justifies the co-existence of different architectural forms within a small chronological period. However, the issue here is to justify a change in architectural forms through a climatic change. Such a change cannot be certified. On the contrary, climatic stability over a long period of many centuries seems to be the most probable scenario.

B-II-2-c. The soil and subsoil of Oropia as resources for construction materials.

Two points are noted:
- Palynological analyses from neighbouring areas show that there is a tendency for forest shrinkage and a change from trees to small plants since the Bronze Age.
- There is epigraphic evidence confirming that in antiquity Oropia was heavily forested.

Discussion: For the time being, let us accept that the geographical factor—as previously defined, and especially its climatic parameters—determines the form of the buildings, principally their roof-type and, secondly, that the sloping-roof type originates from the north and through this form of roof the curvilinear plan is introduced.

First point: as is known, curvilinear buildings with sloping roofs emerge in Oropos by the end of the G. However, during the Archaic, the inhabitants of Oropos do not replace the sloping roof with a flat type, and certainly do not transform, by these means, the curvilinear plan into rectangular. In both chronological periods they exhibit persistence in the sloping-roof type, regardless of the material used in its construction. Therefore, if at the same site, with the same environmental conditions, same climate and same available building materials, the inhabitants construct buildings of different plan, there must be some other factor determining the form of these plans.

Second point: at Oropos, there is no shortage of water that would necessitate the implementation of a flat roof as a water reservoir, which would, in turn, call for a rectangular plan. It

103. Cosmopoulos, OSP, 7.
104. D. Eginitis, Το κλίμα της Ελλάδος, Μέρος Β' το κλίμα της Αττικής (Athens 1908), 62.
106. See references: Cosmopoulos, OSP, 7 n. 19.
appears that Oropia belongs to an intermediate geographical region that permits the development of both the architectural plans generally covered by a sloping-roof.

Regardless, the case of Geometric and Archaic Oropos does not entirely nullify the compelling significance of the geographical factor as an interpretive tool in understanding the evolution of the settlement’s house plans.

• This can be justified chiefly by the third point: the gradual introduction of the rectangular plan seems to be determined by the need to face a destructive phenomenon that results from a particular aspect of the natural environment: local floods. In respect to house architecture, we believe that the inhabitants of Oropos attempted to protect themselves from floods in three ways:
  - by building a short, straight wall in front of the thresholds of their houses (Buildings Θ, I and IA), a short, straight wall at the entrance of a building (Building A),
  - by building small, rectilinear walls (either Π- or Γ-shaped) in front of the entrance to the house (Building Θ) or possibly in front of an opening (Buildings ΣΤ-Ζ),
  - by surrounding the buildings with enclosure walls of various, irregular shape (the wall surrounding part of Building I)108 and later on by surrounding groups of curvilinear houses with enclosure walls of nearly-quadrangular shape (Walls 23, 61, 32, 27, 261 fully surrounding Buildings ΣΤ-Ζ, H, Θ, I, IA, Π and 1Ε)109,
  - by constructing short stretches of walls or oblong walls outside the above-mentioned enclosure walls110.

• Fourth point: we have described an environment with frequent flood events at Oropos during the Geometric and Archaic periods. Nevertheless, it is evident that the inhabitants insist in constructing their dwellings at the same location. In architecture, when the inhabitants’ needs or the population are increasing, such persistence in constructing a house at the same location signifies an increase in construction density. For a period of long duration —at least three centuries (9th–7th c. BC)— the population of Oropos perseveres in the selection of their houses’ location, not in the selection of their houses’ plans.

• Fifth point: the plan of the dwelling unit is not unique in undergoing modification; the plan of the urban unit changes as well and there is a transition from quadrangular enclosure walls to a system of roads that possibly corresponds to blocks of houses111.

Consequently:

1. The buildings which have a complex plan, i.e. curvilinear roofed buildings connected to additional rectangular open-air spaces are few in number and constitute the intermediate architectural form between buildings of curvilinear and rectangular plan.

2. The rectangular Archaic house of complex plan in the West Quarter, along with the constructions recovered in the South Road, represent a new architectural form also in terms of spatial economy, which is not favoured by the groups of free-standing, curvilinear houses.

3. The suggestion that the possible development of the Archaic settlement in blocks of houses originates from the settlement with quadrangular enclosure walls during the

108. Mazarakis Amian, 'Periboles', 90 fig. 67 (phases 2–3).
109. Ibid., 191 fig. 4 (phase 4).
110. Ibid., 192 fig. 5 (phases 5–6).
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Geometric period is a bold one. In turn, the rectangular constructions that are arranged within such blocks replace the curvilinear buildings with quadrangular enclosure walls, as they offer a more logical and economic use of available space and materials.

B-II-3. The contribution of the anthropological factor to the interpretation of architectural evolution of the constructions at Oropos during the G-Archaic

The present sub-chapter provides an opportunity for a closer inspection of LG-Archaic architecture at Oropos, an “interior” analysis with the consideration that the Geometric-Archaic Oropos constructions are indicative of the functions taking place in their interior spaces. Before proceeding with the examination of the different functions characteristic of the anthropological factor and possibly contributing to the formation and evolution of the Geometric-Archaic Oropos constructions, it is necessary to clarify the character of the different functions marking each construction (dwelling, workshop, cult construction). The condition for this analysis is to identify the buildings that can be defined as dwellings. From the relevant preliminary publications it is accepted that only a few constructions, Buildings B-I, IΑ, Θ and ΣΤ, can be safely defined as dwellings. In this case it would be risky to make generalizations as to the contribution of occupants in the arrangement and plan of the houses. However, the following can be noted: by attributing to the majority of constructions a cult function (Buildings ΣΤ-Ζ and Θ, the latter combining household activities as well), workshop function (metal workshops: Buildings A, E; pottery workshops: Buildings Γ, Η), or a function of uncertain character (Buildings Δ, IB, II, IE and IΖ), instead of assigning each a definite dwelling function, the G–Archaic assemblage of the Central Quarter at Oropos appears as completely exceptional, an archaeological hapax, i.e. a complex of buildings with few dwellings, a complex in which the elements of sanctity and technology mix together, almost a space of early historic alchemists.

This picture becomes more logical:
- by the recognition of dwelling functions also inside buildings of cult character.
- by the recognition of dwelling functions also inside buildings of workshop-metalurgic character.

The co-existence of dwelling and cult can be easily accepted by acknowledging the cult in Buildings Θ and ΣΤ-Ζ as domestic cult – i.e. not communal. This suggestion is favoured by the discovery of finds related to domestic activities (weaving) inside Buildings ΣΤ-Ζ and pottery of everyday use inside Building Θ. The secular character of the entire architectural assemblage is also favoured by the excavator’s observation concerning the incompatibility of a sanctuary and the dead —even children— within a place of cult

The proposition that these buildings, which clearly had associated workshop-metalurgic functions, were also used as dwellings seems more problematic. It is hard to accept the co-existence of everyday living functions with everyday metallurgic processes in the interior of the limited space of a single room. Such co-existence can only be explained if one accepts that the small pits inside were used in metallurgic processes within the buildings – houses, in this case. In support of this suggestion, we call attention to the discovery of finds related to domestic activities (weaving) inside Building IA, which initially was believed also to have housed metallurgic activities, as well as the discovery of two domestic hearths in the

112. See, for instance, Mazarakis Ainian, ‘Excavations’, 158, 161.
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centre of Building I, which, originally was also considered to have been associated with certain metalworking activities\textsuperscript{114}.

Based on the above evidence, the function of the most complete and comprehensible assemblage of constructions of the Central Quarter, i.e. the constructions enclosed by enclosure Wall T23-T61-T32-T27-T26-1, during its most complete phase\textsuperscript{115} seems most logical when we view it as three dwellings (Buildings Θ, IA and ΣΤ-Ζ) and two small circular constructions (ΙΓ, IE) inside the settlement.

**B-II-3-a. Heating – Food preparation (mainly cooking): the significance of heating sources in the interior of the buildings of the Central Quarter at Oropos.**

Out of seven (7) apsidal, ellipsoid, and oval buildings, four (4) —Building A and probably Buildings E, I and IA— have interior hearths-kilns indicative of metallurgic activities. Three (3) —Buildings Θ, ΣΤ and B— have plain, interior hearths\textsuperscript{116}. Due to the nature of the finds discovered in their interiors, Building Θ is characterized as a dwelling, housing also cult activities, Building B as a dwelling, and ellipsoid Building ΣΤ, which is clearly not connected to any workshop activity, thus as a dwelling too. The picture is completed by the remainder of five (5) circular buildings —Buildings ΣΤ, Η, ΙΓ, ΙΔ and ΙΖ— as well as one (1) rectangular, Building Z, which is connected to circular Building ΣΤ. Heating sources are located inside Buildings ΣΤ (cavities with ashes and charcoal), Η (kiln and hearth), ΙΔ (substantial masses of fired mud bricks) and ΙΕ (burnt area). Buildings ΙΓ and IE are characterized as secular structures (silos?), while Building ΙΖ, which measures 1.20m in diameter and lacks in an interior source of heating, was probably uninhabited.

Is it possible to reach a conclusion regarding the effect of the heating sources within the buildings on the formation of their architectural plan?

Apart from Building Θ, there is no other building exhibiting spatial division created by means of interior partition walls constructed for the preservation of the hearth's fire within a secondary space.

**B-II-3-b. Behaviour patterns according to family ties inside the dwelling – Reproduction.**

If Buildings A, B, E, ΣΤ-Ζ, Θ, I, IA and ΙΣΤ are accepted as dwellings, anthropometric evidence becomes of special interest: with the striking exception of Building Θ, the size of each unit is nearly identical, about 28 square meters. If we allot four square meters to each occupant, then a six- to seven-member family (mononuclear, obviously) can be accommodated within these dimensions. A single hearth in the centre of the space is sufficient for the needs of such a family unit.

**B-II-3-c. Storage.**

A pithos is mentioned in the interior of the apsidal area of Building ΣΤ. However, it is unclear whether the pithos is contemporary to the apsidal phase of the building, or dates to the building's successive period of use\textsuperscript{117}. In Building Θ, the size of the apse, which features

\textsuperscript{114} Cf. however Prakt (1997), 74 n. 31; Prakt (1998), 80; Mazarakis Ainian, 'Excavations', 158, where this suggestion was revised.

\textsuperscript{115} Mazarakis Ainian, 'Periboles', 191 fig. 4 (phase 4).

\textsuperscript{116} To these one may add the apsidal (?) building of vague plan with a room with a hearth west from Walls T64 and T65 defining it from East and North East.

\textsuperscript{117} Prakt (1998), 61.
an elevated bench meant to ensure the preservation of the stored goods, is exceptional and its construction is unparalleled among the remainder of the buildings.

**B-II-3-d. Domestic workshops.**

Based on the aforementioned evidence, among the various domestic handicrafts practiced, weaving is documented in Buildings B, ΣΤ-Ζ and ΙΑ. If one accepts the metal working evidenced in roofed spaces here as a domestic activity, then such an activity is documented in Buildings A, E and I, while circular Buildings H and Γ present clear traits of a workshop (pottery kilns). The assemblage of small finds that have thus far been recovered from the interior of Buildings A, B, E, ΣΤ-Ζ, Θ, I, JA and ΙΣΤ justify the single- or double-roomed (Θ) composition of the dwellings, and do not indicate any justification for developing the house in an agglomerative fashion.

Conclusion: From the standpoint of socio-economic status, there can be no unilateral characterization of the inhabitants of Oropos. Although the plans of the houses immediately refer to the curvilinear constructions of nomadic stock-breeders, the nature of the finds from their interior present evidence of stable activities. Among such activities of the Oropos population during the Geometric–Archaic period, metallurgy and fishing are recorded118.

**B-II-4. The contribution of the ideological factor to the interpretation of architectural evolution at Oropos during the PG–G–Archaic**

Comparing the Geometric curvilinear with the Archaic rectangular constructions of Oropos, the only feature they have in common is the sloping-type roof. The continuous use of the sloping-type indicates a constant concern on behalf of the residents for protecting the mud brick superstructure from the rain and for alleviating the wooden roof from the weight of the snow. This, however, is the only similarity between Geometric and Archaic constructions: on the one hand, the sloping roofs of the curvilinear Geometric houses are built of light, organic materials (branches, reeds, straw)119, while the roof of the Archaic dwelling in the West Quarter carries tiles120. Two questions present themselves:

- Under which conditions do roof tiles appear in the Oropos constructions?
- Is there any evidence to support a foreign provenance for the rectangular type of plan?

The use of roof tiles as a building material is a starting point for a discussion. By replacing straw and wood with tiles in roof construction, the inhabitants of Oropos simultaneously replaced the curvilinear with a rectangular building plan. On the other hand, one could suggest that the replacement of curvilinear with rectangular plans preceded the import of roof tiles, with an intermediate phase of short duration, in which the roofs of rectangular constructions were built using organic materials. However, this cannot be documented through excavation. The rectangular form and clay roof tiles appear to be closely connected in the architectural tradition of Oropos since the initial stages of their emergence.

118. Mazarakis Ainian, Oropos (1985-87, 1996)'78 and pl. 27β.
119. This is concluded not by any direct archaeological documentation of organic construction materials in the roofs of the curvilinear buildings of the Central Quarter, since no roof tiles were found in connection with these buildings.
B-III. The contribution of research on the constructions in Oropia to the interpretation of the transition from curvilinear to rectangular architectural types in Greece

Taking the evidence from Oropos into account, we will attempt in the following paragraphs, an evaluation of their contribution, positive or negative, in order to establish the validity of these four interpretative suggestions concerning the transition "from curvilinear to rectangular" in the PG, G and Archaic periods.

B-III-1. The cultural factor. Whereas, in reference to the district of Oropos, the interpretation of the aforementioned transition is not applicable on the bases of impact by the Oropos prehistoric cultural tradition for lack of evidence. In reference to the entirety of Greece, in the regions where a fine line of continuation through Mycenaean, PG and Geometric architectural evidence is apparent, this pattern of transition must be reconsidered. In specific settlements — though limited in number — there is more than one standardized impression concerning an architectural tradition comprising buildings exclusively rectangular in plan. During the period under examination, free-standing curvilinear houses occur next to the cores of settlements, which are formed by rectangular buildings121. The most characteristic example of the co-existence of rectangular and curvilinear houses is given by the Mycenaean phase at Nichoria, where a plain apsidal construction dated to the LH IIIB (Unit III) is found together with the Mycenaean road also dating to the LH IIIB; a second example is formed by a line of complex rectangular constructions of the same period122.

B-III-2. The geographical factor. Based on the example of Oropos, it seems too simple-minded to accept a one-way cause-effect relation between geographical region and architectural forms for all of Greece, especially when the latter is broadly divided into north and south. Oropos substantiates the existence of an intermediate geographical zone in Greece and its transitional types of architectural plan. With progress in research, this zone is beginning to be distinguished in the regions of Attica and Oropia (and including Euboea). The transitional types of architectural plan occur at Lathouriza, with complex construction I-IV documented, while the buildings of rectangular plan at Thorikos, dating from the EG, point to the borderline between Mainland and Cycladic architecture in the PG–G.

In contrast to the above, the example of the constructions at Oropos represents the cause-effect relationship between the micro-environment of the district and architectural forms. A cause related to the transition under question connects precisely with this factor: rectangular forms provide solutions to problems caused by particular geographical parameters that cannot be solved by curvilinear structures.

B-III-3. The anthropological factor. In the case of Oropos, various functions (dwelling, domestic workshops, activities connected to fishing, domestic metallurgy) can be executed architecturally inside shells that have been defined in the past by a different use, e.g. to function as dwelling for a stock-breeder/nomad.

Similarly, after evaluating the validity of this factor for the entirety of Greece, one would conclude that no individual architectural plan can be identified with a single function.

Nevertheless, we point out that while during the PG a non-institutionalized use of interior dwelling space takes place (all activities are practiced everywhere inside a single space), over the course of time functions, or categories of functions, become distinguished and eventually reach the point where they are practiced in different shells — a feature, which is not always advantageous to the occupant. Solutions to this problem will be provided by the complex rectangular house, which will permit, on the one hand, the distinct carrying out of functions in distinct spaces, and on the other hand, the connection of these spaces via specific architectural elements.

B-III-4. The ideological factor. The examination of the Archaic architecture at Oropos has led us to the following question: is the Archaic roof-tiling material imported from some Peloponnesian, or other, centre, or is it produced autonomously in Oropos or the wider region (in Attica or Euboea)?

For the whole of Greece, the solution to the problem under examination, on the basis of the ideological factor, generally seems to generate more problems than answers.

C. SYNTHESIS

The architectural evolution of the house plan at Oropos from curvilinear to rectangular and, in particular, to complex rectangular forms can be summarized as follows:

- PG. There is an early gap, not in the occupation of the site but specifically in our knowledge of the architecture, as the type of dwelling in this period at Oropos is still unknown. Is it possible to identify the type with an oblong, apsidal building of about five-hundred (500) square meters, which would house the members of an old, multi-rooted kindred group (much broader than a single-nuclear family), a type similar to that of Toumba at Lefkandi? Or, otherwise, could it be identified with a curvilinear building of about thirty to forty (30-40) square meters, which would house a single-nuclear family, a building similar to those already discovered in Oropos? This question remains unanswered.

- EG-MG. On the basis of pottery finds from Oropos, it is confirmed that occupation inside the settlement continues during the EG and that the previous remarks and question in reference to the PG are also valid in reference to the EG. The critical period for this matter is, however, the MG. This is truly the “dark period” of the settlement, since it is not only the building types dating to this period but the existence of the settlement itself as well that cannot be documented.

- Early LG. With an oval-shaped construction housing a single-nuclear family — the original family — as a starting point, a limited number (one or two) of houses are built in the environs. Each of these dwellings also houses another single-nuclear family — a branch of the basic, patriarchal family. One among these constructions could possibly function as a workshop-house, possibly with a pottery kiln co-existing beside and some granary or granaries along with a humble cult construction.

- LG. At some stage this group of curvilinear constructions is enclosed by a rectangular enclosure wall of a double function:
a. On the one hand, it defines the space of an old kindred PG group, which, having been separated into single-nuclear families, now dwells inside curvilinear houses.

b. On the other hand, it protects the enclosed constructions from the peril of floods.

- Archaic: In a late phase, the entire system, which develops from the interior (from the initial curvilinear house) to the exterior (to the rectangular enclosure) is transformed from the exterior (from the rectangular enclosure) to the interior (to the rectangular houses) into the final structure of a house block composed of rectangular houses.

This conclusion becomes more interesting of its own accord when viewed in light of another form of evolution in the field of urban construction: at Skala Oropou, during the Archaic, the emergence of an urban organization making use of quadrilateral blocks of constructions and roads takes place as a development following the system of the LG quadrilateral enclosures. Consequently, taking into account the architectural types of the Archaic Hippodamean urban system in South Italy, the idea that this system finds an autonomous parallel in Mainland Greece is quite appealing.

Question: Is it possible, at Oropos, that each enclosure with more free-standing buildings inside and comprising only one single-nuclear family during the LG is transformed into a house sheltering the same single-nuclear family but with more than one room arranged around an open court, often of the *pastas* type, during the Archaic period?123?

The answers to this question were presented in detail earlier along the lines of the following arguments:

- In the field of architecture, it appears that single-roomed curvilinear houses protected by LG enclosures were transformed into rectangular houses with a limited number of rooms (possibly also of *pastas* type) arranged within Archaic house blocks.
- In the field of urban construction, it appears that the LG enclosures are transformed into Archaic house blocks.

Finally, based on observations made in reference to the Oropos architectural finds, we examined the interpretations of the transition “from curvilinear to rectangular” suggested for all of Greece during the PG, G, and Archaic Parallel analysis of architectural constructions during the same period in Mainland and Insular Greece leads to the following conclusions:

- A concise pattern of architectural evolution in PG–G for all of Greece, similar to the scheme “from curvilinear to rectangular”, cannot be framed.
- Every succinct phrase summarizing an architectural evolution during these periods must be framed in relation to a specific geographical space.

123. This view of Mazarakis Ainian, ‘Périboles’, 222: "En tout cas nous observons le passage de l'œikos mononucléaire allongé de l'époque protogéométrique (Nichoria, Lefkandi) à l'œikos constitué de plusieurs bâtiments se dressant à l'intérieur d'une cour. Enfin, ce dernier schéma évolue vers la maison rectangulaire à plusieurs (sic) pièces reparties sur les bords d'une cour, souvent du type à *pastas*, ou chaque pièce a une fonction différente". A misfortunate use of the term "cour" in the previous sentence ("l'œikos constitué de plusieurs bâtiments se dressant à l'intérieur d'une cour") is detected in the phrase "la maison rectangulaire à plusieurs pièces reparties sur les bords d'une cour". At Geometric Oropos, buildings are not erected inside an open court but inside an enclosure. This fine difference in the meanings of this phrase shows the essence of the problem of interpretation: logical comparison is possible only between elements of the same general category. In this specific occasion, the enclosure is an element of urban planning, while the courtyard an element of house architecture.
The foreign origin of architectural forms, either curvilinear types from the north or rectangular types from Aegean Cycladic and Cretan centres, remains a matter for additional discussion. Nevertheless, in regions where these two building traditions meet, an intermediate geographical zone becomes evident, a zone where intermediate transitional architectural types occur (Lathouriza), or architectural forms develop from curvilinear to rectangular within a short period of time (LG–EA). Such is the case at Oropos.

Overall, in each and every separate geographical district and in different chronological phases, a different pattern of transition in architectural forms takes place:

- "from rectangular to rectangular"
- "from curvilinear to curvilinear"
- but also the extremely exceptional occasion of the opposite transition:
  - "from rectangular to curvilinear"124

Particularly where curvilinear constructions reappear, this reappearance does not signify a reappearance in time but a reemergence in space of an always-existing form that was never abandoned since the social group which carries this traditional architecture never disappeared. The social group connected to the specific architectural type is no other than shepherds who settle close to abandoned rectangular constructions of an earlier date.

Finally, where no transition but, rather, the co-existence of architectural forms and the parallel evolution of different architectural plans is noted in the same place; i.e. the co-existence of rectangular buildings and humble curvilinear construction, in that case, for the interpretation of this phenomenon, it is not inappropriate to accept as an interpretive key the influence of the activities practiced by social or professional groups. This is not a scientific anachronism or conservatism.

124. We refer to the constructions of ancient Smyrna: R. V. Nicholls, 'Site-plan of Old Smyrna', *BSA* 53-54 (1958-1959), pl. 74, at end of vol. They are not irrelevant to our discussion but they are located outside the geographical limits of Greece. A close inspection of their architectural evolution is necessary.
<table>
<thead>
<tr>
<th>Building serial no.</th>
<th>Type</th>
<th>Dimensions</th>
<th>Wall Thickness</th>
<th>Masonry</th>
<th>Special Features</th>
<th>Explanatory Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>horseshoe or ellipsoid (Phases 4-5)</td>
<td>7.00×4.60</td>
<td>0.40/0.45-0.30/0.35</td>
<td>Interior: polygonal; exterior: round- or rectangular-shaped stones</td>
<td>•</td>
<td>Structure: foundation trench; stone foundation 0.50 in max. height; superstructure made of bricks (?); depth of ancient ground: -3.67; depth of first floor: -3.77 (first floor lies deeper than external ground surface of building). Arrangement: row of six or seven wooden supports encircles building every 3.00; possible occurrence of interior bench. Context of Finds: Small pits in successive floors close to open entrance; at bottom of some of the pits concentrations of ore were found (metalworking kilns). <strong>Pottery kiln</strong> with two firing chambers outside and SW of construction; kiln functions in the roofless space. Function: Metal workshop (possibly).</td>
</tr>
<tr>
<td>Building serial no.</td>
<td>Type</td>
<td>Dimensions</td>
<td>Wall Thickness</td>
<td>Masonry</td>
<td>Special Features</td>
<td>Explanatory Data</td>
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<tr>
<td>B-I</td>
<td>ellipsoidal (B: Phases 4-5)</td>
<td>8.50×4.60</td>
<td>*</td>
<td>*</td>
<td>Structure: floor of flag-shaped limestone.</td>
<td>B1-B2: 750-700 BC</td>
</tr>
<tr>
<td></td>
<td>apsidal (F: Phase 6)</td>
<td></td>
<td></td>
<td></td>
<td>Arrangement: development of building in five building phases: row of wooden supports encircles building, indication of blockade on side of entrance by section of small wall; bench T16 0.64 in width associated with F; hearth of rectangular or oval shape, in contact with internal face of apse and defined by burned bricks (from East and West); second circular hearth close to centre of building, defined by small number of stones. Context of Finds: Pottery kiln measuring 1.00×0.70 with two firing chambers in south-central part of construction; represents last period of use of ultimately roofless space. Among movable finds, loom weights, spindle whorls and clay bullets are noted. Function: House.</td>
<td>1: early 7th c. BC</td>
</tr>
<tr>
<td>Δ</td>
<td>apsidal (?) (Phase 2)</td>
<td>10.00-11.00×4.60</td>
<td>*</td>
<td></td>
<td>Arrangement: indefinite form of building; building structure defined by walls T64, T63, T66 and T24; area of burning west of walls T64-65; East-West orientation of building.</td>
<td>LG (?)</td>
</tr>
<tr>
<td>E</td>
<td>ellipsoidal or oval (Phase 3)</td>
<td>6.00×4.00</td>
<td>0.40-0.45</td>
<td>substructure: one layer of round- or rectangular-shaped stones</td>
<td>Structure: wooden supports possibly occur inside and along the walls. Arrangement: areas of burning inside building; a hearth or kiln possibly occurs also; East-West orientation of building. Function: perhaps a workshop.</td>
<td>One of the earliest buildings in the area of workshops, but may be later than Δ.</td>
</tr>
<tr>
<td>ΣΤ</td>
<td>Circular (Phases 4-5)</td>
<td>3.85 diam.</td>
<td>0.50</td>
<td>*</td>
<td>*</td>
<td>Structure: pebbled floor. Arrangement: entrance 0.70 in width at NW; inside building, various cavities with ash, charcoal and soil; two shallow pits inside; bench built of three large river stones at northern part of circular interior; paved interior floor possible. Context of Finds: among movable finds, loom weights and one spindle whorl are noted. Function: possibly a building of ritual purpose.</td>
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</tr>
<tr>
<td>Z</td>
<td>rectangular (Phase 5)</td>
<td>3.80 (L:N) x 2.50 (L:E)</td>
<td></td>
<td></td>
<td></td>
<td>Structure: roofed space. Arrangement: the southern wall of the building is part of enclosure Τ27; the western wall of the building is part of curvilinear wall of building ΣΤ; while, the northern and the eastern walls meet at a right angle; one step communicating with Building ΣΤ (?). Context of Finds: Among movable finds, loom weights, spindle whorls and clay bullets are noted. Function: connects with the use of Building ΣΤ: therefore, possibly a building of ritual purpose.</td>
</tr>
<tr>
<td>H</td>
<td>Circular (Phase 6)</td>
<td>2.90 diam.</td>
<td>0.40-0.42</td>
<td></td>
<td></td>
<td>Structure: the vertical walls—facades of the circular construction are coated in clay. Arrangement: entrance 0.56 (or 0.70?) in width to the west; it encloses a kiln of uncertain dimensions and shape and a hearth, which is made of yellowish clay soil and has the shape of a quadrangle. Function: pottery kiln (?).</td>
</tr>
<tr>
<td>Building serial no.</td>
<td>Type</td>
<td>Dimensions</td>
<td>Wall Thickness</td>
<td>Masonry</td>
<td>Exterior Supports</td>
<td>Interior Supports</td>
</tr>
<tr>
<td>---------------------</td>
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</tr>
<tr>
<td>Θ1</td>
<td>Ellipsoid (or oval) (Phase 4)</td>
<td>Θ1: 9.80x4.70</td>
<td>0.35-0.40</td>
<td>Θ1: substructure: 2-3 layers of roughly-worked stones medium in size and filling of small stones in the gaps between.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Θ2</td>
<td>Apsidal (Phase 5)</td>
<td>Θ2: 12.00x4.70</td>
<td></td>
<td>Θ2: substructure: rectangular-shaped stones and smaller slabs at upper surface in order to level irregularities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Θ3</td>
<td>Ellipsoid (Phase 6)</td>
<td>Θ3: 9.80x4.70</td>
<td>0.40-0.45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shape</td>
<td>Dimension</td>
<td>Substructure</td>
<td>Arrangement</td>
<td>Function</td>
<td></td>
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<tr>
<td>I</td>
<td>ellipsoid (Phases 2-3)</td>
<td>7.30 x (&lt;4.20) or 7.60 x 4.50 (according to other measuring)</td>
<td>two layers of rounded stones in rows.</td>
<td>possibly a row of wooden supports encircles the building; threshold T56 of stone slabs, 0.34 in width; hearth in central part of building; pebbled floor to the North and West of the hearth; ask; hearth north of pebble-floored space; second circular space with charcoal; East of pebbled floor; hearth in the area ofapse; two pits in central part of building; one upon the other, interpreted as domestic hearths (possibly).</td>
<td>Dwelling (possibly).</td>
<td></td>
</tr>
<tr>
<td>IA</td>
<td>ellipsoid (Phases 4-5)</td>
<td>7.20 x 4.50</td>
<td>0.35/0.38-0.40; Substructure: 2-3 layers of roughly-worked stones medium in size and filling of small stones in the gaps between.</td>
<td>Arrangement: blockage of entrance side by part of wall T58; entrance 1.80 in width, with stone threshold T62; oblong stone construction in area of apse, interpreted as ritual item; large pit-hearth at centre of building; after the abandonment of the building and upon the earlier large central pit-hearth, an almost square, paved construction, 1.20 in length, is built, and is interpreted as an altar.</td>
<td>ca. 700 BC</td>
<td></td>
</tr>
<tr>
<td>IB</td>
<td>ellipsoid (Phase 2)</td>
<td></td>
<td></td>
<td>Arrangement: bench in the building's interior (or is it possible that there are two buildings?); East-West orientation of building.</td>
<td>LG</td>
<td></td>
</tr>
</tbody>
</table>
### CURVILINEAR VERSUS RECTANGULAR?

<table>
<thead>
<tr>
<th>Building serial no.</th>
<th>Type</th>
<th>Dimensions</th>
<th>Wall Thickness</th>
<th>Masonry</th>
<th>Special Features</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT</td>
<td>circular (Phase 4)</td>
<td>1.70 diam.</td>
<td>&lt;0.25</td>
<td></td>
<td>Structure: floor of hard-beaten soil and thin gravel. Arrangement: entrance 0.50 in width to the north.</td>
<td>LG</td>
</tr>
<tr>
<td>IA</td>
<td>circular (Phase 3)</td>
<td>2.80 diam.</td>
<td>0.30-0.35</td>
<td></td>
<td>Function: indefinable.</td>
<td>LG</td>
</tr>
<tr>
<td>IE</td>
<td>circular (Phase 4-5)</td>
<td>1.80 diam.</td>
<td>0.30</td>
<td>One row of stones medium in size, in one layer.</td>
<td>Arrangement: entrance 0.60 in width to the SW. Function: possible granary</td>
<td>LG</td>
</tr>
<tr>
<td>IΣT</td>
<td>ellipsoidal (Phase 4)</td>
<td>&lt;7.00 length</td>
<td>&lt;0.40</td>
<td></td>
<td>Arrangement: pit hearth at about the middle of building. East-West orientation of building; entrance from West.</td>
<td>LG</td>
</tr>
<tr>
<td>IZ</td>
<td>circular (Phase 5)</td>
<td>1.20 diam.</td>
<td>0.12</td>
<td>One row of stones medium in size, in one layer.</td>
<td>Structure: pebbled floor. Function: discussion about the connection of the building with food preparation activity; possibly connected with IΣI.</td>
<td>ca. 700 BC</td>
</tr>
</tbody>
</table>

### WEST QUARTER

(Buildings according to Phases after Prakt 156 (2001) 33-42)

<table>
<thead>
<tr>
<th>Building serial no.</th>
<th>Type</th>
<th>Dimensions</th>
<th>Wall Thickness</th>
<th>Masonry</th>
<th>Special Features</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>ellipsoidal (Phase 3)</td>
<td>5.30x3.00</td>
<td>0.36</td>
<td>Exceptionally well-attended, with worked rectangular stones.</td>
<td>Arrangement: bench of roughly-worked stones, 0.60 in width, built along east wall; it is replaced by a stone construction, 1.00 in width, covering the greatest part of the floor and apsidal space.</td>
<td>LG</td>
</tr>
<tr>
<td></td>
<td>Ellipsoid (Phases 4-5-6)</td>
<td>Phase 4: 6.50×3.00</td>
<td>Phase 5: 6.50×3.00</td>
<td>0.37-0.39</td>
<td>Arrangement: Phase 4: the bench is replaced by a stone construction, 1.00 in width, covering most of the floor (?). Phase 5: only the façade is preserved, with a well-attended threshold and parts of the east wall and of the apse.</td>
<td>LG-EA</td>
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<tr>
<td>K</td>
<td>Ellipsoid (Phase 3)</td>
<td>ca. 9.00 length and &lt;4.00 width</td>
<td>0.47</td>
<td>•</td>
<td>Arrangement: paved floor or bench (possibly) along interior face of apse.</td>
<td>LG</td>
</tr>
<tr>
<td>KA</td>
<td>Ellipsoid (Phase 4)</td>
<td>ca. 8.00 length and &lt;4.00 width</td>
<td>0.40</td>
<td>•</td>
<td>Arrangement: posthole outside building; pavement at middle of east side.</td>
<td>LG</td>
</tr>
<tr>
<td>KB</td>
<td>(hypothetically a building) Ellipsoid (Phase 5)</td>
<td>0.40</td>
<td></td>
<td></td>
<td>Structure: building acknowledged as brick-walled construction, defined on the north by a slightly curvilinear wall of carefully constructed masonry; successive clay floors. Arrangement: north wall and lateral walls are missing; the preserved façade is formed by two pilasters and threshold; circular area of hearth at about the middle of brick-walled construction; eschara.</td>
<td>ca. 700 BC</td>
</tr>
<tr>
<td>KT</td>
<td>Circular (Phase 5)</td>
<td>2.60 diam.</td>
<td>0.31</td>
<td>Function: granary?</td>
<td>ca. 700 BC</td>
<td></td>
</tr>
<tr>
<td>KA</td>
<td>Circular (Phase 6)</td>
<td>2.40 diam.</td>
<td>0.20</td>
<td>Function: granary?</td>
<td>EA</td>
<td></td>
</tr>
<tr>
<td>Building serial no.</td>
<td>Type</td>
<td>Dimensions</td>
<td>Wall Thickness</td>
<td>Masonry</td>
<td>Date</td>
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<td></td>
</tr>
<tr>
<td>KE</td>
<td>ellipsoid (or horseshoe)</td>
<td>6.50×3.60</td>
<td>ca. 0.65</td>
<td>Substructure: one layer of river stones</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>
| KX T               | apsidal (or oval)         | 5.10×ca. 3.30 | 0.38          | Arrangement:  
Phase 3  
It seems that the south limit of the building is identical with east end T126 of the south side of the enclosure, while, part of east enclosure T101 functioned as the building's east wall.  
A pavement of stones or bench is built in the interior touching the apse.  
Phase 4  
Part of east enclosure T101 functioned as the building's east wall. | LG    |
| KZ                 | circular                   | <1.80 diam. | 0.40           | Arrangement: opening to the North, 0.20 in width.  
Function: granary or building for ritual purpose (?) | EA    |
| KH                 | rectangular                | 2.40 (W)×1.80 (N, pr. length) | 0.35           | 7th c. BC                        |       |
| KΘ                 | circular or apsidal        | 0.30       |                | ca. 700 BC                       | LG    |
| Λ                  | circular (?)               | 0.30       |                | ca. 700 BC                       |       |
| ΛΛ                 | circular                   | 2.30 diam. | 0.30           |                                 |       |

Table 1.
BIBLIOGRAPHY
Evidence from preliminary publications:

Building KΘ: Prakt 156 (2001), 38.
Building ΛΔ: Prakt 156 (2001), 38.

Evidence from composite studies:

Mazarakis Ainian, 'Contribution', 371-379: Buildings A, B, E, Θ, I, IA, IΓ, IΔ, IE, ΙΣΤ, IH, IO, K, KA, KB, KΓ, KD, KE, ΚΣΤ, KΖ, KH, KΘ, ΛΔ.
Fig. 1. Oropos. Plan of the Early Iron Age settlement (N. Kalliontis, A. Gounaris).
Fig. 3. Oropos. Central Quarter. Architectural phases 2-7 (drawing by A. Mazarakis Ainian).
Fig. 4. Oropos. West Quarter. Plan of architectural phases 2-7 (2002).
Fig. 5. Oropos. Central Quarter. Aerial view (1998).

Fig. 6. Oropos. West Quarter. General view from the South (2001).
A number of important discoveries made in the area examined in this volume have contributed greatly to a better understanding of the island of Euboea and its adjacent areas. The recent excavations on Xeropolis at Lefkandi are not of course an exception. Here a summary of the recent excavations is offered as a contribution to the archaeology of the region.

The main focus of the recent excavation was on the region immediately to the East of the plot dug in the 1960s. This is named Region I, while Region II is the central region on Xeropolis, which was only partly investigated in 2003 and was one of the areas where geophysical investigation was conducted in 2005 (Fig. 1). Since the excavation on the site continues, this summary of the results so far can only be considered preliminary.

Xeropolis was an important site during the LH IIIC period. It was during this period that the settlement appears to have enjoyed one of the most prolific stages in its long history. The importance of the LH IIIC settlement became known in the small area which was excavated in the 1960s by Popham and Sackett¹. This period had been divided by its early excavators into three main stages. The first stage ended in a destruction which seems to have affected the whole of the site. The settlement was eventually levelled off and subsequent buildings were constructed but with a different plan and orientation. The rebuilding of the settlement has

¹ The Lefkandi-Xeropolis excavation is under the aegis of the British School at Athens. I would like to thank the Greek Ministry of Culture and the IA’ Ephorate of Prehistoric and Classical Antiquities for issuing our permits to excavate and for facilitating our work. The excavation is generously supported by the Packard Humanities Institute which has also funded the purchase of land making it possible to dig on Xeropolis. The Institute for Aegean Prehistory has also supported with costs and use of its conservators. I thank my team of dedicated postgraduate students and collaborators and especially my field sub-director Don Evely.

This preliminary report is dedicated to Oliver Dickinson not only as a delayed offering marking his retirement from his academic post at Durham but also as a token of gratitude for his dedication to the research of the site where, as a young student in the 1960s, excavated with Mervyn and Hugh.
been called Lefkandi–Phase 2 by the excavators; it represents a flourishing period in the history of the site, during which the inhabitants on Xeropolis lived in well-built houses. Their sophisticated life style is also reflected in the production of some of the best examples of pottery with pictorial decoration. Interestingly, a number of vases of the period were decorated with warrior scenes, a popular subject, appearing on the pottery of a number of important sites in Mainland Greece and the Aegean islands. In the current excavations more fragments were found with warrior scenes, while one depicts men on a ship (Fig. 3).

It has also become apparent from both the earlier and more recent investigations that the whole of Xeropolis was occupied during this period. Since the hill is some 500m long, this means that the extent of the LH IIIC town was immense. It is noticeable that trial trenches at the west end of the tell dug by Popham and Sackett together with their deep section excavation as well as our investigations in both Regions I and II reveal LH IIIC houses of the flourishing Lefkandi 2 Phase. We knew from the previous excavations that these houses were destroyed by fire and this was confirmed by recent research. We also learnt from the earlier excavations that after that destruction the settlement was not abandoned. Interestingly, our excavation revealed that the settlement corresponding with the last stages of LH IIIC (Lefkandi–Phase 3) also extended to the east end of Xeropolis. Excavation on the east part of Region I found houses occupied during this stage. This period was poorly represented in the earlier excavations but it seems that the situation will be remedied now.

It appears, however, that well built houses with yards and walls are dated to this phase and that the pottery found in them bears interesting links with sites in coastal central Greece mostly located opposite Euboea and Keos.

One of the aims of the current excavations, however, is to investigate the EIA occupation of the site and understand the connection between the mortuary data —which is known from the cemeteries at Lefkandi— and that from the settlement. In this respect, it is important to note that in the same area where we discovered traces of the last phase of the LH IIIC period (Lefkandi–Phase 3), there is also evidence, on the top of the LH IIIC structures, of feeble walling dated to the transitional from the SM to Early PG period by the discovery of two complete vases found there. One is a jug and the other is an amphoriskos (Fig. 4). The complete state of the vases together with the fact that the amphoriskos is usually a funerary offering, suggest that they may belong to a burial, although no bones were found. Since children’s bones are often not preserved and child burials near settlements are not uncommon in the period, it might have been an infant’s grave in the area. As important, and clearer, is the fact that the presence of such vases underlines the use of the area during the crucial transition period from the Late Bronze to the Early Iron Age, providing important evidence of occupation on Xeropolis during this stage. The date of both vases cannot be placed later than the transitional period between SM and EPG.

3. Popham, Late Helladic IIIC Pottery, 340-346.
4. For a complete discussion of the pictorial pottery found on Xeropolis and its importance, see the contribution of Joost Crouwel in Evely, op. cit. n. 1. For scenes with boats on LH IIIC vases from Kynos, see F. Dakoronia, ‘War-ships on Sherds of LH IIIC Kraters from Homeric Kynos’, Tropis II (1990), 117-122.
5. The trial trenches excavated by Hugh Sackett appear in Lefkandi IV, Evely, op. cit. n. 1.
6. Popham, Excavations, 9; Popham, Late Helladic IIIC Pottery, 342.
7. Ibid., 342-346.
In the central area of Region I, which is located just to the east of the earlier excavations, a larger area was excavated there. In this area, LH IIIC phase houses (Lefkandi–Phases 1 and 2) are almost everywhere to be found below the Iron Age soils. Evidence for the SM period is mostly represented by ceramic material found in various spreads across the site. Interestingly, in an area located within the "old excavation", floor levels and walls — as well as some earth in local depressions of some magnitude — may yield the first solid, if fragmented, evidence for structures of this date. It is in the area that a fragmentary figurine was found on a floor with EPG pottery (Fig. 5). Though the lower body of the figurine is not preserved and we do not know whether it had a human or an animal body, it is intriguing perhaps to suggest that such a figurine might have been an earlier work of the same workshop which produced the centaur found in the Toumba cemetery. If so, then this workshop carried on a Mycenaean tradition of making figurines and links with similar workshops operating in Crete.

The EIA is well represented in recent excavations too. Structures and levels of this most flourishing phase in the history of Lefkandi have been identified from across the whole area. Among them, a curved wall (Wall 22) found in the southern part could have been part of an apsidal building, aligned North-South (Fig. 2). It is positioned without any apparent regard for existing LH IIIC walls and earlier usage of space in the area. However, it is also adjacent to a region from which a good deal of Early-Middle PG sherd material came. This together with the evidence excavated within the area of the "old excavations" show that Xeropolis was occupied during the same period when the Toumba building was erected.

One of the most remarkable discoveries made in the 2004 excavation is a North-South passage which divides two main areas of Region I. This passage must be dated to the very beginning of the EIA and nevertheless after the end of the LH IIIC and before the construction of the LG houses in the area.

It seems that this was a flat-bottomed channel, some 1.50m wide, with a bank at each side. On the east side of the way, a stone wall was found in 2004. It was initially thought that it was marking the passage (Fig. 2). The walls are of more than the usual proportions and built with large slabs and stones. Excavation, however, in 2006 revealed that this wall belonged to a "megaron" dated to the EIA.

Further work is required here to determine whether the passage turned to run East or West within the settlement, or perhaps descended the slope to the North to a possible harbour area below. Whatever its function, it might have been one of the entrances into this part of the settlement. The passage remained in use until sometime at the start of the LG period. At that time a decision was taken to deliberately infill the way. This must have happened during the SPG period since the dumped material and the pottery associated with these soils are mostly SPG and LG and sit over LH IIIC material.

The purpose of this infilling was to raise the levels in this area in order to construct a LG apsidal building (Wall 45) with a possible internal cross-wall (Wall 75), a candidate for a post-base and a potential threshold (Wall 46). This building was put out of use with the construction of the LG II Walls 44 and 51 (Fig. 6).

Finally, in the middle of the main area of Region I was Building I (Fig. 2). The date of this...
building appears to be LG or later. Unfortunately, this rectangular structure has been badly damaged by the modern plough. Its north side (Wall 1) is preserved as are part of its west (with a door; Walls 2 and 2a) and the hint of a return of its east wall. These walls give a structure of five meters East-West by at least 3 meters (and probably 4) North-South. Careful excavation of the interior of the building failed to produce clear traces of floor, or evidence of purpose or date. The only indication comes from the presence of part of a "capped" pithos at 10-15cm below the wall-bases. Such vessels are assigned to the very end of the LG or to the early Archaic period. Similar pithoi have been found in Corinth and dated to the Late Protocorinthian period (late 7th c. BC). Another parallel from Zagora is dated to LG II (Fig. 7)9.

Region II was initially excavated in 2004 and was the part of the geophysical investigation of 2005 under the direction of Apostolos Sarris. This region will be the focus of the future excavation and thus it will be premature to report the apparent importance of this region which is located in the middle of Xeropolis and has never been excavated before.

Finally, it is important to add the investigations which was carried out in the narrow valley immediate North-East of Xeropolis. In this area a geoarchaeological investigation took place in 2005 in order to understand the environmental history of Xeropolis. In close collaboration with Professor Donald Davidson and Dr Clare Wilson (both at University of Stirling) our objective had two parts: to assess the nature of soil erosion from the tell and to investigate the shape of the ancient coastline around Xeropolis. One central issue is whether there was a natural harbour to the East and an isthmus to the West of the area under investigation, with water along much of the northern side of Xeropolis.

The initial investigation of the area confirmed the presence of water to the North of Xeropolis. It has been suggested that at different times its precise extent varied and at some points in time there may have been an enclosed or partly enclosed lagoon. The reconstruction of the ancient landscape, however, is complex and the overall extent and the nature of the sea's presence requires further work in the area.

In the course of excavating this area, however, a surprising discovered was made. This was the finding —for the first time at Lefkandi— of LG burials. We excavated two burials, both of children. This discovery clearly starts filling the gap that has existed in evidence about LG funerals. One burial was an enchityrismos —in this case a burial in neck-handled amphora— and the other an inhumation. Interestingly, following the practice of burials at Eretria and Pithekoussai, the second burial was given a Near Eastern seal (Fig. 8).

The above summary of the work so far on Xeropolis attempts only to highlight some of the discoveries made since 2003. So far, the excavations confirmed the picture of an extended LH IIIC settlement on Xeropolis. The importance of the LH IIIC settlement will be now better understood with the publication of the settlement excavated by Popham and Sackett10. We know that Xeropolis was one of the settlements which together with some other coastal sites in the Aegean did well during this last stage of the LBA. Links with other sites within and outside the Aegean flourished during this period and, if we had discovered the cemetery corresponding to the settlement of this period, we might have had more evi-

9. For Corinth, see Corinth VII, II, pls. 79-81. Another, similar fragment from the Athenian Agora is considered to be a Corinthian import: Athenian Agora, 59, pl. 13.241. Our piece does not appear at present to be an import. For the example found in Zagora, see: A. Cambitoglou et al., Zagora 2. Excavations of a Geometric Town on the Island of Andros (Athens 1988), pl. 135, d (I thank Jean-Sebastien Gros for this reference).
dence of the links that this flourishing community shared with others in the Aegean and beyond.\(^\text{11}\)

The current excavations showed that the architectural remains and the pottery found in the part of the settlement which is dated to the last stage of LH IIIC may contradict the remarks made by Mervyn Popham that this phase at Lefkandi was marked by stagnation and deterioration of standards.\(^\text{12}\)

A further point of interest is the apparent continuity in the use of space in this area between the latest LH IIIC (Lefkandi—Phase 3) and the EIA habitations. First, the EIA walls often run close to or even on the LH IIIC ones, observing the same approximate orientations.

In addition, our preliminary study of the material associated with the structures and levels so far excavated reveals that the site was occupied through the transition from the Late Bronze to the EIA and during the period when the cemeteries of Lefkandi were in use. This becomes extremely important since although PG and SPG levels were found in the earlier excavations, mostly in pits, these periods were not clearly associated with any structures which could have clearly shown that the hill was occupied at the same time as the rich cemeteries.

Finally, interesting preliminary observations were made about the planning and the history of the LG structures. The ones we have exposed so far do not appear to bear traces of destruction such as it has been described by the earlier excavators.\(^\text{13}\) If this is right then it might have important implications for the history of the site. It may be that it was not destroyed and abandoned as a result of the Lelantine war but continued to be occupied to the end of the 8th and early 7th centuries. The observation that some of the buildings discovered in the last two years are dated to the very end of the Geometric and the beginning of the Archaic period might offer further support for such an hypothesis.

The last remark allows me to bring up another important aspect of my research on Xeropolis. This is related to the importance the site had in the wider context within Euboea and what I call “Euboean koine”.\(^\text{14}\) First it is clear — taking our present knowledge of other sites in the region — that the size and importance of the settlement on Xeropolis suggest that it was one of the most prominent during the LH IIIIC period. This exceptional LH legacy at Lefkandi, I believe played an important role in the development of the site in EIA.

Other sites at present appear not to share that long tradition of continuity. Such is the case, for example, at Eretria. After many years of systematic excavations at Eretria by both the Greek Archaeological Service and the Swiss School, it is clear that Eretria becomes important when the rich cemeteries at Lefkandi ceased to receive burials around in the middle to the late 9th century. It is of course in Eretria where important developments towards the formation of state took place. I have argued that some of the inhabitants at Lefkandi or members of its elite very likely abandoned the site to move to Eretria, where they played a central role in the future of that site.\(^\text{15}\)

Oropos on the opposite coast also appears to be an important centre in the LG and early Archaic period but not earlier, indicating that this site also owned a lot to the earlier

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12. Popham, Late Helladic IIIC Pottery, 342-346.
15. Lemos, Protogeometric Aegean, 202-203.
foundations led by the main centre at Lefkandi. Oropos has been mostly compared to Eretria rather than our site, but it is clear that similarities in the LG ceramics and the use of the same material culture, as that is reflected from other finds, relate both these sites to Lefkandi.

It has therefore become obvious that Lefkandi still offers a unique case to study the most crucial period in the history of early Greece, with evidence not only from the rich cemeteries but also from the main settlement on Xeropolis. In this preliminary report, I have only highlighted some of the discoveries made since the launch of the recent excavations. This summary illustrates clearly the gains so far and the filling in of gaps in the history of the site during the EIA. Future work and publication will offer even more valuable evidence for the understanding of one of the most important sites of the region and the period examined in this volume.
Fig. 1. Xeropolis. Marked are the regions under current investigation.
Fig. 2. Xeropolis Region I (A. Gounaris). Preliminary dates are given for some of the structures and walls by I. S. Lemos.
Fig. 3. Boat scene from a Late Helladic III C vase (drawing by Roxana Docsan).

Fig. 4. Vases from the East Sector: jug and amphoriskos (Sub-Mycenaean/Early Protogeometric).

Fig. 5. Protogeometric figurine from Xeropolis.
Fig. 6. Late Geometric building (A. Gounaris).
Fig. 7. Pithos fragment from Building I (drawing by Roxana Docsan).

Fig. 8. Seal found with Late Geometric child-burial (drawing by Roxana Docsan).
FOREIGNERS AT LEFKANDI?

John Nicolas Coldstream

To detect the presence of foreigners, on the evidence of foreign artefacts, always involves a degree of speculation; but, surely, some such speculation is reasonable for a place like Lefkandi, a prosperous coastal town of the EIA. Its very prosperity may well have attracted various categories of foreign residents: some interested only in opportunities for commercial exchange; others, as skilled craftsmen, bringing their technical expertise to instruct the local artisans, especially in the working of bronze and gold; and yet others, at the highest social level, coming to associate themselves with the local aristocracy, perhaps through intermarriage. Arguments have been advanced for all three categories of foreign residents; but since Lefkandi is notorious for producing new surprises, this paper will attempt to appraise these various arguments in the light of the most recent evidence.

We can dispense quite briefly with the supposition that a large quantity of imported orientalia in the richer tombs must necessarily indicate the presence of merchants from the East Mediterranean1. No: these eastern exotica take their place in the richer tombs beside fine imports from Athens and elsewhere, and are better explained as displaying the eclectic tastes of a local aristocracy, always interested in eastern and other foreign contacts2, but always interred in accordance with the peculiar local burial rites. Some eastern merchants may well have resided at Lefkandi, but we will not find them among the burials so far excavated3.

Arguments for the presence of skilled foreign craftsmen have been based not on imports, but rather on samples of local metalwork displaying a technical expertise thought to have been far beyond what could have been achieved by local smiths without some tuition from foreign experts. It should be observed that such claims were first advanced over thirty

* I offer my warm thanks to Professor Alexander Mazarakis Ainian for inviting me to take part in this highly successful Round Table.

ABBREVIATIONS:

1. As, for example, J. Papadopoulos, CR 48 (1998), 230, reviewing Lefkandi III plate volume.
years ago⁴, when the gloom of the “Dark Age” seemed to be much deeper than it appears today.

One such argument arises from the terracotta moulds found on the Xeropolis plateau of Lefkandi, in a deposit of the late 10th century. Writing at a time when this deposit was thought to betoken the first reoccupation of the settlement after a supposed gap in the early “Dark Age”, Hector Catling suspected the hand of “a bronzesmith trained in the East, working as an itinerant craftsman. What is more, he may have brought with him the materials he needed for his work, as well as his expertise”⁵. Indeed, how else could an apparently newly revived bronze industry have started up at such a high level of metallurgical skill? The false spiral design suggested to him some influence from rod tripods of Cypriot type: for example, the one found in a 10th-century Knossian tomb, thought by him⁶ (though not by others)⁷ to have been an antique, made in Cyprus some two centuries earlier. These moulds, however, must have been made for legs of a much more massive type. With a width of about seven centimetres, they look forward to the later tripod cauldrons of Olympia and Delphi⁸, for which the flattening of the legs, through the saving of bronze, allowed enlargement to a monumental size — an idea which, incidentally, seems to have been quite unknown in the eastern Mediterranean. And, today, we need no longer think of the moulds as marking the beginning of the local bronze industry; thanks to the new excavations of 2003⁹, what appeared to have been a gap in the early “Dark Age” has now been effectively filled by the discovery of a steady sequence of structures from Mycenaean III through SM to the earlier phases of PG. So, until we know more about the local metal work in these earlier periods, it would be premature to assume any need for eastern experts in the creation of these moulds. The least we can say is that their very sophistication indicates a bronze industry that must already have been an important source of early prosperity for the community of Lefkandi.

Another argument of this kind seeks to explain a sudden leap forward in the elaboration of gold jewellery. In the early “Dark Age”, gold ornaments had been very simple indeed, largely confined to plain finger rings and hair spirals. Then, in the ninth century, for the first time since the Mycenaean collapse, we see the sudden revival in Greece of granulation, a most difficult technique which, it has been thought, could not have been acquired without a teacher from the Near East where the technique had never been forgotten. In Greece it could not have been mastered simply by copying stray imports, like the antique Babylonian pendant¹⁰ from the royal burial of the mid 10th century under the long apsidal building of Lefkandi. The local apprentice must first learn to break up his gold into minute globules, and then persuade them to form neat patterns — often, small triangles soldered on to a background of gold plate, as on the Babylonian pendant. The need for an eastern teacher, perhaps Phoenician, was first argued by Reynold Higgins in 1969, commenting on the then new discovery of the massive

⁷. Most recently, see G. Papasavas, Χάλκινοι υποστάτες από την Κύπρο και την Κρήτη (Nicosia 2001), 190-192 and 267-269, where opposing views on this matter are discussed, with full documentation.
⁸. B. Schweitzer, Greek Geometric Art (London 1971), 180-181, Type II, e.g. pl. 217 from Delphi.
⁹. Information kindly supplied by Dr Irene Lemos.
gold earrings buried in ca. 850 with the Rich Lady of the Athenian Areopagus\(^1\). Although many of the details here may conform to local Geometric taste, the neat granulated triangles on the pendent pomegranates are clearly in a Near Eastern tradition. In the process of mastering granulation, one might expect to see some local beginners' pieces. That is how, in the first \textit{Lefkandi}\(^2\) volume, Higgins saw the slightly earlier pair of earrings from Toumba grave 5: the "triple mulberry" earrings, whose well-known Homeric associations\(^3\) need not distract us here; in his view, the large and clumsy granules betray the hand of a local pupil rather than a Phoenician teacher. And, in jewellery found after the publication of the first volume, we can get an even clearer view of the process of learning. From the Toumba cemetery come two large pendants in the form of Near Eastern lunar crescents, both attached to a horizontal tube, and both elaborated with triangles of granulation upon the crescent plates. The pendant from grave 59, of ca. 900\(^4\), shows the earliest known attempt at granulation in the Greek Iron Age — an attempt not wholly successful; the wobbly organization of the granules is clearly the work of a local beginner. But on the later pendant from grave 38\(^5\), of ca. 850, full mastery has been attained, and the local goldsmith has improvised on the eastern prototype by filling the empty space with a spiral wire design of North Aegean origin, recalling the metalwork of Vergina. So, even if the Near Eastern form of some ornaments supports the idea of a Levantine teacher of techniques forgotten in Greece since the end of the Bronze Age, the local jewellers were quick to learn, and quick to improvise in an eclectic manner, combining ideas from the East and from the North.

We turn now to the possibility of immigrants at a higher social level, thought worthy to be interred with rich grave goods in the royal Toumba cemetery.

A few years ago I ventured the suggestion that, in grave 39, the altogether exceptional collection of six Egyptianizing faience vessels might have accompanied a Near Eastern bride marrying into the local aristocracy\(^6\), on the analogy of the contexts for similar vessels found in the Near East. To the same bride, perhaps, belonged the only genuinely Egyptian object in this late 10th century grave, as her own personal seal: the faience ring bearing a bust of Amun\(^7\) as a ram's head. A mixed marriage at such a high social level would, no doubt, have greatly stimulated trading relations between Lefkandi and the south Levant — especially with the

11. R. A. Higgins, \textit{op. cit.} n. 4, 144-145, pl. 34j-k; E. L. Smithson, \textit{Hesperia} 37 (1968), 83, 113-114 (no. 77), pl. 32.


13. \textit{Il.} 14.182-3 (worn by Hera); \textit{Od.} 18.297-8 (worn by Penelope). The apparent contradiction between the two epithets, τρίγληνα and μορόεντα, poses a problem of epic "stratification" From new archaeological evidence I have attempted a possible solution in \textit{Light from Cyprus in the Greek Dark Age! The Nineteenth L. Myres Memorial Lecture} (Oxford 1998), 14-15.


15. \textit{Lefkandi III}, pl. 136a; Coldstream, GG, 374, fig. 117b.


17. \textit{Lefkandi 1981}, 219-220, fig. 3, pl. 32a-b; \textit{Lefkandi III}, pl. 43 (T. 39.37); pls. 135a, 142a.
FOREIGNERS AT LEFKANDI?

Phoenician metropolis of Tyre, which had already been receiving imported Euboean pottery18. It will, of course, be objected that the burial rites in grave 39 show not the slightest evidence for a foreign spouse; in fact, no bones were found in the grave except for a single tooth from a child aged about ten19. The burial rites conform to the usual custom at Lefkandi, where human remains were swept on to the cremation pyres, and only a very small token was left in the grave. But, whereas the great majority of graves contained only single burials, the enormous variety of offerings in grave 39 encouraged the excavators to postulate the simultaneous interment of a man and a woman — and, evidently, a child too. As they put it, “the weapons and adze attest a male burial, but did he also wear the diadem, and gold attachments as well as the necklace of faience sea shells?20” The burial context, then, offers no positive evidence for or against the presence of a Levantine bride who might have married into the nobility of Lefkandi.

Indeed, the very peculiarity of the local burial customs does not, by itself, encourage any attempt to identify foreigners in the cemeteries; but in the Toumba cemetery there are significant exceptions. Grave 14, of the late 10th century21, is typical of five cremations in which the ashes were treated in the Athenian manner: that is, carefully collected from the pyre, and then placed in an amphora, sunk into a hole in the grave floor, specially prepared for it. Unusual, even by Athenian standards, is the presence of two cremation urns side by side in the same grave: neck-handled and belly-handled amphorae which, in Athens, would be intended for male and female burials respectively. This typically Athenian practice led Mervyn Popham to a reasonable supposition that “some Athenians might have married prominent Euboeans”22. But who would be the Euboean here, and who the Athenian? The female urn is an import, though not certainly from Athens; but the male vessel is a close local copy of an Athenian prototype, and belonged to a warrior whose sword was “killed” in the Athenian manner, curled round the neck of his urn so that no one might use it again. So we have the possibility of an Athenian married couple coming to live in Lefkandi and, in view of their burial in the Toumba cemetery, connected in some way with the royal clan. The case for some Athenian burials in the Toumba cemetery is reinforced by two other hole-in-trench turn cremations one of which (Tomb 50) is of a warrior with, again, a “killed” sword23. As a further sign of Athenian custom, one could mention the fragments of a huge monumental krater of Attic MG I24 found in the surface level above the graves, recalling the grave markers in the Athenian Kerameikos cemetery.

Even in the graves of local character, the presence of rare Attic types exported to Lefkandi, but not elsewhere, implies a special connection with Athens during the floruit of the cemeteries, from the late 10th century until their abandonment soon after 850. Around 900 we should mention the toy horse on wheels from grave 5125 laden with two amphorae; and, in Palaia

21. Lefkandi I, 175-6, pls. 159, 174-175, 202d-f.
23. AR 35 (1989), 118; Lefkandi III, pl. 57.
24. Lefkandi III, pl. 97b, right: during the study season of April 2003, joined with another large fragment from the pedestal of a monumental Attic MG I krater, with a base diameter of ca. 28cm. Lefkandi III, pl. 96a, from the fill of T.61, may come from the lower body of the same vessel.
Perivolia grave 22, the richest grave outside the Toumba plot, the handmade Attic doll, and the model granary chest, a symbol of arable wealth which looks forward to the more explicit model of ca. 850 offered to the Rich Lady of the Athenian Areopagus. Also worth notice are the exquisite miniature vases of Attic MG I in Toumba graves 31 and 33, for the feeding of infant children.

One should, of course, concede that the Lefkandians of these years did have a special enthusiasm for fine Attic imports, and it could be urged that those imports take their place beside gold jewellery and eastern exotica as yet another symbol of local wealth; the richest graves, indeed, contain all three categories of luxury. But, among the eastern trinkets, there are several personal seals which, like the Amun ring, could have accompanied their owners as visitors, and possibly residents at Lefkandi. Comparanda for them in the Levant are at present scarce, but we may be able to see them in a clearer Near Eastern context when the finds from major Phoenician cemeteries, for example at the site of Achziv (the ancient Ecdippa) are eventually published. And, among the Attic imports, one cannot fail to be impressed by the high quality and monumental character of the vessels recovered from the pyres, which take us far beyond what was exported in normal commercial exchange.

26. Lefkandi I, 150, P 22.4, pl. 271d.
30. M. R. Popham, AGC, 22, fig. 2.10.
SOME REFLECTIONS ON THE EARLY EUBOEANS
AND THEIR PARTNERS IN THE CENTRAL MEDITERRANEAN∗

David Ridgway

"'Who was first?' is a meaningless question."

INTRODUCTION

The combination of the early Euboeans and the Central Mediterranean in my title gives
due notice that this paper arises out of the early Euboean operations at Pithekoussai on the
island of Ischia in the Bay of Naples. Other Central Mediterranean areas will be mentioned
as well, however: Sardinia, situated at what might reasonably be called the epicentre of the
Mediterranean; Carthage in North Africa; and a few of the indigenous Iron Age communities
along the western seaboard of the Italian peninsula. I should also make it clear at the outset
that I was not present at the International Round Table held in the University of Thessaly at
Volos in June 2004. The pages that follow contain an annotated version of the short paper,
which had no pretension of completeness (and no expectation of publication), that I read in
November 2004 at a Symposium (*The work of UCL alumni in the archaeology and history of
the ancient Mediterranean*) held in the Institute of Archaeology, University College London;
and I have made no attempt to remove the autobiographical elements that I considered
appropriate to that setting.

In the circumstances, I was particularly happy to begin by remembering that I first heard
about Ischia in the 8th century BC from the late Professor T. B. L. Webster in undergraduate
lectures that later developed into a seminal book on the relationship between Greek art and
poetry from the Mycenaean period down to 700 BC; we were of course aware that this had

∗ I am most grateful to the organizers, Alan Johnston (UCL Centre for the Classical World) and Vassos
Karageorghis (the A. G. Leventis Foundation, Nicosia), for inviting me to speak at the UCL Symposium
(November 2004), and to Alexander Mazarakis Ainian, one of my fellow-speakers there, for inviting me to con­
tribute this version of what I said to the *acta* of the Volos Round Table.

ABBREVIATION:
129-231.
been inspired by Michael Ventris' recent demonstration that the syllabic-ideographic Linear B script concealed an early form of the Greek language. Even in those far-off days, we did not just hear about the then new "Nestor Cup" inscription from Pithekoussai: I distinctly remember that we were also told about a possible connection between Boeotia, Euboea and Ischia in respect of the cremation rite — the stone tumuli for which in the Pithekoussai cemetery later emerged as the key to identifying the "family plots" (Fig. 1) there. There can be no doubt in the mind of anyone who knew him that Professor Webster would have been as fascinated as we all are now by the news that Alexander Mazarakis Ainian has brought us from Oropos in recent years; he would certainly have appreciated the additional arguments provided by the excavations there for its identification with Homeric Graia (Iliad 2.498), and hence for its probable status as the home of some of the first western Graikoi.

PUBLIC PARTNERSHIPS

Twenty years ago, when I first attempted to synthesize the activities of the Euboeans in the Central Mediterranean, I already felt it necessary to take account of the fact that they were not the sole protagonists in the story that I was trying to tell. I paid a good deal of attention (too much, I fear, for some tastes) to the native Italian Iron Age communities that the Euboeans encountered in mainland Campania, Latium and Etruria, as well as to the Levantine (North Syrian and Phoenician) interests that had long been recognized around the Bay of Naples. As to Greeks other than Euboeans, it was already clear (thanks to the eagle eye of Kees Neeft)
that immigrant Corinthian potters were working on Ischia to supplement imported supplies of the distinctive Early Protocorinthian aryballoi required for mainly local funerary purposes — although we did not know then, and do not know now, where the fragrant contents of the locally-made specimens came from. This Corinthian arrangement is a good example of what we might call the public partnerships between Euboeans and others that were in full working order at Pithekoussai well before the end of the 8th century (on the traditional chronology): outwardly visible collaborative agreements made in the interests of both parties, a definition that does not, incidentally, require us to believe that "the Corinthian pottery industry — both the production and distribution of the pottery itself and of the commodities that it contained — were, to a large extent, determined and defined by Phoenicians".

In the Levant, I agree that the evidence of seal and scarab usage puts Ischia firmly into the North Syrian rather than the Phoenician orbit: but that certainly does not mean that Pithekoussai was in any sense "off-limits" to the Phoenicians. From an early stage, in fact, some sort of Pithekoussan-Phoenician relationship was clearly in place, which is why Phoenician amphoras were among the types available for re-use in the enchytrismos burials in the published portion of the Pithekoussai cemetery, which has also yielded a tantalizingly short and incomplete Phoenician inscription on a stray fragment of a locally-made kantharos of Early Protocorinthian type. Indeed, the whole concept of partnership that I am examining here was first postulated in 1994 to define the Euboean-Phoenician relationship that had been detected at early Carthage, following the identification there of Thapsos cups "Made in Ischia", similarly Pithekoussan kotylai of the Corinthian Aetos 666 type, body fragments of a Pithekoussan oinochoe, and various other types represented in the very earliest graves (some of them already dismantled) so far attested at Pithekoussai. The latter, it should be noted at once, are not necessarily the last resting places of the first settlers who established the Euboean emporion—or, as some believe, the Euboean apoikia—on Ischia: it would be remarkable indeed if

10. Amphoras: Pithekoussai I,735: index s.v. 1. Anfora, ix: "grezza importata, di tipo fenicio". Inscription: ibid., 289-290 with pls. 95 and cxi (232*-1); Ridgway, Western Greeks, 116-118 with 117, fig. 31; Bartonek & Buchner, 'Inschriften von Pithekoussai', cat. no. A2 (p. 188).
12. The vexed question of the exact nature of the establishment at Pithekoussai is reviewed s.v. in M. H. Hansen & T. H. Nielsen (eds.), An Inventory of Archaic and Classical poleis (Oxford 2004), 285-287 (287: 'At the very least, th[e] evidence suggests that the political status of Pithekoussai must remain an open question').
the areas of either the cemetery or the settlement that became available over the years to the excavators had chanced to include evidence of these pioneers. It is also hard to believe that Pithekoussans will have felt able to dismantle the oldest graves in their cemetery. If an act of such extraordinary religious resonance could be contemplated for any graves at all, as it clearly could, it is surely more likely to have been applied to burials of the second generation at the very earliest, which means that there is at least one generation of development on Ischia that is earlier than any so far attested by the excavations there — time enough, we may surmise, to organize the local production and export of Corinthian and other ceramic types to Carthage and elsewhere.

In this connection, there is food for thought in the earlier Euboean material that has been found in recent years not only at Carthage but also at Sant’Imbenia (Fig. 2), a native nuragic centre heavily infiltrated by Phoenicians on the metal-rich north-western coast of Sardinia; in both cases, we are dealing with a range that includes the MG skyphos-types that we have become accustomed to associate with the “precolonial” mainland of Italy and its native cemeteries — such as those at Pontecagnano (Fig. 3) in southern Campania and Veii in southern Etruria. In any case, the addition of Carthage and Sardinia to the distribution maps of MG skyphoi means that material often defined as “precolonial” in the past now has a much wider distribution than we used to think; or, to put it another way, Etruria is no longer the only area with “precolonial” Greek material that the later Greek colonists never actually reached. Since we cannot in practice divest this time-honoured word of its “improperly teleological” connotations, I suggest that we adjust our terms of reference in such a way that “real” Greek colonization is preceded by an early period of “multinational entrepreneurial expansion” — which in the Central Mediterranean might well have emanated from Pithekoussai to a greater or lesser extent during the unattested generation (or more) of activity there that I have just postulated.

METALWORKING

I have certainly not exhausted the topic of the “public partnerships” between Euboeans and other groups, both foreign and indigenous, operating in and around the Bay of Naples.

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in the 8th century. But more than anything else, I think that at this point we ought to remind ourselves just why the foreigners involved came to the Central Mediterranean in the first place. It seems to me as true today as it was when T. J. Dunbabin said it in 1948 that foreign entrepreneurs were attracted to the Central Mediterranean primarily by its abundant mineral (that is, metal) resources. Did their activities, I wonder, contribute to the supply of raw material that was being processed at Eretria, Lefkandi and Oropos?

The first, and so far the only, archaeological evidence in the Central Mediterranean for direct 8th-century association between foreign presence and metal processing—presumably for export—comes from Sant'Imbenia (again): copper bun-ingots neatly packed up in a pair of amphoras of Phoenician type, found in the same hut that produced the Euboean skyphos-fragments referred to above, and surely ready for dispatch from the magnificent natural harbour of Porto Conte nearby. This discovery should tell us two things: firstly, that the Central Mediterranean mineral resources were present not only in the Colline Metallifere (the Metal-bearing Hills) of Tuscany; and, secondly (since Sant’Imbenia is in Sardinia), that this is not a story that begins in the 8th or even the 9th century. In the latter connection, I need only mention (without re-opening) the story of the LBA oxhide ingots, and endorse a conclusion reached in 1995 by Claudio Giardino on the basis of a detailed investigation of Mediterranean metallurgy between the 14th and 8th centuries. Throughout that period, we should, he tells us, think in terms of “individual metalworkers who moved from one region to another, exploiting the existing commercial networks, their aim being to exchange not so much finished objects, but their own technological knowledge, whether in the field of metallurgy or in the field of mineral exploitation”. In other words, the Central Mediterranean was rich not only in mineral resources but also in the indigenous expertise necessary to extract and process them. Many of Giardino’s mobile specialists in protohistoric mining and metalworking will have been (and others may well have become) members of the indigenous protohistoric communities of the Central Mediterranean, particularly those in Sardinia and along the west-central coast of the peninsula: as such, they provide us with even more reasons than there were before for treating the native scene as a valid subject of study, mainly in its own right but also as the recipient, translator and transmitter of ideas from the outside world. This does not, in my view, amount to anything that can properly be called “Hellenization” — for which, as I am never tired of reminding Hellenists, there is no word in any kind of Greek.

16. T. J. Dunbabin, The Western Greeks (Oxford 1948), 8; cf. D. Ridgway, ‘L’Eubea e l’Occidente: nuovi spunti sulle rotte dei metalli’, in Euboica, 311-322. For a different view, see B. d’Agostino, ‘Pithekoussai and the First Western Greeks’ [review of Pithekoussai I and Ridgway, Western Greeks], JRA 9 (1996), 309: “I am beginning to doubt that trade and the search for metal was the main motive for the expeditions of Phoenician and Euboean ships. Instead the profit margin may have lain in their ability to move in the interstices of a still rather disjointed world. In this precolonial situation, the foundation of Pithekoussai was an important structuring event.”


PRIVATE PARTNERSHIPS

Back to Ischia: a good many “public partnerships” were clearly in full working order in the Central Mediterranean by the time of the earliest Pithekousai that we know, namely that of the earliest graves so far retrieved (of the third quarter of the 8th century), and in part published (respectively about 10% and 5% of the whole cemetery). It is likely that the “public” partnerships we have been looking at gave rise to “private” ones, too: “intermarriage”, in other words, a relationship that probably affected whole families as well as the two people most nearly concerned (and of course their bilingual children)\(^{20}\). Given the various groups that had taken up residence at Pithekousai, the possible ethnic permutations are numerous: and they include the local populations as well as the incomers. Instead of attempting to define which indigenous communities I have in mind, I will simply say that the catchment areas for the degree of intermarriage I am suggesting must have included Sardinia as well as Campania and Etruria. A tangible example of the effect of such relationships on the funerary record is provided by an interesting ownership inscription, Αμες εμι, on an oinochoe of the late 8th or early 7th century from a young woman’s grave at Pithekousai (Fig. 4): the type is Early Protocorinthian; the clay is local Pithekousan; the language is Greek; the alphabet is Euboean; and the name “Ame” is generically Etrusco-Italic, quite possibly from a family attested in and around the vast indigenous centre known to us as Pontecagnano\(^{21}\).

Although indications of similar relationships are probably plentiful in the Pithekousai cemetery, it has so far proved difficult to “read” them and so to detect any regularly recurring (and hence, perhaps, ethnically diagnostic) patterns in the observance of particular rites, or in the deposition of particular (combinations of) artefact-types, either in individual graves or in the family plots in which these are grouped. On the whole, this is not really surprising if a significant degree of integration had already taken place by the stage represented in the earliest Pithekousan graves so far retrieved.

I suggest, in fact, that the oldest LG graves that we actually have in the Pithekousai cemetery already contained people who in life had been regarded in the outside world as first and foremost Pithekoussans, and that this externally perceived identity had come into being \textit{in situ} during (I repeat) at least a generation of development as yet unattested by excavation at Pithekousai itself. If we need an ethnographic parallel for the kind of situation I have in mind (and I am not sure that we do), I suggest that the early history of Australia and New Zealand

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famously cited by Dunbabin\textsuperscript{22} has outlived its usefulness. I agree with Gillian Shepherd that there are rather more promising analogies in the early history of "that early and recalcitrant British colony, America"\textsuperscript{23}; and I think in particular of those United States citizens today who are "Italians" in America and "americani" in Italy.

We might also reflect that the current intellectual celebration of American pluralism and diversity ("multiculturalism") now at last includes those who previously occupied the land. As in the case of the area and period that I am looking at here, it was not always so.

**PHANTOMS OVERSEAS?**

But, however integrated the non-Euboean public and private elements were at Pithekoussai by the middle of the 8th century, I see no reason to doubt the primary role of the Euboean element among the incomers there and then, and elsewhere in the contemporary Central Mediterranean. This needs to be said, because in some quarters the Euboeans are seen these days as the embodiment of all that was wrong, and even sinister, in what Martin Bernal has called "the fabrication of Ancient Greece 1785-1985"\textsuperscript{24}. John Papadopoulos has called them "phantoms"; Sarah Morris has referred disparagingly to "[t]he modern tendency to identify 'Euboians' in Syria, Cyprus, Crete, Ischia, and even Euboea itself"; and she regards Pithekoussai as a Phoenician settlement (perhaps because she thinks Ischia is an offshore island)\textsuperscript{25}. I have discussed their position elsewhere\textsuperscript{26}, but I would like to reiterate one element here.

"Pots do not mean people": we are all aware that the presence of diagnostic pots does not automatically imply the presence of people from the areas where those pots were made; and in an integrated situation like the one under consideration here, one group is more than likely to have carried another group's pots, used them in life, and had them put in its graves. But it is also true that the absence of diagnostic pots does not mean that fellow-countrymen of the people who made them were not in the area where those pots were not found. However convoluted this seems at first sight ("no pots do not mean no people"), it is an important principle in the present context because, although Strabo (5.4.9) and Livy (8.22.5-6) tell us that Pithekoussai was founded by Euboeans, there are not in fact many actual Euboean imports there. True: but

\textsuperscript{22} Dunbabin, op. cit. n. 16, vii: "Here political independence is combined with almost complete cultural dependence, on which the colonials pride themselves. Difference in manner of life is due to difference of material circumstances, and is not enough to destroy the essential unity. This unity is the pride of most colonials [see next note]; so probably in antiquity".


\textsuperscript{24} This phrase constitutes the subtitle of M. Bernal's *Black Athena* I (London 1985).

\textsuperscript{25} J. K. Papadopoulos, 'Phantom Euboians', JMA 10 (1997), 191-219; S. P. Morris, *Daidalos and the Origins of Greek Art* (Princeton 1992), 141; see too her reference *ibid.*, 143 to "the pattern familiar in other Phoenician settlements (Kythera, Ischia), where an offshore island lies convenient to mainland and inland resources" (emphasis added), and cf. Thucydides 6.2.6 on the Phoenicians' use of headlands and small offshore islands as trading posts around the coast of Sicily.

\textsuperscript{26} Ridgway 2000, op. cit. n. 6, 183-185; id., 2004, op. cit. n. 6, 23-28.
SOME REFLECTIONS ON THE EARLY EUBOEANS AND THEIR PARTNERS

A substantial proportion of the locally-made pottery (in the Pithekoussai acropolis assemblage, or rather in a sample of around 10,000 pieces) is of Euboean type; and Mössbauer analysis has shown that imported Euboean, locally-made Euboeanizing, locally-made Corinthianizing and other locally-made wares at Pithekoussai all share a firing temperature that is higher by 50°C than that estimated for the imported Corinthian samples that were analyzed27. It seems to me that technical details of craft-practice (like firing-temperatures) are no less indicative of ethnic origin than the standard characteristics of language, armour and dress cited by ancient authors when comparing and contrasting different peoples28; and I therefore conclude that resident Euboean potters, presumably with locally-recruited pupils, can reasonably be postulated at Pithekoussai (and probably also at a number of native Iron Age centres on the mainland).

As for the Phoenicians, I limit myself to a comment on the Pithekoussai metal-working quarter. There, at the end of the 8th century, something was being weighed out on what numismatists will recognize as the later Euboean weight-standard (8.72 g)29 30; unless this is an amazing coincidence, it provides a telling indication — at the very least, a straw in the wind — to the effect that the Euboeans were, so to speak, in charge of operations at Pithekoussai to an extent that they had not been at Sant’Imbenia. It is worth remembering, too, that the Etruscans chose the Euboean as distinct from the Phoenician alphabet to express their own language in writing30.

SOME WIDER ISSUES

Let us look, finally, at "trade before the flag", or Greek commerce with the West prior to Greek colonization of the West, the classic model of Hellenization that will always be associated with the name of Alan Blakeway31. How well has it stood up to the massive increase in discovery and excavation that has taken place in the 70 or so years since he was writing?

In the first place, the status of the first Western Greeks —the Euboeans and their partners— as the bearers of the precious gift of Hellenization to oddly passive recipients in Latium and Etruria is no longer acceptable: as I have recently argued elsewhere32, the concept of interaction between complex societies (in Campania as well) now deserves to be taken seriously.

28. E.g.: Polybius 2.17.5 (Veneti and Celts); Virgil, Aeneid 8.722-723 (the conquered peoples at Augustus' triple triumph of 29 BC); Strabo 6.1.2 (individual Samnite tribes).
29. Ridgway, Western Greeks, 95.
31. A. Blakeway, 'Prolegomena to the Study of Greek Commerce with Italy, Sicily and France in the Eighth and Seventh Centuries BC', BSA 33 (1932-33), 170-208; id., "Demaratus": a Study in some Aspects of the Earliest Hellenisation of Latium and Etruria, JRS 25 (1935), 129-149.
That this should be so is due in large measure to the quantum leap since Blakeway’s time in our awareness of the flourishing and complex Iron Age societies that the incomers encountered in the Italian peninsula and its adjacent islands: Villanovan and other Italian Iron Age cemeteries are no longer of interest solely as receptacles of Greek and Greek-type pottery. Already in the 8th century, it is clear that much of the Greek (and other allogenous) material encountered in native Italian contexts had been acquired in order to satisfy native Italian priorities; it became available to the Italian communities because some parts of Italy were attractive places with which to do business — quite possibly, in many cases, on terms indicated by the local hosts.

In addition, I would point to two other major changes that I myself have lived long enough to see in the story I have tried to summarize here. Firstly, as we have seen, non-Greek as well as Greek groups were involved in the early exploration of the Central Mediterranean (a feature that inevitably gave rise to its own interactions). Secondly, it was not only goods that could travel. Craftsmen were mobile, too, in rather the same way that we no longer have to send actual manuscripts through the post for publication abroad: we can effect the electronic transmission of texts, to which editors can apply their local house rules — a promising metaphor, I suggest, for the status of some centres in our period (Pithekoussai among them) as centres of acculturation and onward transmission.

Travelling craftsmen and their masters, of various ethnic extractions, clearly contributed a great deal to what John Boardman once called the “first really busy period of traffic to the farthest West and throughout the Aegean”. In the specifically Tyrrhenian sector of the traffic in question, they are interesting for another reason, too.

When, centuries after the period I have been dealing with here, the history of early Rome came to be composed, the authorities who adjusted it for the purposes of their own times were faced with an embarrassing problem: the abundant evidence provided by their own eyes that Rome had had what they saw fit to regard as a regrettable Etruscan period — that of the Tarquin Dynasty (traditionally dated 616-510), during which a great deal of Etruscan building and architectural decoration was achieved in Rome. Accordingly, the first Etruscan king of the Eternal City, Lucius Tarquinius Priscus (reigned 616-579), was provided with a Corinthian father, one Demaratus. After the fall of the Bacchiads in Corinth (657), we are told that he emigrated to Tarquinia as the manager or impresario of a group of fictores "(modellers)". The truth of the matter is that Demaratus is simply a lay figure; the fact that he fits in so well with...
what we now know about the Italian Iron Age and Early Orientalizing material record speaks volumes not for his literal historicity, but for the existence of a long-standing familiarity in Italy with foreign entrepreneurs and craftsmen, and with mutually beneficial collaboration between them and their native counterparts.

36. Addendum. Since these pages left my hands, useful information has appeared in G. Bartoloni & F. Delpino (eds.), Oriente e Occidente: metodi e discipline a confronto. Riflessioni sulla cronologia dell'età del Ferro in Italia. Atti dell'Incontro di Studi: Roma, 30-31 ottobre 2003, Mediterranea I (Pisa & Rome 2005): see in particular the extensively illustrated (and discussed) papers by F. Boitani ('Le più antiche ceramiche greche e di tipo greco a Veio', 319-332); M. A. Rizzo ('Ceramica geometrica greca e di tipo greco da Cerveteri', 333-378); G. Bartoloni & V. Nizzo ('Lazio protostorico e mondo greco', 409-436); N. Kourou ('Early Iron Age Greek Imports in Italy', 497-515). In addition, the Euboeanizing Geometric pottery from the Canale-Ianchina cemeteries on the Ionian coast of Calabria has at last been convincingly accounted for in terms of an as yet unidentified Euboean comptoir in the vicinity, "où les indigènes ont vu travailler des potiers eubeens": L. Mercuri, Eubiens en Calabre à l'époque archaïque: formes de contacts et d'implantation, BÉFAR 321 (Rome 2004), 9-138, esp. 127-131; and see my review, JRA 19 (2006), 375-380. More generally, a longer trading phase in the Mediterranean prior to the establishment of Greek settlements in South Italy has been proposed by A. J. Nijboer, 'The Iron Age in the Mediterranean: A Chronological Mess or "Trade before the Flag", Part II, AWE 4 (2005), 255-277. Finally, in the far West (but highly relevant to the Central Mediterranean scene), significant quantities of Sardinian, Villanovan, Attic MG, Euboean SPG and Cypriot as well as Phoenician pottery have been found at Huelva, on the Atlantic coast of southern Spain: F. Gonzalez de Canales Cerisola, L. Serrano Pichardo & J. Llompart Gómez, El emporio fenicio precolonial de Huelva (ca. 900-770 a.C.) (Madrid 2004); and now id., BABesch 81 (2006), 13-29 (English summary).
Fig. 1. Family plot, defined by stone tumuli covering cremation burials, in the Pithekoussai cemetery; tomb 168, which contained the "Nestor Cup" inscription, is on the right. After *Pithekoussai I*, pianta A-IIbis.

Fig. 2. Fragments of pendent semi-circle, chevron and one-bird skyphoi from the nuragic village of Sant’Imbenia, Sardinia. After D. Ridgway, *AR* 1994-1995 (1995), 81, fig. 6. Museo Archeologico G. A. Sanna, Sassari.
Fig. 3. (Repainted) pendent semi-circle skyphos, "black cup", and chevron skyphoi from tombs (various cemeteries) at Pontecagnano, Southern Campania. After G. Bailo Modesti & P. Gastaldi (eds.), *Prima di Pithecusa* (Salerno 1999), figs. 3, 5, 6; for details see *ibid.*, 30-31, no. 5 (tomb 4697); 33-34, no. 8 (tomb 7738); 35-36, no. 11 (tomb 6504).
Museo Nazionale dell'Agro Picentino, Pontecagnano.

Fig. 4. Inscribed oinochoe from tomb 1148 at Pithekoussai. After Bartonek & Buchner, *Inschriften von Pithekoussai*, 163, Abb. 20.
Museo Archeologico di Pithecusae, Villa Arbusto, Lacco Ameno d'Ischia.
LES ENVIRONS D’ÉRÉTRIE DURANT LE PREMIER ÂGE DU FER :
UN MODÈLE D’OCCUPATION RÉGIONALE ?

Pascal Simon

La présente contribution fait le bilan des connaissances acquises de 1999 à 2002 par la prospection organisée par l’École suisse d’archéologie dans les environs d’Érétie (Eubée). Elle se limite pourtant à la thématique imposée par la rencontre de Volos et propose une présentation et un commentaire des résultats concernant l’occupation de la région durant le premier Âge du Fer. Nous nous attachons dans un premier temps à décrire la méthodologie employée durant la prospection.

Puis nous présentons l’état de nos connaissances en prenant comme point de départ la période de l’HIA pour terminer avec les vestiges datés de la période géométrique. Ces données sont ensuite commentées sous l’angle chronologique puis en fonction de leur répartition spatiale.

Pour conclure, nous tentons d’exposer la dynamique qui préside à l’occupation de cette région en introduisant deux sites régionaux fondamentaux, à savoir Lefkandi et Amarynthos. Nous cherchons ainsi à mieux comprendre dans quel contexte la ville d’Érétie a pu se développer.

Les abondants vestiges datant de l’époque géométrique exhumés sur le site d’Érétie ont vivement contribué à donner une image très dynamique d’une polis qui éclot soudainement dans la première moitié du VIIIème siècle1. En effet, l’examen des structures et du matériel de

ABBREVIATIONS


cette époque permet d'assister à la « naissance » d'une cité dont on sait aujourd'hui que les occupations antérieures furent pratiquement inexistantes. Dès lors, parler d'Érétie à l'Âge du Fer nous plonge immanquablement dans la question de ses origines, donc de la poléogenèse de la cité. Cette question a déjà fait l'objet de quelques publications qui se sont surtout attachées à montrer que l'essor d'Érétie pouvait se comprendre par le déclin de Lefkandi. Toutefois, si l'on considérait cet abandon comme contemporain des premières traces d'occupation érétrie, les nouvelles recherches ont montré qu'il fallait plutôt imaginer une transition lente d'un site à l'autre. Sans pouvoir complètement la rejeter, l'hypothèse présentant l'abandon de Lefkandi au profit d'Érétie demandait dès lors quelques nuances. Dans tous les cas, la recherche admettait implicitement que la formation d'Érétie pouvait s'expliquer, au moins en partie, en tenant compte des données acquises sur le plan régional.

Cet intérêt pour une archéologie dite « régionale » s'était pourtant manifesté à l'échelle eubéenne bien avant que la poléogenèse d'Érétie ne devienne l'une des questions récurrentes des chercheurs eubéens. Ni les travaux sur le site de Lefkandi, ni les fouilles systématiques de la cité d'Érétie n'avaient encore débuté lorsque les travaux de Hugh Sackett et de son équipe dans les années 60 furent publiés. Ils ne pouvaient évidemment pas encore aborder la question de transfert entre les deux sites mais ils tracèrent la voie que nous allions suivre trente ans plus tard. En effet, déplorant le manque de données, voire leur absence complète pour certaines régions de l'Eubée, ils publient un recensement des connaissances archéologiques complète par les résultats de la prospection qu'ils effectuèrent sur une large portion de l'Eubée. Comme le titre de leur publication le mentionne, les recherches se concentrèrent sur la période préhistorique. Pourtant, les réflexions portant sur les périodes postérieures ne firent jamais défaut et, dans la région qui nous intéresse, la publication annonça, peut-être sans le savoir, les grands travaux qui eurent lieu quelques années plus tard, tant sur le site de Lefkandi que sur celui d'Érétie.

Paradoxalement, ces travaux, qui auront effectivement lieu, ralentirent considérablement l'élan qui avait été donné aux recherches territoriales : se focalisant sur ces deux sites, l'atten-
tion se détourna quelque peu de leur situation géographique, repoussant ainsi à plus tard la question du contexte dans lequel s’implantait la nouvelle cité d’Érètrie.

Il faudra attendre 1999 pour qu’une équipe de chercheurs érétriens mette sur pied une prospection du territoire environnant la cité. Cette entreprise, bien que s’intéressant à toutes les périodes représentées, nous donne l’occasion de faire un bilan des trouvailles attribuées au premier Âge du Fer. Avant d’aborder la présentation et la discussion de ces données, il convient de faire un bref retour sur les raisons qui motivèrent la prospection ainsi que les conditions de son déroulement. On ne saurait en effet se départir de cette tâche tant les résultats nous semblent dépendre des méthodes et des techniques qui ont été utilisées.

Deux facteurs ont ainsi été déterminants dans la mise sur pied du projet. Le premier a trait à l’urbanisation moderne du site. En effet, même si les vestiges de la ville antique ont été épargnés durant de nombreux siècles —le site ayant été totalement abandonné à la fin de l’antiquité— il n’en est plus de même depuis l’installation des réfugiés psariotes en 1834 et surtout, depuis l’afflux que provoqua le désastre militaire d’Asie mineure en 1923. La menace que fait planer toute occupation moderne sur les vestiges archéologiques ne s’est pourtant confirmée que ces dernières années puisque la ville moderne d’Érètrie a connu un essor sans précédent se traduisant par une urbanisation rapide et désordonnée de la campagne environnante. Le résultat, prévisible, fut la disparition progressive de nombreux vestiges antiques. Il ne fit dès lors qu’accélérer la mise en place d’un programme de prospection dont l’un des objectifs fut l’enregistrement et la documentation des sites menacés.

Parallèlement, l’engouement de la recherche pour les études territoriales permit de prendre conscience de l’absence presque totale de données publiées touchant aux environs immédiats de la cité. En effet, les recherches s’étaient, jusqu’à cette date, concentrées sur la partie urbaine de la ville moderne en raison des fouilles systématiques qui y étaient menées.

L’un et l’autre de ces facteurs ont révélé l’urgence d’un projet qui nous permettrait de mieux connaître l’implantation de la cité d’Érètrie dans son contexte géographique tout en faisant face à la menace que représentait l’urbanisation moderne de la campagne érétriennne. Il s’agissait ainsi d’aborder les résultats de quarante années de fouilles sur le site d’Érètrie sous un angle nouveau. Il faut toutefois souligner que, tant en raison de l’urgence des travaux que de l’intérêt que nous portions aux environs d’Érètrie, nous n’avions jamais envisagé l’étude de la chôra dans sa totalité. On ne sera donc pas étonné que la zone d’étude choisie ait pris pour épincé la ville moderne d’Érètrie.

Il restait encore à se prononcer sur la méthode d’investigation : la prospection représentait alors la solution méthodologique la plus rationnelle, tant en considération des moyens...
à notre disposition que de l’urgence de la démarche. Seule méthode susceptible d’embrasser une large portion de territoire, elle s’imposa d’elle-même.

Après trois campagnes d’investigation sur le terrain, environ 100km² ont été passés en revue pour seulement 18km² en prospection intensive. Si cette répartition peut paraître étrange ou pour le moins déséquilibrée, il convient de préciser ici qu’elle n’est aucunement la conséquence d’un choix mais résulte de la configuration topographique de la zone prospectée. En effet, le fort relief qui intervient dès que l’on s’éloigne de la côte rend la prospection intensive pratiquement impossible : nous y avons donc privilégié une approche extensive, ciblée sur toutes les lignes de crêtes du relief, ainsi que, dans la mesure du possible, sur les fonds de vallée. Il va de soi que cette approche ne peut donner qu’une image imparfaite de l’occupation de ces régions mais elle a le mérite de fournir une première évaluation rapide de l’occupation antique.

Le second point est d’ordre beaucoup plus technique, à savoir la difficulté à organiser la grille de prospection dans un terrain dont les repères deviennent très rares. Le temps perdu à positionner les vestiges précisément devenait un handicap au détriment de la surface prospectée. Il est ici intéressant de noter que le nombre de sites identifiés par l’une ou l’autre de ces deux méthodes fut, dans le cas de la prospection du territoire érétrien, sensiblement égal. Sans prendre en compte la densité de répartition des sites relevés, elles offrent donc les mêmes chances de succès.

En plaine, le positionnement des vestiges a été effectué avec l’aide des photos aériennes de la région. Les limites de champs, les routes — et même les oliviers ! — sont autant de points de repères permettant le recalage des données. Dans le but d’obtenir une image plus précise de l’occupation des environs d’Érétique, nous y avons donc privilégié la prospection intensive.

Cette très rapide présentation ne saurait se passer encore d’un point que nous jugeons important de discuter tant il est vrai que les publications négligent souvent d’aborder la question du matériel céramique et de son prélèvement. Répondre en effet à la question : « Que devons-nous prélever sur le terrain ? », est sans aucun doute plus délicat qu’il y paraît au premier


14. Aujourd’hui, la question ne se poserait plus tout à fait dans les mêmes termes puisque l’utilisation du GPS permet de contourner, au moins en partie, les difficultés liées à la grille de prospection. La précision qu’offre cette méthode (±5m) est largement suffisante pour le positionnement des observations. Voir P. Simon, ‘Nouvelles investigations dans le territoire de la cité d’Érétique’, AntK 44 (2001), 88, n.4.


17. Toutefois, malgré le choix opéré, nombre de secteurs n’ont fait l’objet d’aucune observation en raison de la densité des constructions modernes. La plupart sont en effet clôturées, ce qui interdit toute prospection.
abord. Cette opération nécessite pour chaque prospection une réflexion approfondie dans la mesure où les facteurs externes qui influencent la méthode choisie diffèrent de cas en cas. Le temps à disposition, les moyens mis en œuvre ou encore les compétences de chaque archéologue, sont autant de facteurs qui ont un poids important dans le choix de la méthode. Dans le cadre de la modeste prospection éretrienne, il aurait été par exemple tout à fait impossible de prélever la totalité de la céramique rencontrée : d’une part le temps de ramassage pour la petite équipe de prospection aurait été démesuré et, d’autre part, la certitude de pouvoir exploiter cette information dans une phase ultérieure de la recherche était loin d’être acquise. Dès lors, quels critères choisir afin d’opérer une sélection dans le matériel à notre disposition ?

Il ne s’agit pas ici de discuter du bien-fondé de la méthode. En revanche, il est important que l’on comprenne comment les résultats exposés ont été obtenus. Bien que subjectifs, le choix s’est porté sur un critère unique : le matériel devait pouvoir être identifié sur le terrain pour être prélevé. Toutefois, si l’argument est simple, sa mise en pratique est plus délicate. En effet, les connaissances céramologiques varient de personne en personne et l’on ne peut prétendre à l’uniformité de la démarche dans un travail de groupe. Le critère a donc été assoupli pour permettre le ramassage de tout tesson qu’un aspect morphologique ou décoratif rendrait significatif. Cette méthode nous a donc épargné le prélevement de tous les fragments de panse sans décor que les méthodes et les connaissances céramologiques actuelles ne permettent pas d’identifier. Cette méthode s’avéra efficace puisque la majorité des tessons prélevés a pu être identifiée, suite aux travaux études accomplis au musée. Cette identification s’avéra cependant, pour la période qui nous occupe ici, une tâche relativement délicate.

Mises à part quelques rares exceptions, les régions ayant livré d’abondantes quantités de matériel ou de nombreux vestiges pour l’Âge du Fer semblent peu nombreuses. Cette carence de données provient-elle d’un état effectif sur le terrain ou bien illustre-t-elle plutôt notre incapacité à reconnaître les artefacts de cette période ? Il semble en tout état de cause que les conditions de conservation diffèrent d’une région à l’autre et que la céramique proto- ou géométrique soit particulièrement sensible à ces conditions.

Ce dernier point n’a que peu été abordé dans les publications et demande, à l’avenir, une discussion plus approfondie. Elle sera en tous les cas nécessaire à toute tentative d’analyse globale mettant en parallèle les différentes prospections effectuées dans le monde grec. En ce qui nous concerne, et c’est là que nous voulons en venir, les résultats que nous présen-

18. Les publications utilisent en général les notions d’« échantillons » ou de « sampling », termes dont on a peine à préciser la nature exacte.
20. Nous ne prétendons en aucun cas que le critère adopté est le seul valable. Il répond pourtant au mieux aux conditions dans lesquelles s’est développé le projet de prospection du territoire éretrien.
tons ici sont modestes. Pourquoi ? A notre avis, le facteur déterminant pour la zone d'étude est l'état de conservation du matériel que nous avons pu récolter. Il est non seulement, en tant que matériel de surface, dans un état très fragmentaire mais de surcroît dans un état de conservation déplorable. Or, sur les petits fragments, ce qui permet de contourner la difficulté d'identification morphologique, c'est le décor. En l'absence de ce dernier —parfois même en l'absence totale de vernis— notre capacité à identifier le matériel géométrique s'est révélée très limitée. Puisqu'il s'agit des seuls artefacts dont on puisse raisonnablement espérer l'identification —démarche impossible pour les structures non fouillées— on touche ici aux limites de l'outil employé. Malgré la difficulté que présente leur identification, nous avons tout de même pu récolter une centaine de tessons attribués à la période géométrique.

Le corpus de la prospection s'est vu enrichi par les données qui avait déjà fait l'objet de rapports ou d'études plus abouties. Enfin, nous avons cherché à compléter l'image en abordant les données dans une perspective chronologique plus large en partant de la période helladique.

Dans ces circonstances, l'état de la question que nous présentons n'a pas la prétention de fournir un tableau définitif de l'occupation de notre zone d'étude pour la période considérée. Il s'agit surtout de proposer un modèle qu'il conviendra de vérifier par les investigations futures.

Une question mérite encore d'être abordée avant la présentation de ce modèle. Peut-on préciser la fonction des sites qui ont été reconnus ? En l'état actuel de nos connaissances, une grande prudence s'impose. On peut avec une certaine assurance attribuer la fonction des sites quand ils ont fait l'objet d'investigations archéologiques mais dans le cas de la prospection, seule la présence de structures significatives, éventuellement celle d'un faciès céramologique représentatif permettent d'avancer des hypothèses.

Pour donner un exemple, les seules structures qui ont pu être identifiées avec quelque certitude sont les tumuli de l'HA situés sur les sommets environnants la plaine érétrienne. Pourtant, même dans ce cas, leur fonction exacte reste tout à fait obscure : s'agit-il de tombes ou plus simplement de tertres à vocation cultuelle ?

Un autre exemple est fourni par un site présentant des tronçons de remparts associés à des vestiges de constructions en pierres sèches. Si la conjoncture semble assez claire, il n'en va pas de même pour la fonction du site : s'agit-il d'un habitat protégé par un rempart ou d'une forteresse abritant une garnison ? La céramique ne répond qu'indirectement dans ce cas-là.

Seules les structures funéraires (tombes fouillées ou pillées) ne posent aucun problème : leur présence est fonctionnellement évidente.

22. Rappelons toutefois que la prospection, si elle n'est guère adaptée pour ce type de problématique, donne des résultats très intéressants sur l'analyse de phénomènes à long terme.
23. Cette démarche nous semble justifiée dans la mesure où le processus conduisant à la naissance d'Érétrie semble intimement lié au site de Lefkandi dont on connaît l'existence à l'Âge du Bronze (cf. supra). Il en va de même pour le site d'Amarynthos, autre pivot territorial de la cité, qui semble déjà donner des signes d'activité durant cette période.
24. Malheureusement très rarement les deux.
25. Même dans le cas de la céramique, on ne peut, lors d'un ramassage de surface, prétendre à une représentativité satisfaisante permettant l'identification d'un faciès particulier.
26. Voir infra.
27. Voir infra.
PASCAL SIMON

Pour la période considérée, la majeure partie des données provient de la céramique de surface : elle représente, de surcroît, la part congrue du matériel prélevé. Il faut donc renoncer, dans la plupart des cas, à son analyse fonctionnelle.

Mais abordons sans plus tarder l’analyse de la répartition chronologique des vestiges et du matériel enregistrés. Nous avons déjà mentionné les tumuli qui ont été datés du HA28 (Fig. 1). Il s’agit de structures en pierres sèches, anthropiques puisque chacune d’elles se situe au sommet d’une éminence, interdisant par là un processus de déposition naturel. La datation nous a été fournie par la céramique et les fragments d’obsidienne29 qui y ont été prélevés30. Le phénomène est caractéristique, surtout en raison de la répartition spatiale de ces sites. Comme nous l’avons déjà souligné, la fonction de ces tertres reste obscure : couvrant les périodes du Néolithique ancien à l’HA II, ces structures n’offrent pratiquement aucun parallèle dans le bassin égéen31 pour ces périodes.

Même si l’on se gardera d’y voir un lien, rappelons ici que c’est justement durant cette période que le site de la future Érétie voit la densité de son occupation augmenter sensiblement32. Parallèlement, des sites comme Lefkandi ou Amarnthos sont également occupés durant cette période.

La période suivante, l’HM, est mal représentée puisque seuls deux sites inédits ont pu être identifiés33. De plus, ces sites ne peuvent, en l’état actuel de nos connaissances, être interprétés sans risque, surtout si l’on considère qu’aucune structure archéologique n’a pu y être associée.

Pour l’époque mycéénienne (HR), un seul site est venu compléter l’image donnée dans la littérature à notre disposition34 (Fig. 2). Il s’agit d’un site d’habitat sur l’éminence dominant


29. Le spectre chronologique de l’obsidienne est très large. C’est donc la céramique qui fait ici référence.

30. La plupart de ces tumuli a fait l’objet de fouilles clandestines. Il est donc difficile de préciser d’où vient exactement la céramique. C’est en observant les déblais accumulés par ces fouilles que nous avons récolté la majorité du matériel. On est donc en peine de dire si ces artefacts ont été enfouis au moment de l’élévation du tertre ou bien s’il s’agit de phénomènes post-dépositionnels pouvant le cas échéant attester un culte. Seule une fouille fine des éléments encore intacts de ces structures pourrait apporter une réponse.

31. Voir Cavanagh & Mee, Death, 22, pour une liste et une bibliographie des tumuli attestés au HA, et 169 pour leur répartition.


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les environs d’éréttrie durant le premier âge du fer

le village moderne de Gérontas qui vient s’ajouter aux trouvailles de l’acropole érétienne ainsi qu’à deux tombes, l’une à Kamari, l’autre dans la région de Théologos. Un premier examen montre d’ailleurs que cette période n’est représentée que modestement dans la région.

La période SPG est attestée par une tombe sur le futur site du sanctuaire d’Apollon à Éréttrie (Fig. 3). Elle est peut-être complétée par deux autres tombes inédites. Enfin un groupe de tombes, dont on ne connaît pas le nombre exact, se trouvant à 2km à l’est de la ville antique a été mentionné par J. Boardman. La céramique est bien présente sur le site d’Éréttrie mais, comme le soulignait B. Blandin, aucune structure datant de cette période pouvant confirmer la présence d’un habitat n’a pu être mise au jour. Enfin, on relèvera ici les limites de la méthode de prospection de surface puisque pas un seul tesson n’a pu être inventorié pour cette période.

Pour terminer, la période géométrique est représentée par de rares trouvailles de surface, sans connexion avec une quelconque structure mais suffisamment groupées pour permettre la restitution d’une occupation sans lien direct avec le site principal côtier. L’image que l’on possède du site d’Éréttrie pour cette période contraste donc singulièrement avec les données provenant de la prospection régionale.

repartition spatiale

Nous bénéficions d’un contexte relativement favorable dans la région d’Éréttrie pour l’analyse de cette répartition. En effet, la configuration topographique de la zone est clairement différenciée :

1. Tout d’abord, une zone de plaine côtière favorable à la culture et aux pâtures. Elle se caractérise par une pente douce en direction du nord, rythmée par de petites collines. Elle est en contact permanent avec la mer et, pour peu que le rivage le permette, offre de nombreuses opportunités d’aménagements portuaires.

2. Puis, en remontant vers le nord, la pente s’accenue radicalement pour donner naissance à la chaine du Voudochi, ceinture montagneuse qui entoure la plaine érétienne et culmine à Amarysia en Eubée.


36. Sackett et al., Prehistoric Euboea, 62, no. 54.

37. Ibid., 62, no. 53.


39. Ibid., 141. L’une est déduite par la présence d’un amphorisque du IXème siècle. La seconde soulève quelques doutes quant à sa datation.


42. Voir infra la discussion de la répartition spatiale de ces vestiges à l’époque géométrique.

43. L’importance de la mer a déjà été soulignée dans le cadre du développement urbanistique de la ville d’Éréttrie. Cf. Bérard & Altherr-Charon, Éréttrie, 236.
à près de 800 mètres d'altitude. Aride, escarpée, cette zone ne présente que peu d'avantage pour un établissement durable mais elle permet par contre de disposer de points d'observation privilégiés. En cas de menace extérieure, elle offre en outre de nombreuses opportunités pour l'établissement de sites de refuge.

3. Plus au nord encore, cette chaîne s'adoucit légèrement pour faire place à de petites vallées encaissées, coupées de la mer mais permettant tout de même la culture et la pâture comme on peut encore le constater aujourd'hui. Il est intéressant de constater que ces vallées, en perdant de l'altitude débouchent naturellement, non pas sur la mer, mais à l'origine de la plaine lélantine.

Trois zones donc, dont la première est résolument tournée vers la mer, la dernière tournée vers l'intérieur des terres, toutes deux séparées par un fort relief mais communiquant tout de même par l'intermédiaire de deux ou trois cols bien définis.

Examinons maintenant la distribution de nos observations en fonction de ces trois zones, reprises dans l'ordre exposé ci-dessus, en les insérant dans le contexte des connaissances déjà acquises pour la région.

1. De Lefkandi à Amarynthos, en longeant la côte, les sites témoignant d'une occupation sont bien présents depuis le Néolithique Final. Cependant, on assiste durant l'Âge du Bronze à une diminution progressive de leur nombre au profit d'une concentration sur les deux places que sont Lefkandi et Amarynthos et, dans une moindre mesure, l'acropole d'Érètrie. Il faut également noter que ces trois sites sont attestés durant tout l'Âge du Bronze, même s'il reste très difficile, en particulier pour Érètrie et Amarynthos, de déterminer leur importance relative dans le contexte régional.

La période charnière qui nous fait entrer dans l'Âge du Fer n'est malheureusement attestée dans la région que nous étudions, que par quelques tombes, dont la datation reste de surcroît à confirmer. Il s'agit d'attestations éparse et, dans l'état actuel de nos connaissances, nous sommes forcés de constater que rien ne précise l'importance du site d'Érètrie à l'époque géométrique. Compte tenu de la grande pauvreté des données relatives à cette période, ces tombes n'en ont que plus d'importance. Plus que cela, il est ici important de se rappeler que trois de ces tombes occupent le site de la future Érètrie mais que la possible « nécropole » mentionnée par Boardman à deux kilomètres à l'Est relativise le pouvoir d'attraction que représente le site et son acropole durant cette période.

Ces observations ne donnent pourtant qu'une image incomplète de la situation : les tombes ne sont mises au jour que par les fouilles, éventuellement les pillages, et l'on ne saurait accepter celles d'Érètrie comme représentatives à l'échelle régionale. En revanche, le fait que ces fouilles, menées de manière continue depuis 40 ans, n'auraient jamais pu être en évidence.

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45. Les données fournies par l'Érètrie mycénienne semblent bien modestes en regard du matériel et des structures qui ont été mis au jour sur les deux autres sites.
47. Les tombes datent peut-être du SPG plus que du PG: voir Lefkandi I, 288. n. 44. Nous remercions B. Blandin pour avoir attiré notre attention sur cette précision.
la moindre structure datée de cette période nous incite à la plus grande prudence quant à la restitution d’un habitat sur le site même d’Érétique.

Le même phénomène, quoique inverse, fausse probablement l’image que l’on se fait de l’occupation régionale à la période géométrique : le site d’Érétique semble dorénavant surreprésenté. Tant la qualité que la quantité des résultats obtenus par les fouilles tendent à reléguer au second plan les trouvailles de céramique géométrique qui ont été faites durant la prospection. Pourtant, huit ensembles ont livré de la céramique de cette période : ils se répartissent à raison de 6 ensembles au nord et à l’est de l’acropole et deux autres à l’ouest de la ville. S’il est difficile d’interpréter ces maigres données, on constatera toutefois que le groupement au nord de la ville pourrait indiquer la présence d’une occupation qui ne semble pas être en rapport avec des phénomènes funéraires.

Même modestes, ces trouvailles confirment que les environs d’Érétique étaient également occupés. Il est dès lors possible d’imaginer, avec toute la prudence nécessaire, une occupation très dispersée sur le modèle de hameaux occupant l’espace en irration, comme celui qui a été proposé pour le site de Lefkandi à la période précédente. Dan : l’état actuel de nos connaissances, ce modèle reste tout à fait hypothétique puisque aucune structure ne pouvant évoquer un quelconque habitat n’a pu être mis au jour sur le lieu de ces trouvailles.

Seules les fouilles permettraient de redonner à ces sites la place qui leur revient dans le cadre de l’espace érétique.

2. La plaine fait place aux contreforts de la chaîne du Voudochi. Il est intéressant de constater que tous les tertres helladiques ont été retrouvés sur les éminences marquantes de la ligne de crête. Mais, plus que cela, c’est l’extrême rareté des autres vestiges qu’il convient de relever. Compte tenu de la topographie très escarpée et de l’absence quasi totale de terre cultivable, nous imaginons que cette zone était seulement fréquentée pour les maigres pâturages saisonniers qu’elle offrait aux troupeaux de petit bétail : l’habitat fait donc défaut.

3. L’Âge du Bronze est également bien représenté dans la troisième zone. Plus intéressant pour nous est la présence des seules attestations que nous ayons pu recueillir pour l’HR. Ces attestations sont rares mais riches en enseignement sur l’occupation de la zone à cette période. En premier lieu, il faut rappeler les deux tombes déjà mentionnées, celles de Kamari et de Theologos. On possède très peu d’indications pour ces structures mais le fait même qu'on
fait pu proposer une datation est déjà intéressant. Une seule est attestée comme une tombe à chambre. Viennent ensuite les deux sites, dont l’un d’habitat, qui dominent le défilé du Kakorevma. Plus intéressant par contre est ce site inédit de « l’acropole » de Gerontas qui se situe à une altitude de 520m, juste au nord du principal col reliant la plaine érétrieenne à la plaine léantine, par Théologos. La prospection intensive a permis de montrer que cette éminence était protégée par un mur de fortification qui mesure sur les tronçons conservés 2 mètres de large. Il s’agit cependant d’un mur en pierres sèches, très fruste, qui ne peut malheureusement apporter aucune précision quant à sa datation. De nombreux locaux sont encore visibles sur le plateau sommital et le site a livré une abondante céramique. Certains fragments sont incontestablement mycénien. Mais, plus que cela, c’est l’absence presque totale de matériel plus tardif qui frappe. Le site semble donc abandonné définitivement à l’HR, ce qui le rend particulièrement intéressant dans le cadre de notre réflexion sur les dynamiques de peuplement de la région.

Il n’en reste pas moins que ce site, malgré son importance relative, est tout à fait modeste : la surface qu’il recouvre ne dépasse pas 4 Ha. Nous serions tentés, dans l’état actuel de nos recherches, de mettre en parallèle ce site avec les habitats fortifiés que l’on connaît pour cette période. Par contre, il faut remonter au nord jusqu’à Théologos pour retrouver des vestiges de l’époque géométrique et l’on peut considérer que la région n’appartient déjà plus au type de relief qui caractérise la troisième zone. C’est de surcroît à la plaine léantine que ce site est relié plutôt qu’aux plaines d’Érètrie et d’Amyrynthos.

52. Le premier, Kaloyerovrisi, a été publié par A. Sampson, Καλογερόβρυση. Ένας οικισμός της Πρώιμης και Μέσης Χαλκοκρατίας στα Φύλλα της Εύβοιας (Athènes 1993). Il s’agit d’un habitat qui perdure jusqu’au HR I. On ne connaît pas la nature du second site, Profitis Sotiros, mais la notice (ADelt 31, 1984, Chron. 158) rapporte que des tessons datant du Néolithique jusqu’à la période romaine y ont été retrouvés. On se gardera pourtant de conclure à un habitat pour la période considérée sur des indications aussi vagues.

53. On n’exclura donc pas la possibilité que le rempart soit postérieur à l’époque mycénienne. Cf. op. cit. n. 54.

54. Nombreuses sont les forteresses avec rempart de pierres sèches qui ont été aménagées sur la ligne de crête surplombant la plaine érétrieenne et qui n’ont, lors de la prospection, livré que très peu de matériel. Cf. à ce sujet P. Simon, ‘Nouvelles activités de prospection dans le territoire érétrie’, AntK 45 (2002), 126, ainsi que la carte de répartition de ces forteresses, 125. Leur étude a été effectuée par S. Farchard, Αμυντόπολη: Εξορμητικής και καταστροφικής εκστρατείας της αρχαίας Ερετρίας, Mémoire de licence en archéologie classique, sous la direction de M. le Prof. Claude Berard, Université de Lausanne (2001), inédit. On notera cependant que l’extrême pauvreté du matériel postérieur à l’époque mycénienne plaide plutôt pour une structure aménagée à cette époque.

55. Plusieurs kylikes et plusieurs fragments de bols larges, dont l’un à anses horizontales. Le vernis a malheureusement disparu.

56. Lefkandi subit deux destructions majeures durant le HR IIIC dont la dernière marque une phase d’abandon du site. Vers 1100 les tombes prouvent que le site est reoccupé : "It is uncertain whether these people were all newcomers or, in part, survivors, and we do not know whether their settlement was on Xeropolis or elsewhere". Lefkandi I, 7. Il est également très tentant, sur la base de ces datations, de mettre en rapport les tombes de Kamari et de Théologos avec le site de Gerontas. Chacune de ces tombes appartient en effet à un système de valleses au croisement desquelles se trouve le site attesté à l’époque mycénienne.

Quels sont les enseignements que nous pouvons tirer de ces données ? Nous nous bornerons, en guise de conclusion, à l'examen de la transition entre la période mycéniennne et la période géométrique.

En premier lieu, nous devons reconsidérer l'occupation mycéniennne, jusqu'alors limitée aux établissements côtiers que sont Lefkandi et Amarynthos. En effet, alors que l'occupation régionale durant cette période semblait confinée à ces deux sites, l'acropole de Gérontas vient relativiser cette préméimence. Outre les tombes qui avaient déjà été répertoriées\(^{58}\), nous sommes maintenant à peu près sûrs qu'un site, certes modeste, occupe une position relativement reculée mais solidement défendue. Tant la position géographique au sein des montagnes de l'Olympe que le rempart sont là pour en témoigner.

Comment maintenant expliquer la faible représentation des vestiges de l'époque géométrique dans les zones montagneuses ? Sans apporter de réponse définitive, nous pensons qu'il faut en tout cas renoncer à impliquer la méthode de travail dans cette constatation. En effet, comment se fait-il que, parmi les nombreux rapports, mentions diverses ou même parmi les fouilles qui ont pu être conduites dans notre zone d'étude, pas même un tesson géométrique n'ait été rapporté ? Il faut en effet «redescendre» jusqu'à Théologos, à la naissance de la plaine lélantine, pour retrouver ces mentions. Nous pensons que, en l'absence de nouvelles données, il n'est pas trop audacieux de conclure que l'occupation durant cette période dans les deux zones montagneuses est inexistante.

Cette hypothèse est corroborée par les connaissances socio-anthropologiques que l'on possède pour les populations éubéennes de l'Âge du Fer. Pour ces sociétés en pleine expansion, fortement actives dans le processus de colonisation, la mer a certainement dû représenter un fort pouvoir d'attraction. De plus, s'agissant de sociétés hiérarchisées, l'élite se manifestait par un goût prononcé pour les chevaux\(^{59}\). Dès lors, la conquête de nouvelles terres, encore renforcée par l'essor d'une agriculture bénéficiant d'un nouvel élan, ne devait se développer que dans les zones favorables, à savoir les plaines côtières\(^{60}\).

On renonce donc progressivement aux zones de refuge, soit pour la plaine côtière, soit pour la plaine lélantine.

L'occupation florissante de Lefkandi à la période protogéométrique pourrait attester de ce mouvement. Mais qu'en est-il pour Amarynthos qui, occupé à la période mycéniennne et certainement déjà sanctuaire à la période géométrique, ne semble livrer que de maigres indices d'occupation à cette période ? Il semble pourtant que le pouvoir d'attraction de cette plaine devait être aussi fort que celui de Lefkandi pour la population de Gérontas cherchant à regagner la plaine. Dès lors, on se demandera d'où venaient les personnes qui furent enterrées dans les premières tombes SPG d'Érétrie. Rappelons qu'elles ne s'implantent pas uniformément sur le site de la future cité, comme s'il y avait encore quelques hésitations quant au choix de l'emplacement.

On ne sait rien non plus des motivations qui poussèrent ces nouveaux arrivants sur le site d'Érétrie : que se passe-t-il entre ces premières structures funéraires et le démarrage en force de l'occupation du site qui devient, dès cet instant, l'Érétrie que nous connaissons ? Nous ne

\(^{58}\) Cf. op. cit. n. 36, 37.


\(^{60}\) Cf. op. cit. n. 48.
sommes pas en mesure, pour l’heure, de répondre à ces questions. Le problème réside dans
le fait que l’on ne sait à peu près rien ni de l’environnement régional des deux sites que sont
Lefkandi et Amarynthos, ni de leur statut. Sans une idée plus claire telle que peut proposer une
prospection de ces régions, il ne semble guère possible, dans l’état actuel de nos connaissances
d’alimenter le débat.

Nous terminerons donc ce bref exposé par ce qui nous semble important d’améliorer
ou de modifier en terme de recherche eubéenne.

1. Le principal problème, lorsqu’on tente d’aborder les modèles d’occupation à l’échelle
régionale, c’est avant toute chose la dispersion des données. Il semble donc nécessaire d’imagi­
giner une plate-forme commune visant à rassembler les informations dans un outil tel qu’il
existe déjà pour la prospection érétrienne. La base de donnée et le logiciel cartographique
qui ont été mis en place ne demandent qu’à être alimentés en nouvelles informations issues
des différentes équipes de recherche. Il va de soi que cette démarche appelle l’amélioration
constante de la collaboration entre ces mêmes équipes.

2. Le deuxième point crucial est la qualité et l’uniformité des données. L’établissement
d’un standard d’étude pour la céramique géométrique issue des fouilles en Eubée montre
que la recherche a tout à gagner d’un tel processus. Elle demande, dans le cas des études
régionales, la définition d’un seuil minimum d’information qui puisse permettre la compa­
raison des données.

3. La troisième mesure plaide pour une meilleure exploitation des données qui ont déjà
fait l’objet de publication car cette masse d’informations n’a que peu été exploitée jusqu’à ce
jour. En ce sens, une collaboration informelle à l’échelle régionale est plus que souhaitable
car elle permettrait de faire l’économie d’un travail laborieux de recherche et d’interprétation
à partir de la littérature abondante touchant à l’Eubée.

Ces quelques propositions devraient permettre un certain décloisonnement de la recher­
che touchant aux études territoriales et, dans une grande mesure, contribuer à la compréhen­sion
de phénomènes qui, pour l’instant, nous échappent encore singulièrement. Nous serons
alors toujours plus en mesure de comprendre comment une cité florissante comme Érétrie voit
le jour et dans quelles conditions.

61. Cette démarche se heurte pourtant à de nombreux obstacles. Voir en dernier lieu N. Terrenato, 'Sample
Size Matters! The paradox of Global Trends and Local Surveys', in S. E. Alcock & J. F. Cherry (eds.), Side-by-Side
LES ENVIRONS D'ÉRÉTRIE DURANT LE PREMIER ÂGE DU FER

• Tumuli HA
• Sites préhistoriques HA - HM ?

Fig. 1.
Fig. 2.

Fig. 3.
ERETRIA’S WEST CEMETERY REVISITED: BURIAL PLOTS, SOCIAL STRUCTURE AND SETTLEMENT ORGANIZATION DURING THE 8TH AND 7TH CENTURIES BC

Jan Paul Crielaard

INTRODUCTION

Excavations over the last decades at Lefkandi, Chalkis, Eretria, Kyme and Oropos have been extremely productive, especially where our knowledge of the EIA is concerned. The large quantities of new archaeological data and the often unexpected discoveries have forced us to revise our ideas about early Greek architecture, urbanization, cult, regional pottery production, external contacts and colonization, social-political organization and even about the composition of the Homeric epics. However, new archaeological data not only force us to formulate new syntheses and hypotheses, but also encourage us to take a fresh

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ABBREVIATIONS:
Andreiomenou, 'Eretria geometrica' = A. K. Andreiomenou, 'Eretria in âta geometrica; Calcidie e Akraiphia in età sub-protogeometrica', in Euboica, 153-166.
Antonaccio, Ancestors = C. M. Antonaccio, An Archaeology of Ancestors. Tomb Cult and Hero Cult in Early Greece (Lanham 1995).
look at material excavated long ago. Re-examination of this material is necessary in order to see whether and, if so, how it fits in with current scholarly insights, and whether it may lead to new questions that need to be answered.

The starting point of my contribution is a number of Geometric and later tombs excavated by K. Kourouniotis at Eretria between 1897 and 1900, and published in a series of preliminary reports. I shall combine a close reading of Kourouniotis' reports with a re-evaluation of the graves and grave goods in the light of more recent finds at Eretria and contemporary sites in the region. I will suggest that some of these tombs belonged to individuals with elite status, and that these tombs became the object of veneration in later times. This will encourage me to make some more general observations, for instance regarding the interrelationships between burial locations, social structure and settlement organization.

THE WEST CEMETERY

A significant concentration of tombs has been found to the Southwest of the settlement area of ancient Eretria. This area is sometimes referred to as the West Cemetery. It was situated along the seashore; its western part probably followed an ancient coastal road leading to Chalkis. The tombs that Kourouniotis excavated were located at a short distance from the 4th-century city wall, near the beach that formed the south side of a small promontory (Fig. 1:1). On the very end of this promontory stood the remains of a port authority building (Limenarcheion), which was later used as a hospital (Hygeionomeion), from which the locality took its name. To the West and South the tightly-packed tombs extended into the sea. Most burials dated to the 7th to early 5th centuries, but also a "considerable number" of Geometric tombs were present. Kourouniotis points out that it was in the direct vicinity of the Hygeionomeion that he found a concentration of Geometric tombs that had escaped the attention of modern tomb robbers and had suffered relatively little from the digging of later graves in antiquity. The Hygeionomeion cemetery measured approximately 150 by 30m. The sandy soil was blackened by ashes from cremation pyres. Kourouniotis, who fails to give detailed descriptions of individual tombs and their contents, at some point in his reports makes it clear that he excavated eight in situ cremations and about forty vase burials.

All the in situ cremations were of adults. They were concentrated near the edge of the cemetery, although some were found in other spots among later burials and were usually cut by these tombs. The tombs consisted of uncovered pits, the sides of which had been scorched by fire. On average, they measured 1.6 by 0.8m, and were 0.8 to 1.6m deep. A compact mass of carbonised wood with burnt bone fragments and grave goods were found

1. Kourouniotis, 'Αγγεία Ερετρίας', 1-5; id., 'Goldschmuck', 290; further: id., Ενδέκατη ανασκαφή εν Ερετρία, Prakt (1897), 21-2; id., 'Ανασκαφαί Ερετρίας, Prakt (1898), 96-8; id., 'Ανασκαφαί εν Ερετρία, Prakt (1900), 55. See also Κ. Gex, Eretria IX: Rotfigurige und weissgrundige Keramik (Lausanne 1993), 12-15, who also discusses other 19th c. excavations (both clandestine and legal ones). Kourouniotis ('Goldschmuck', 290) speaks of "eine nicht unbeträchtliche Zahl von Gräbern geometrischer Stilperiode, vor allem beim SW-Ende in der Nähe des Meeres". Elsewhere, he mentions eight adult tombs out of a total of fifty Geometric tombs, the majority of which belong to small children ('Αγγεία Ερετρίας, 5; 'Geometric' is likely to include Sub-Geometric); however, elsewhere in the same article (p. 7), when discussing the in situ cremations, he mentions that "around twenty" of these were found (of which only four or five had not been damaged by later tombs).
on the tomb floor. The grave goods comprised mainly terracotta vessels which, according to Kourouniotis, were always burnt and incomplete and occurred only in remarkably small quantities. In addition, some tombs contained metal objects, including personal ornaments of gold and silver, objects of bronze and iron weapons (see below). Unfortunately, the grave contents were neither documented nor kept separately. The descriptions and illustrations of the pottery and gold diadems, however, make it clear that the tombs date to the MG II and LG periods.

The vase burials were all inhumations of infants and young children. The vases used for these burials were pithoi and amphorae, which were laid on their sides and supported by stones. The vessels generally did not contain grave goods: a number of miniature vases were found in only two pithoi. With one possible exception, the *enchytrismoi* seem to have been spatially separated from the Geometric cremation tombs. Stylistic comparisons further suggest that the vessels employed for the burials are mostly post-Geometric. Apart from a group of about 20 coarse pithoi with incised decoration datable to ca. 700, J. Boardman was able to attribute some 25 decorated wheel-made amphorae to the 7th century.

**STATUS INDICATORS IN TOMBS OF THE HYGEIONOMEION PLOT**

Kourouniotis' *in situ* cremations are clearly different from the secondary cremations that Claude Béard of the Swiss School of Archaeology in Greece discovered in the area of the later West Gate (Figs. 1: 8; 2). The latter included six or seven cauldron cremations, to which we can add another example excavated by Kourouniotis in the "Kanari plot" in front of the West Gate. Together with nine or ten child inhumations found close by, they probably formed a small, family burial plot, datable between ca. 720 and 680 BC. The offensive weapons and especially the bronze cauldrons are indicative of the high status of the deceased. Moreover, the complex burial rites (cremation, collection of the ashes in a cloth, deposition of the ashes in a metal urn, burial of the urn in a stone receptacle) will have had specifically Homeric connotations. In the early 7th century, a triangular structure enclosed by a curving *peribolos* was constructed over the adult tombs. This, in combination with evidence of *post mortem* cult, indicates that this family or one of its members had occupied a privileged position in society and may even have been heroised after death.

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2. Kourouniotis, 'Αγγεία Ερέτριας', 7-8; Coldstream, GG, 88, 196. The pottery includes wheel-made pyxides, drinking vessels (some decorated with birds or horses), oinochoai, kraters and amphorae, as well as some handmade vessels; see Kourouniotis, 'Αγγεία Ερέτριας', 9-14; also Boardman, 'Pottery from Eretria', 1ff.


4. Coarse pithoi: Kourouniotis, 'Αγγεία Ερέτριας', 27, with Boardman, 'Pottery from Eretria', 11. Boardman traced 13 sub-Geometric burial amphorae and pithoi (mainly first half of the 7th c.; *ibid.*, 13-20), 12 Orientalizing examples (last quarter of the 7th c.; *ibid.*, 20-27) and another 12 belonging to first half of the 6th c. (*ibid.*, 28-30).


6. See II. 18.343-355, 23.163ff., 237-257 (burial of Patroklos); 24.5-87ff., 783-804 (Hektor); Od. 24.43ff., 65-84 (Achilleus). Like the Eretrian cremations, Hektor's urn is protected by "stones, laid close together", see II. 24.797-798: αἴφα δ' ἀρ' ἐς κοίλην κάπετον θέαν, αὐτή ὑπέθε / πυκνοΐσιν λάεσσι καταστόρεσαν μεγάλοισι.

ERETRIA'S WEST CEMETERY REVISITED

It has been suggested by several scholars (including the present author) that the West Cemetery on the coast belonged to individuals of lower status or, indeed, to the non-elite members of the Eretrian community. There are good grounds, however, to reconsider this interpretation.

In fact, there are a number of reasons to believe that the in situ cremations discovered by Kourouniotis were no ordinary tombs at all. An important indication for this is the presence of valuable grave goods. In total, four decorated gold bands are known from Kourouniotis’ excavations. One of these (NM 12153; Fig. 3a.) came from a tomb that also contained a silver boat fibula with large catch plate, a golden ring and a gold-mounted scaraboid seal with silver loop. Other grave goods mentioned are fragments of silver dress pins—including one with a gold-mounted glass-paste bead—rust and dust from bronze objects, and iron spearheads, mentioned to have been found in many tombs. The corroded bronze objects are possibly the remains of bronze vessels. Significant is also the find of objects of silver, which is rarely found in EIA contexts in Greece. It should be added that tombs 6 and 10 near the West Gate—the most conspicuous burials of this plot—also yielded personal ornaments made of gold or silver, including a double scaraboid seal with golden setting. The four gold bands found by Kourouniotis, however, are the best indication of the special status of the deceased. This becomes especially clear when we consider the find contexts in which gold bands have occurred elsewhere at Eretria and in neighbouring sites in Euboea, Attica and Skyros.

In general we can say that gold bands and diadems have a long tradition and occur in very distinctive contexts. At Lefkandi, 19 gold bands are known from 11 tombs, covering the entire LPG to SPG III period. Most of these are embellished with chevrons or zigzags, but one is decorated with animals (Tombs grave no. 33). At Lefkandi, gold bands were the prerogative of the members of the burial group using the Toumba cemetery, which can be identified as the kinship group that occupied the highest status within the Lefkandiot community. With one exception, they are part of rich to excessively rich grave assemblages. It is of interest that the majority of the tombs containing gold bands and diadems can be attributed to wealthy children, while one tomb may belong to an adult female; gold bands and diadems are generally not found in graves containing weaponry.

8. Coldstream, GG, 196-197; Mazarakis Ainian, 'Eretria', 20; J. P. Crielaard, 'How the West was Won: Euboeans vs. Phoenicians', HBA 19/20 (1992/93), 238; Crielaard, 'Cult and Death', 45; further Eretria III, 28ff., 66; id., 'Le sceptre du prince', MusHelv 29 (1972), 220; Blandin, 'Tombes à inhumation', 135 n. 4, 139.
11. R. A. Higgins, in Lefkandi I, 219; M. R. Popham et al., 'Further Excavation of the Toumba Cemetery at Lefkandi, 1981', BSA 77 (1982), 236; M. R. Popham et al., 'Further Excavation of the Toumba Cemetery at Lefkandi, 1984 and 1986. A Preliminary Report', AR 35 (1989), 117-129; Lefkandi III, pls. 54-55, 71, 74. I. S. Lemos (Protogeometric Aegean, 131) points out that the geometric decoration recalls the cloth bands that were found together with the garment of the male buried under the Toumba building.
13. Possible child tombs: Toumba tombs 19, 33, 36, 47, 48 (two bands), 71; t. 39 (two bands) is perhaps a
In Athens and Attica, gold bands are known from the EG II to LG periods. In broad outline, they confirm the picture produced by the finds from Lefkandi: most of the bands have come to light in rich or otherwise conspicuous tombs, which were located in a limited number of aristocratic grave plots. In Athens itself, they have been found especially in elite burial plots situated in the northwest part of the settlement area. Some of the tombs belonged to armed men, while children and possibly adult females are also represented. Find places outside Athens testify to a similar pattern. Gold bands have come to light in two rich graves of relatively small dimensions that were part of a group of Geometric graves excavated on Odos Vouliagmenis at Kynosarges. In the area of Anavyssos, bands belonged to the inventory of two large, well-executed tombs, which were set apart from the other Geometric graves by a stone enclosure.

Gold bands are also known from Skyros, an island that maintained intimate links with central Euboea from at least the MPG period onwards. Of the tombs brought to light in controlled excavations during the 1980s and 1990s, four graves yielded a total of four bands of gold and one electrum specimen. The tombs can be dated within the range of the late 9th to the early 7th century. All four belonged to adults and yielded rich and sometimes exotic furnishings, while two of them contained weapons.

It may be added that also the Euboean colony of Cumae has yielded relief-decorated diadems of gold and silver. Although of Etruscan manufacture, these, too, are found in rich cremation tombs or relatively wealthy inhumations, and seem to follow a funerary tradition that originated in the Euboean homeland. Finally, we may mention a bronze band found in a rich PG tomb at Atalanti on the opposite side of the Euboean gulf in eastern Locris, which is of interest because it has a miniature double axe attached to it.

At Eretria itself, gold bands have occurred in the following contexts: combined burial of a warrior and a child. Female grave: t. 70 (two bands). Unknown: t. 42, 59, 78. The bands can be relatively short, like a diadem or long, like a ribbon.


15. Kynosarges: O. Alexandri, Τιμωρτικοί τάφοι εις περιοχήν Κυνοσάργους, AAA 5 (1972), 168-170, 173-174; t. 3 (second quarter 8th c.): gold band, four fragments of bands, gold ring, ear decoration of gilt bronze and gold foil disk; t. 19 (first half 8th c.): gold band, two gilt iron pins and three gold fibulae. Anavyssos: P. G. Themelis, 'In Goldband aus Anavyssos, AM 106 (1991), 40-41: II/7 (LG II A) and III/7 (LG II A) yielded one gold band each; the third grave within the enclosure, I/73, contained a bronze cauldron used as an urn; all three were partly robbed. For gold bands elsewhere in Attica, see refs. in I. Morris, The Art of Citizenship, in S. Langdon (ed.), New Light on a Dark Age. Exploring the Culture of Geometric Greece (Columbia & London 1997), 24 n. 50.

16. Peramata, t. 2 (also weapons), Kambos-Vachlas plot, t. 9 (electrum band); Chorafa-Stavrodromi, t. 2, Themis, t. 1 (two plain gold bands; also weapons). See Sapouna-Sakellaraki, Electrum Band; ead., 'Skyros', 126, 133, 139, 144.

17. Diadems of gold in t. 11 and 104 (both urn cremations using bronze cauldrons; t. 104 is the richest tomb found at Cumae, and belongs to a warrior); diadems of silver or a combination of gold and silver in t. 18, 33, 48 and 67. See G. Pellegrini, 'Tombe greche arcaiche e tomba greco-sannitica a tholos della necropoli di Cuma, MonAnt 13 (1903), 201-294; E. Gabrici, 'Cuma', MonAnt 22 (1913).

18. Lemos, Protogeometric Aegean, 172. Double axes may have had religious connotations and were status
in situ cremations in the Hygeionomeion plot (Figs. 1: 1; 3a-c)\textsuperscript{19}

1-4. *in situ* cremations in the Hygeionomeion plot (Figs. 1: 1; 3a-c)\textsuperscript{19}

5. *in situ* cremation excavated near the coast (Od. Arist. Eratonymou; Fig. 1: 2)\textsuperscript{20}

6-8. *in situ* cremations found northeast of the later agora (Alexandri and Vouratsa plots; Fig. 1: 4)\textsuperscript{21}

9. Geometric tomb discovered in a location opposite of the Archaeological Museum (Fig. 1: 10)\textsuperscript{22}

10. cauldron cremation of a warrior found near the West Gate (Fig. 1: 8)\textsuperscript{23}

11. rich inhumation tomb (no. 14) near the West Gate (Figs. 1: 8; 3d)\textsuperscript{24}

12-13. area of Apollo Daphnephoros temple (Fig. 1: 5)\textsuperscript{25}

14-17. “sacrificial area”, North of the Apollo sanctuary (Figs. 1: 6; 3e)\textsuperscript{36}

18. so-called goldsmith’s treasure (folded diadem, part of gold hoard buried under the floor of a LG house; Figs. 1: 7; 7)\textsuperscript{27}

19-20. from Eretria, found during earlier excavations, presumably in the West Cemetery\textsuperscript{28}.

Uncertain:

21. cauldron cremation (no. 10) near the West Gate (Fig. 1: 8): fragments of gold foil\textsuperscript{29}

22. “sacrificial area”, north of the Apollo sanctuary (Fig. 1: 6): fragment of gold foil\textsuperscript{30}

symbols of the aristocracy in Euboea and perhaps also in adjacent areas such as Boeotia, see J.P. Crielaard, ‘Some Euboean and Related Pottery in Amsterdam,’ BABesch 65 (1990), 4-9.


23. Kourouniotis, ‘Αγγεία Ερέτριας’, 9; Ohly, Goldbleche, 125 n. 36: decorated with human figures and animals.


25. K. Schefold, ‘Eretria 1968: Einleitung’, AntK 12 (1969), 73. These two examples were found in test soundings, together with LG pottery, according to Schefold, they were box decorations.


29. Eretria III, 21: 10,8: decorated with zigzag motives in repoussé technique.

Bands and diadems made of precious metals were probably worn around the head or on the forehead\(^{31}\). It has been suggested that the gold bands were made especially for the burial ritual and were used only once and only on that occasion\(^ {32}\). The above nos. 12-18, however, suggest that they could also serve other, above-ground purposes, and were utilised in non-funerary contexts. Whatever their exact function may have been, the different contexts in which they were found leave no doubt that gold bands can be considered as prestigious objects and status indicators. The assumption that they had “elite” connotations is confirmed by the recurring figurative themes on some of the bands\(^ {33}\). As for the date of the Eretrian bands, apart from no. 5 (i.e. the undecorated piece found on Od. Arist. Eratonymou undoubtedly dating to the MG II period), at least half of the examples can be attributed to the period between ca. 725 and 690 BC, on the basis of either their find context or the figurative representations decorating the bands. This applies also to the three specimens excavated by Kourouniotis (NM 12153-4, 11720)\(^ {34}\).

EVIDENCE OF LATER COMMEMORATION

Another indication that Kourouniotis’s *in situ* cremations were no ordinary tombs is provided by the later history of the burial plot. First of all, it is important to point out that the cremations were discovered primarily during the 1897 campaign, and were apparently found clustered together within a strip of ca. 12-15m to 100m, near the limits of the excavation area\(^ {35}\). Elsewhere, Kourouniotis states that the Geometric tombs were found especially in the southwest part of the small promontory, close to the sea\(^ {36}\). This part of the West Cemetery was respected during later periods, as is indicated by the course of the city walls. As P. Auberson and K. Schefold remark, “Daß die Stadtmauer nicht direkt zur westlichen Mole führte, kann sich nur daraus erklären, dass man hier eine alte Nekropole schonen musste” (cf. Fig. 1)\(^ {37}\). Although it is possible, of course, that this attitude of deference concerned the post-Geometric tombs in this area\(^ {38}\), it remains remarkable that —whereas elsewhere Geometric tombs had

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32. Ohly, Goldbleche, 68; Eretria III, 37; R. A. Higgins, op. cit. n. 11, 219.
33. Examples from Eretria show chariots, warriors, boxing men, felines or deer hunting scenes, sometimes in combination with oriental motives. Similar representations are found on bands from Attica and Skyros, see Ohly, Goldbleche, 73-83; Tzahou-Alexandri, op. cit. n. 14, 356-358 figs. 12-17; L. Marangou, 'Collection Dolly Goulandris 1. Bijoux en or', BCH 99 (1975), 370-371; Sapouna-Sakellaraki, 'Electrum band', 38-39; 'Skyros', 133, 139. The latter author also suggests ('Electrum band', 39-40) that these bands were used during a person’s lifetime and were status symbols alluding to the bearer’s membership of the aristocratic class.
34. See also Coldstream, GG, 198.
35. Kourouniotis, 'Αγγεία Ερέτριας', 7, with id., 1898, op. cit. n. 1, 98.
38. For 6th- and 5th-c. graves, see e.g. A. K. Andreiomou, 'Εκ της Δυτικής νεκροπόλεως της Ερέτριας', AAA 7 (1974), 229-248; *ead., 'Εκ της Δυτικής νεκροπόλεως της Ερέτριας', II, AAA 9 (1976), 197-212; *ead., 'Αψιδωτά οικοδομήματα', 187-189.
been destroyed by later burials—those found in the Hygeionomeion area were more or less intact. But there is more. In Kourouniotis' reports, we find corroboration of the supposition that the plot containing the in situ cremations received special attention already in Geometric times. In the first place, a horse skeleton discovered amongst the Geometric graves is of great significance. Although detailed information is lacking, we may assume that we have here the remains of a horse sacrifice made either on the occasion of an important individual's burial or as part of later commemorative ceremonies. As an earlier parallel, we may think of the horses buried under the MPG edifice at Lefkandi and those buried in grave 68 of the Toumba cemetery at the foot of the mound covering this building. More numerous are examples of horse sacrifices in Greece and Cyprus dating to the 8th and 7th centuries. Horse keeping was an activity closely connected with the lifestyle of early Greek aristocracies and was a mark of class distinction, particularly of the élites in Chalkis and Eretria, which were known as hippocotai and hippoceti.

Secondly, in the same area as the in situ cremations a fragmentary monumental amphora of LG date was discovered, as Kourouniotis noted, “isolated in the ground.” Since no tombs were located in the immediate vicinity, he concluded that it is unlikely to have been a grave marker. He suggested that the vase instead catered for an enchytroisma, assuming that the skeletal remains had been lost together with the vessel’s lower part. There is, however, another possible interpretation. The preserved height of the vase is 0.80m. Originally it perhaps stood over 1m high, which makes this neckless amphora taller than the other burial pithoi and amphorae. More significantly, its decoration—with a prominent place for files of chariots and spearmen carrying round shields—places it outside the group of burial vessels. I wish to suggest that both its monumental proportions and its iconography make it likely that the amphora had some kind of commemorative or cultic function, perhaps not so much serving an individual grave but the plot as whole. On stylistic grounds, the amphora can be assigned to the period when the area was no longer used for the interment of adults (late 8th century; see below). The vase has been identified as either local or Attic. The use of monumental vases as grave markers was, of course, more current in Attica. On the other hand, there is evidence from recent excavations that at Eretria large vases were used as markers or otherwise served funerary or other cultic purposes. A good example is the fragment of a MG II/LG I belly-handled amphora, recently published by Karl Reber. It was found under House IV in the west.

40. Ibid., 8-9 n. 1.
42. See D. S. Reese, 'Equid Sacrifices/Burials in Greece and Cyprus; an Addendum', JPR 8 (1995), 35-42.
43. Crielaard, op. cit. n. 18, 4, with refs.
44. Kourouniotis, 'Αγγεία Ερέτριας', 13-16 (quote from p. 15), with fig. 7; Boardman, 'Pottery from Eretria', pl. 3A (detail). In the discussion during the conference the question was raised whether this vase was affected by fire. The literature fails, however, to mention this, and the present state of the National Museum at Athens does not allow this possibility to be verified.
45. See Boardman, 'Pottery from Eretria', 7: local, ca. 700 BC; Coldstream, GG, 218 n. 13; imported from Athens, ca. 730 BC; id., 'Some Peculiarities of the Euboean Geometric Figured Style', ASAtene 59 (1981), 242, with n. 3 for further refs.
quarter and shows what are possibly *apobates* races (Figs. 1: 9; 4). Another is a LG sherd showing mourning women found in a *bothros* in plot O.T. 740 (Fig. 1: 7)\(^6^6\).

As a last feature that may be brought up in connection with commemorative ceremonies, I refer to Kourouniotis’ brief mention of a large heap ("σωρός", in his description) of sizeable stones bearing indications of heavy burning. It was found close to the wall of the former Hygeionomeion, a few metres from the edge of the area where the concentration of intact Geometric graves was found\(^17\). The excavator states that he had no indication of what its function had been, but we may speculate that —since it cannot be a cremation pyre— it may have been some kind of structure for burnt sacrifices. No indication of its date is given, but its location could suggest that it was connected to the *in situ* cremations. In this context we may think of stone structures that have come to light in, for instance, Euboean Kyme and Oropos on the opposite side of the Euripos. At Kyme, the structure is a circular pile of stones (no. 3) that was associated with oval building A (MG II—LG), located in an area that was also used for burials. Together with paved area no. 2 to the northeast of this building, the circular platform possibly catered for open-air rituals (see next section)\(^48\). At Oropos, stone “monuments” of various sizes and shapes were erected over the ruinous remains of some of the buildings. On top of building IG, a small circular platform was built (no. XXXVI; see Fig. 5: 4). Between this and the stone bench-like feature nearby (no. XXXIV; Fig. 5: 3), deposits were found, containing ashes, charcoal, burnt animal bones, a fragmentary terracotta boat model and smashed pottery. It is possible that by this time (i.e. in the 7th century) the area had become a heroon\(^49\).

It is likely that Kourouniotis’ σωρός was a similar, circular stone structure. Apart from Kyme and Oropos, structures of this type have come to light in many other sites. Most of them can be associated with chthonic cults, usually the cult of the dead and the veneration of ancestors. They were presumably utilised for ritual offerings, which probably included the consumption of food and drink during ritual banquets. In some cases the platforms seem to have served as a sort of hearth for the preparation of food or for making burnt sacrifices. Their date ranges from the 10th to the 7th century\(^50\). This chronological range could be another argument to link Kourouniotis’ σωρός to the Geometric tombs in the area.

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48. Sapouna-Sakellaraki, *Kyme*, 67-69, with 89 fig. 30. Structure no. 3 is 1m in diameter. Associated with it are large quantities of animal bones and broken Geometric pottery. Signs of burning are not mentioned, but p. 71 fig. 22 shows blackened earth. To the West of Building A and its enclosure, there is another semicircular stone feature (no. 25) and rectangular stone pavement, possibly related to tomb 3 (LPG). Significantly, in this area fragments of about 15 kraters and numerous skyphoi were found; *ibid.*, 72.

49. Structure XXXV I measures 0.84 by 0.68m, see Mazarakis, *Oropos*, 206-7; *id.*, *Excavations*, 157, 163-164. Another circular structure (IZ), but smaller, was found on top of ΙΣΤ, South of the enclosed area, *id.*, ‘Ανασκαφές Σκάλας Ωρωπού’, *Prakt* (1997), 67-68; *id.*, ‘Ανασκαφές Σκάλας Ωρωπού’, *Prakt* (1998), 61-62.

Kourouniotis came to the conclusion that the part of the West Cemetery he excavated was a cemetery mainly destined for infants and children. In light of the above observations, my reconstruction is somewhat different. The Hygeionomeion area started off as a burial plot that contained a small number of elite adults of the MG II and LG phases. There are indications that special attention was given to the deceased by various sorts of commemorative ceremonies (feasting; possibly horse sacrifice). This locality was perhaps marked by a large amphora. After ca. 700 BC, the plot was no longer used for the burial of adults. We do not know how much overlap there was between the latest adult cremations and the earliest child enchytrismoi, but it is clear that after this point in time the plot was utilised especially for the burial of infants and small children. I suggest that this was a direct result of the plot's special status. At first the children were interred in coarse household vessels (pithoi, amphorae, etc.), but during the SG phase more sophisticated, special-purpose vases were used (Boardman's “Group A and B” amphorae, ca. 700-640), which during the following Orientalizing period were decorated with representations of ghastly creatures like lions, sphinxes and griffins in the belly zone, and lines of women on the necks of some vessels ('Group C', ca. 625-590). The female figures carry wreaths and branches. Some seem to be engaged in a dance or procession, others in offering items to another female, presumably a deity or netherworld figure (see Fig. 6)52. Boardman suggests that these women are mourners performing a ritual dance, whereas A. Ritsonis prefers to see them as priestesses.

We may dwell a little longer on these vases. The friezes of women depicted on the Group C burial amphorae have stylistic and iconographic parallels in similar representations on long-necked jugs known from a number of cultic contexts at Eretria, notably the “sacrificial area” north of the Apollo sanctuary (Figs. 1: 6; 8: 45) that has been studied by Sandrine Huber. A number of these jugs show females dressed in a similar fashion and involved in similar actions (processions or dances and offering scenes), but some attributes are different. One scene depicts the presentation of a cloth still on the loom to a goddess flanked by a snake, presumably the deity venerated in this sanctuary.

A comparison of the scenes indicates that the female figures featured on both the jugs and the amphorae can be interpreted as votaries (or —less probable— priestesses) carrying out certain cultic activities. But we may take this information a step further. Sandrine Huber argues convincingly that the shape of the jugs and the scenes depicted are interrelated with specific rituals that used to be performed in the northern sacrificial area where they were

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52. Boardman, 'Pottery from Eretria', 11, 13-27. Dance/procession: e.g. C2; offering scene: e.g. C3, C4, C6. Amphora C2 bears an inscription (see our Fig. 6) that Boardman [ibid., 21, 26, 48; id., Early Greek Vase Painting (London 1998), 109] reads as ΘΕΑ; he suggests it invokes a goddess associated with the netherworld. However, according to R. Wachter, Non-Attic Greek Vase Inscriptions (Oxford 2001), 7, this is impossible, as the reading should be ΘΕΕ.
53. Boardman, 'Pottery from Eretria', 13, 21; Ritsonis, 'Παρατηρήσεις', 68.

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found. If we follow this line of reasoning, we may assume not only that the burial amphorae display a similar connection between form and function, but also that the scenes on the amphorae show rituals that were performed in connection with the find place of these vessels. In other words, we have here another indication of the existence of cult of the dead in this part of the necropolis — that is to say, in addition to Kourouniotis’ σωρός, that was presumably a platform related to ritual meals. If this interpretation is correct, we may conclude that infants were buried in an area that was associated with the “powerful” dead of a past generation and — probably as time passed by — with chthonic entities that were venerated by means of specific cult practices, including processions and offerings of gifts.

It may seem odd that infants were buried in such an area. In the remainder of this section, I wish to show that the Hygeionomeion plot, however, does not represent an isolated case, but that elsewhere in Eretria and Oropos we have evidence that may be interpreted in a similar way. With the help of this evidence I hope to demonstrate that the conversion of the plot into a burial area reserved for children and the installation of a cult of the dead or chthonic cult are, indeed, part of the same phenomenon. It is important to substantiate this point at some length in order to place the significance of the plot in its proper context.

The archaeological record suggests that during the 8th and 7th centuries at Eretria and Oropos — like at many contemporary sites — stillborns and prematurely deceased infants were, as a rule, buried between the foundations of houses. The explanation for this may be that young children were not yet fully incorporated into the existing social order. Being social non-persons, they were not interred in the formal disposal areas, but instead were buried literally within the precincts of the family’s life space. However, at Eretria and Oropos it was decided to inter some of the deceased infants outside the domestic sphere, in what appear to be very specific contexts. In addition to the Hygeionomeion plot, we may think of four infant pot burials and a possible pit grave (ca. 690-675) that P. Themelis uncovered in the northeast part of Eretria’s settlement area (O.T. 740; Figs. 1: 7; 7). The infants appeared to have been buried within the northern perimeter of a very large and deep bothros that was covered by a low tumulus. Both this deposit and a smaller one some metres to the southeast contained parts of mud-bricks, rounded-off sherds, a host of pottery dating to the last quarter of the 8th and the early 7th century, and other finds that can be related to eating and drinking. Although part of the contents of these pits can be linked to a contemporary destruction layer associated with LG

56. See Crielaard, 'Cult and Death', 45, with n. 13 for further refs.; also Andreiomenou, 'Eretria geometrica', 155 n. 20 (coarse ware amphorae) and 21 (painted LG pedestalled burial amphora).
57. R. Hertz, Death and the Right Hand (London, 1960 [1905-6]), 76, 84; L. R. Binford, 'Mortuary Practices: their Study and Potential', in J. A. Brown (ed.), Approaches to the Social Dimensions of Mortuary Practices. Memoirs of the Society for American Archaeology 25 (1971), 22. At Eretria, the aristocratic infants and children buried in the plot near the West Gate are a significant exception to this rule, see Crielaard, 'Cult and Death', 49.
58. Tombs: P. G. Themelis, 'Ανασκαφή Ερέτριας', Prakt (1979), 50-53; id. 'Ανασκαφή Ερέτριας', Prakt (1980), 97-98; id., 'Ανασκαφή Ερέτριας', Prakt (1981), 148. Three of these vessels were hand-made pithoid amphorae, of which one (no. 3) was scorched on the outside. A fourth example (no. 1) was a decorated wheel-made pedestalled amphora (early 7th c.), overlying a 'cist' lined with mud-bricks bearing traces of fire, but no bones or grave goods. The 'pit grave' contained 12 one-handled cups and two human or animal long bones. A fifth enchrytrismos was discovered some 10m to the NW. It is possible that in this area graves were located, see P. G. Themelis, 'Ανασκαφή στην Ερέτρια', Prakt (1976), 73-76; intact amphoriskos (EG II/MG I). See further Mazarakis Ainian, 'Eretria', 8, 10; also Rulers' Dwellings, 104, 314, with fig. 119.
buildings in this area, some of the refuse is clearly not of domestic origin. This applies to three broken horse figurines found in the large bothros, and to the earlier-mentioned LG sherd from the small deposit that shows mourning women and is likely to belong to a large vase serving funerary or other cultic purposes.\(^{59}\)

The contents of this bothros are in some ways comparable to those of a bothros found to the Southwest of the triangular monument that was erected above the aristocratic tombs near the later West Gate. Its fill contained burnt mud-bricks, ashes, carbonised wood, animal bones, fragments of terracotta kraters and drinking vessels dating to the second quarter of the 7th century, a rounded-off sherd bearing a stamped figure of a horse, and figurines of mourners, a seated goddess and horses and horse-riders. A later part of the fill (third quarter of the 7th century) yielded 12 sheep skulls. The contents of this bothros demonstrate that during the 7th century the area was used for offering and feasting. From the Archaic to the Late Classical period a complex of buildings developed around and over the cemetery. These buildings too seem to have had a cult function and may be considered as a heroon.\(^{60}\)

Exploring the phenomenon of children buried at chthonic cult sites, we may also bring into the discussion the so-called Central Quarter at Oropos. Alexander Mazarakis Ainian has argued convincingly that the area enclosed by the square peribolos housed buildings performing both domestic and cultic functions. The large edifice \(\Theta\) can be attributed to a local ruler, who probably supervised metal-working at the site and seems to have hosted dinner parties of a ritualised nature. Building \(\Theta\) also fulfilled cult functions, as did probably building \(\Sigma T\). The cultic character of the complex is furthermore apparent from the large peribolos that surrounds it and from the find of traces of burnt sacrifices within the enclosed area. According to Mazarakis Ainian, the combination of cultic activities and metal production could indicate that this cult involved the worship of the sea nymph Leukothea and the Kabeiroi and Telchines, chthonic creatures and magic demons that were connected with metal-working. At some point, the complex was presumably transferred into a heroon. A possible cenotaph and the find of broken horse figurines could indicate that cult of a chthonic character was practised.\(^{61}\)

There are approximately 30 tombs associated with this complex. They are mainly child tombs (enchytrismoi, using coarse jars or pithoi), found within the limits of the enclosed area and, especially, outside the complex. They date to the Geometric and early Archaic periods, which means that most of them were buried when the complex was still in use.\(^{62}\) The number of tombs is remarkable. There are too many to permit us to think that these deceased children belong to only the successive households of this compound.\(^{63}\) In this connection it is significant that the number of enchytrismoi retrieved in the Western Quarter of Oropos is

\(^{59}\) Themelis 1981, op. cit. n. 58, 148-151; id., 'Ανασκαφή στην Ερέτρια', Prakt (1982), 163-164 (large deposit); id., 'Ανασκαφή στην Ερέτρια', Prakt (1983), 138-141 (small bothros). More specifically, they contained ashes, carbonised wood and other organic material, animal teeth and bones, sea shells, oxidised bronze, horse figurines, a brazier, the upper part of a large pithos and large quantities of fragments of hand-made and especially wheel-made decorated pottery; the latter included amphorae, hydriai, kraters (some of these decorated with the oriental Tree of Life, warriors or horses), dinoi and large numbers of drinking vessels, see Themelis 1981, op. cit. n. 58, 148.


\(^{61}\) Mazarakis Ainian, 'Excavations', 168; also 161 (horse figurines).

\(^{62}\) Mazarakis Ainian, 'Oropos'; id., 'Excavations', 158-169. See further V. Vlachou's paper, elsewhere in this volume.

\(^{63}\) Building \(\Theta\) was built towards the end of the 8th c. and remained in use well into the 7th c., see Mazarakis Ainian, 'Excavations', 158.
considerably smaller\textsuperscript{64}. What is more, the number of tombs is about equal to the total number of infant pot burials of the Geometric and SG periods that is mentioned in excavation reports for Eretria as a whole. The conclusion, therefore, should be that deceased children were buried in and around the enclosed area in the Central Quarter of Oropos not by a single family but by numerous households. Apparently, this place had a special attraction. I suggest that what was attractive was the “presence” of chthonic entities or the vicinity of the powerful dead.

Summing up, ashes, carbonised wood, large quantities of burnt animal bones, and fragments of kraters and drinking vessels have been found in the Eretrian bothroi (O.T. 740, heroon near the later West Gate) and within the enclosed area at Oropos, and can be interpreted as the sacralised remains of ritual eating and drinking. Broken horse figurines occur in the same contexts, and seem to be linked to a cult of chthonic nature\textsuperscript{65}. In three cases there is evidence of cult of the dead and chthonic cult, and deposition of child burials. Apparently, there was a psychological need to venerate the “powerful dead” and chthonic entities by means of cult (e.g. to appease them or to receive protection); presumably, as a result of the same need it was thought appropriate to bury children in the vicinity of these supra-natural entities. The scarce information we have about the Hygeionomeion plot can be easily fit into this broader picture. Like at the West Gate at Eretria, the “powerful dead” were a group of aristocratic burials\textsuperscript{66}. A stone structure may be associated with sacrificial meals held in their honour\textsuperscript{67}. Females perhaps carried out chthonic rituals. Another aspect of the veneration of these entities concerns the burial of infants in this area.

\textsuperscript{64} Ibid. 173.

\textsuperscript{65} See also Mazarakis Ainian, \textit{Rulers' Dwellings}, 314; \textit{id.}, \textit{'Excavations'}, 161. It may be clear that the material remains in these various contexts are very similar and must be the result of similar cult practices. The material also shows close parallels with other clear examples of cult of the dead/chthonic cult at contemporary sites, such as Kyme (the earlier-mentioned oval building A, MG II-LG) and the Areopagus at Athens (oval building [late MG I-early LG], with votive dump [7th c.]). Both complexes are in a burial location, and both yielded stone structures, much pottery, animal bones and organic material testifying to ritual meals, broken horse figurines, rounded off sherds (presumably \textit{pessoi}), etc. Cf. Sapouna-Sakellaraki, \textit{'Kyme'}, esp. 85-87: D. Burr, \textit{'A Geometric House and a Proto-Attic Votive Deposit'}, \textit{Hesperia} 2 (1933), esp. 545-547; H. Thompson, \textit{'Activity in the Athenian Agora: 1966-1967'}, \textit{Hesperia} 37 (1968), esp. 58-60. Also Antonaccio, \textit{Ancestors}, 121-125; Mazarakis Ainian, \textit{Rulers' Dwellings}, 122-123, 86-87. The Areopagus dump contained a terracotta plaque showing a female deity with raised arms, flanked by snakes (Burr, \textit{supra}, no. 277), which constitutes a cross-link with figurines found in the bothros in the heroon near Eretria’s West Gate, but has also links with the scenes on jars from the sacrificial area, see \textit{Eretria XIV}, vol. 1, 133, 160-161. Fragments of jars of this type have also been found in the heroon near the West Gate, in the bothros in O.T. 740, and at Oropos in the earlier-mentioned deposit between circular platform XXXVI and stone feature XXXIV, which can be linked to a hero cult centring on a possible cenotaph; \textit{ibid.}, 60, 120, 135-136, 149, with refs. Taken together, the evidence could indicate close associations in ritual and religious experience between cult of the dead (i.e. ancestors, deceased aristocrats, heroes, etc.) and veneration of supra-natural chthonic entities (‘demons’, netherworld deities, etc.).

\textsuperscript{66} For other examples of elite burials becoming the focus of cult, cf. Areopagus, Athens (see previous note): connected to an exclusive, perhaps even royal burial plot. Also Anavyssos: tripartite chthonian shrine enclosing the three richest tombs; burnt material and smashed pots were found over these tombs, \textit{op. cit.} n. 15; also Mazarakis Ainian, \textit{Rulers' Dwellings}, 145.

\textsuperscript{67} Note that Kourouniotis, \textit{'Αγγεία Ερέτριας}, 8-9 n. 4; also \textit{Prakt} (1898), 98, mentions two deep circular shafts (1.3m in diameter) filled with Geometric sherds and animal bones, both found in the vicinity of tombs, one in front of the later West Gate (Kanari plot, where he also discovered a cauldron cremation), the other close to the city wall (Karli plot, on the east side of the city wall). It is possible that these, too, contained the remains of ritual meals. In the latter area, Andreiomenou also found a pit with LG and SG fragments, which she interprets as potter’s refuse (‘Αψιδωτά οικοδομήματα’, 198).
STATUS OF THE HYGEIONOMEION PLOT

There is a chronological overlap between the graves that Kourouniotis excavated in the Hygeionomeion plot and those in the area of the later West Gate. This overlap allows us to make comparisons between these burial locations. In the first place, there are a number of similarities between them. Both plots were located on the west side of the settlement area, probably on a road leading to Chalkis. Even more important are the number of similarities in the grave accompaniments. Pottery was found in small quantities in the in situ cremations, and was altogether absent from the urn cremations near the West Gate. Among the more prestigious items, graves in both plots yielded personal ornaments of gold or silver, of which especially the gold diadems and gold-mounted scaraboid seals form a close match. Moreover, the possible horse tooth on the cover of tomb 9 near the West Gate is, symbolically speaking, akin to the horse skeleton found in the Hygeionomeion plot. On the other hand, there are a number of dissimilarities. A possibly significant difference is that graves in both plots contained spears, whereas only the males buried near the West Gate were buried together with swords. The most obvious disparity lies in the different amount of energy expended on primary and secondary cremations, respectively, and in the use of metal vessels that represent a high symbolic and material value. This, however, is not to say that in situ cremation marked a low social status and can be considered as a burial rite reserved for the non-elite. A good indication that this is not the case is the in situ cremation grave found near the temple of Apollo that belonged to a male buried with an iron sword (ca. 850-825 BC). It shows that in a somewhat earlier period, this burial rite was indeed considered appropriate for a warrior.

In this connection it may be added that in Geometric Eretria, inhumation was perhaps more widely practised than we may tend to think at first sight. As we saw earlier in our discussion of the burial plot near the later West Gate, inhumation was the appropriate burial rite for infants and young children occupying an elevated social status. In this connection we may also think of the MG II/LG I child inhumation discovered under House IV in Eretria's west quarter (Fig. 1: 9), containing three vases, a clay ball and an amber necklace. Also worth mentioning here is Kourouniotis' interesting suggestion regarding the presence of other tombs at Eretria.

69. See also the possible arch of a golden boat fibula in cremation tomb 6 near the West Gate, which seems to have a parallel in the specimen of silver from the West Cemetery referred to earlier (also mentioned in Eretria III, 14). Besides, could it be that the “small golden boat” that was reportedly found during the digging of the foundation trenches for the Hygeionomeion (Kourouniotis, ‘Άγγεια Ερέτριας’, 1) was part of a fibula?
70. Eretria III, 30.
71. According to Archilochos (fr. 3 West), “the spear-famed lords of Euboea” are experts at fighting with swords, and they refrain from using bows and slings. In contrast to bows and slings, spears and —especially— swords were offensive weapons that were used in close-hand fighting, and it was “close” fighting in particular that provided honour and served as proof of excellence, cf. Tyrtaios frs. 10.1-2, 11.28-35, 12 (West), with Crielard, op. cit. n. 7, 260-263.
He observed that broken Geometric pottery had come to light in "various cemeteries" and explicitly mentions an area on both sides of the ancient road to Chalkis where Geometric sherds could be seen lying on the surface. He suggested that these sherds probably belonged to tombs disturbed by later grave digging. Considering that these Geometric sherds lacked traces of burning by fire, Kourouniotis concluded that these destroyed tombs had been inhumations, adding that it was probably merely accidental that the part of the coastal cemetery he had excavated had yielded only cremation tombs. If we accept this hypothesis, this means not only that Geometric tombs had been dispersed over a much wider area, but also that inhumation was practised in addition to cremation, perhaps even on fairly large scale. This is important for our evaluation of the rite of in situ cremation. If Kourouniotis was correct in suggesting that inhumation was commonly practised in Geometric Eretria, we may conclude that in situ cremation represents a form of burial that required a more than average amount of effort (although less than secondary cremation).

If the above reconstruction is correct, the question is: what was the relationship between the groups using the Hygeionomeion plot and the cemetery near the West Gate? It is of significance that the latest of Kourouniotis' in situ cremations are contemporary with the earliest urn cremations near the West Gate. This allows us to hypothesise that the two plots belonged to rivaling elite groups. Perhaps we may even go as far as to suggest that the group burying its dead near the West Gate was able to outdo the other group by means of privileged burial rituals and more prestigious grave goods.

In 1977, A. K. Andreiomenou excavated another three in situ cremations on Od. Arist. Eratonymou. They were found immediately west of a curvilinear building of LG date (Fig. 1: 2). All three cremations were of adults. They contained MG II pottery (including Attic vases as well as hand-made pottery with incised decoration), probably dating to the second quarter of the 8th century. The western-most pyre yielded an undecorated gold band (see above). According to the excavator, they constitute the continuation of the necropolis excavated by Kourouniotis and —since no tombs were found further East— they were considered to represent the eastern limit of the West Cemetery.

The earliest of Kourouniotis' tombs overlap chronologically with these three in situ cremations. It is, however, far from certain that they are part of one large necropolis, and that Andreiomenou's graves constitute the eastern limit of this cemetery. It is not clear whether Geometric tombs were located in the area immediately to the west of Andreiomenou's in situ cremations. Moreover, the distance between Andreiomenou's cremation tombs and the city wall (which constitutes the eastern limits of Kourouniotis' excavations) is about 180m, and from there it may be another 200m to the tip of the promontory where Kourouniotis found his Geometric tombs. We may also question whether it is likely that already in the MG II period Eretria hosted such an extended cemetery. On that account, it is more plausible, in my view, that Andreiomenou's graves constitute a separate burial plot. The presence of a gold diadem

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74. Kourouniotis, 'Αγγεία Ερέτριας', 1, 6-7; also Kourouniotis 1898, op. cit. n. 1, 98. Later excavations in the area of the West Cemetery also yielded fragments of large Geometric vases, see Andreiomenou 1976, op. cit. n. 38, 207.

75. Andreiomenou, 'Αψιδωτά οικοδομήματα', 192-196, 233-234 (location: 192, with pl. 1: no. 5); ead., 'Ερέτρια geometrical, 154. Also Mazarakis Ainian, 'Ερέτρια', 6, with n. 18, suggesting that by the MG II period the east part of this cemetery was abandoned, probably due to the expansion of the Geometric settlement to the West.
in one of these tombs could be a reason to ascribe a high status to them. This impression is confirmed by the find in the same tomb of Attic MG II pottery fragments that seem to form a "dinner set" (amphora, krater, krateriskos, oinochoe, skyphos, pyxis; the amphora is a MG I "antique"). For the rest, however, the tomb contents are less conspicuous than those found by Kourouniotis in the Hygeionomeion plot.

LINKS WITH SETTLEMENT ORGANIZATION

Let us try to better underpin the above hypothesis of the existence of more than one elite burial plot. During the 9th and 8th centuries, Eretria probably consisted of an assemblage of dispersed habitation nuclei, to which one may link a number of corresponding burial plots. One such habitation nucleus is found in the area of the later Apollo sanctuary. The so-called Daphnephoreion (Fig. 8: Building 1), which goes back to the mid-8th century, is among the oldest structures in this area. On the analogy of evidence from contemporary sites, Mazarakis Ainian suggests that this building was originally the dwelling of a chieftain who in this period also performed certain cultic functions. Later, after the death of its last occupant, Building 1 was perhaps converted into a cult building and preserved as a memorial, next to the first Apollo temple.\(^76\)

Mazarakis Ainian further suggests that during Eretria's earlier history, the northern part of the settlement — namely the area of the later Apollo sanctuary — was inhabited by the higher social classes, who also buried their dead in this part of the settlement area. The earlier mentioned late 9th-century warrior burial found in the vicinity of the later temple could provide evidence of this. During the late 8th and the early 7th century, he assumes, the burial plot near the later West Gate was used by the aristocratic family living in the immediate vicinity of the later sanctuary.\(^77\)

The excavations carried out between 1998 and 2001 by Samuel Verdan have yielded additional LG remains in the area South of the temple (see Fig. 8)\(^78\) that are consistent with Mazarakis' hypothesis that this was the domicile of the upper class. Its earliest phase, dating to the mid-8th century, is represented by two apsidal structures (Buildings 1 and M6/M10) and a retaining/enclosure wall (M3). Inside M6/M10 much pottery was found, including the foot of a large krater, found \textit{in situ} on a square clay base.\(^79\) Pits Fo 69 (possibly linked to Building 1)

\(^77\). Mazarakis Ainian, \textit{'Eretria}, 20-21, 23; \textit{id., Rulers' Dwellings}, 61 n. 171, 354; also C. Krause \textit{'Naissance et formation d'une ville, Éretrie. Cité de la Grèce antique, Les Dossiers d'Archéologie} 94 (1985), 21. P. G. Themelis, \textit{'Ερετριός}, AE 108 (1969), 163, hypothesises that the area of the West Gate housed the living quarters of the aristocracy. Blandin ('Tombe à inhumation', 138–40) supposes that other elite tombs should be located between the West Cemetery and West Gate plot, but closer to the latter. She stresses (p. 138 n. 17) that Geometric settlement remains closer to the West Gate are to the E (plot O.T. 740) and S (apsidal structure, some 140m to the S of the heroon).
\(^79\). In support of his idea that this area was the domain of local aristocrats, Mazarakis Ainian ('Oropos, 200-
and Fo 44 (northwest of Building M6/M10) were filled with pottery fragments (large kraters, skyphoi, kantharoi) and refuse from meals (olives, grapes, grains, burnt bones). Although it is likely that both apsidal buildings were used for communal drinking and eating, it is difficult to establish whether this took place in a religious or domestic context. Indeed, such a distinction is probably irrelevant for this period. The fact is that finds from the south area of the sanctuary consist of hardly anything but ceramics, while ex votos like the ones found in the “sacrificial area” to the North of the Apollo sanctuary are virtually non-existent. Besides, the pottery includes a considerable quantity of coarse wares that could testify to certain domestic activities taking place in this area. At the same time, it is probably no accident that Building M6/M10 was oriented towards the altar to its East (Fig. 8: 12), as was the later hekatompedon (Fig. 8: 2). What this new evidence brings to light is that from the mid-8th century onwards the area of the Apollo sanctuary contained a cluster of at least five or six apsidal and oval buildings, surrounded by courtyard walls (see Fig. 8). In this area not only ritual and religious activities were carried out, but the area apparently also fulfilled domestic functions. Besides, in the northern part, a metal workshop (Fig. 8: 17) was located that produced objects that were not necessarily votive items or cult objects. It remains conjectural that this habitation quarter was the domicile of an elite, although the find of one or more buildings devoted to communal wine and meat consumption does support this idea.

The necropolis near the West Gate was situated somewhat more than 500m Northwest of the area of the Apollo sanctuary. If we turn to the Hygeionomeion plot (some 850m to the South), we see that the nearest known habitation nucleus is a cluster of structures that was located on the east part of a low hill close to the sea (Fig. 1: 3). The distance between settlement and tombs is more or less equal to that between the Apollo sanctuary and the West Gate (i.e. 400-500m). To this it should be added that Andreiomenou’s MG II in situ cremations were located even closer.

Mazarakis Ainian conjectures that the southern settlement nucleus was the residence of seafarers and other common folk. It is true that in comparison to the northern part of the settlement area the occupation was much more dense, showing less respect for previous structures. For the rest, the contrasts between the two quarters were not that stark. The southern settlement nucleus consisted of spacious curvilinear structures, some of which were replaced.

203, referring to Gisler, ‘Cesnola’ 49-50, 91-92) already pointed at the find of impressive decorated kraters in this area; one fragment was found in an undisturbed layer very near Building 1.

80. See Mazarakis Ainian, Rulers’ Dwellings, 61, 273.
82. For summary and chronology, see Mazarakis Ainian, Rulers’ Dwellings, 58-62, 102-4; Eretria XIV, vol. I, 22-25.
85. Immediately E of the in situ cremations, a curvilinear building was found (Fig. 1: 2), probably of LG date. Modern habitation hampers excavation of the entire area, but it is possible that the building was isolated from the ‘harbour quarter’ some 100m to its NE (Fig. 1: 3). See Andreiomenou, ‘Γεωμετρική κεραμεική’, II, 129; ead., ‘Αγίατο οικοδομίατα’, 233-234; also Mazarakis Ainian, ‘Eretria’, 6.
86. Mazarakis Ainian, Rulers’ Dwellings, 18-20.
ERETRIA'S WEST CEMETERY REVISITED

by rectangular ones around 700 BC\textsuperscript{87}. Associated with them was a host of painted pottery, including local pieces of high quality\textsuperscript{88} as well as imports from Attica, the Cyclades, the eastern Aegean and Cyprus\textsuperscript{89}. The same area where the Cypriot pottery came to light yielded three bull figurines, made of stone, faience and brass, respectively, and five beads of faience or coloured glass. It has been suggested that they are testimony to an unidentified sanctuary of the Geometric period\textsuperscript{90}.

Although the archaeological picture is very patchy, if we combine the evidence from settlement and cemetery there is not much in the way to attribute the coastal quarter to one of a number of sub-groups within the population of Eretria, which possibly had its own cult places and its own élite minority with its own élite burial ground, which was a place of veneration during much of the seventh and perhaps the early 6th century.

Other possible clusters of habitation during the later 8th and the earlier 7th century may be found in the area of plot O.T. 740 —where Themelis discovered curvilinear buildings (together with possible evidence of a tomb of the mid-9th century, \textit{bothroi} and child tombs, as discussed earlier)— and at the foot of the acropolis. In the latter area (F/5; \textbf{Fig. 1: 11}), J.-P. Descoeudres excavated two large buildings dating to ca. 700 BC, enclosed by a \textit{temenos}. One of them is an apsidal building (its interior is divided by a cross-wall, perhaps to create a more sacred inner-space in the northern apse; cf. buildings A at Kyme and \Theta at Oropos). A deposit of drinking vessels was buried in front of it during the first half of the 7th century, indicating that this building fulfilled a cultic function\textsuperscript{91}.

At a number of EIA settlements, the distribution of the remains of habitation and graves suggests the existence of clusters of detached villages or hamlets (or, at least, concentrations of buildings with open spaces between them), often with separate burial plots associated with them. It seems that this was the dominant settlement pattern until perhaps as late as the 7th century, especially in Mainland Greece (e.g. at Athens, Megara, Corinth, Argos and Sparta) but also in the Aegean (Eretria, Zagora on Andros, Miletos and Ephesos) and the colonial Greek world (Pithekoussai, Megara Hyblaea and Syrakoussai)\textsuperscript{92}. It is possible that at some sites of the 7th and 6th centuries individual clusters had their own sanctuaries (Miletos, Megara Hyblaea)


\textsuperscript{88} See Andreiomenou, 'Eretria geometrical, 153-156, for references and summary of the author's excavations at Eretria. We may single out here fragments of kraters, some belonging to very large examples (Andreiomenou, 'Γεωμετρική κεραμεική. ΠΙ, 135-136, 155-156 no. 23), others decorated with horse themes —including a possible charioteer— which are reminiscent of the Cesnola Painter's oeuvre; \textit{ibid.}, 155-161; \textit{ead.}, 'Γεωμετρική και υπογεωμετρική κεραμεική εξ Ερέτριας. IV', \textit{ΑΕ} 121 (1982), 182.

\textsuperscript{89} Andreiomenou, 'Γεωμετρική κεραμεική', 208-9; \textit{ead.}, 'Αψιδωτά οικοδομήματα', 219; \textit{ead.}, 'Γεωμετρική και υπογεωμετρική κεραμεική εξ Ερέτριας. V', \textit{ΑΕ} 122 (1983), 182.

\textsuperscript{90} Andreiomenou, 'Γεωμετρική κεραμεική. II', 129 n. 1; also Mazarakis Ainian, 'Eretria', 14; \textit{id.}, \textit{Rulers' Dwellings}, 314.

\textsuperscript{91} Mazarakis Ainian, 'Eretria', 6-10; \textit{id.}, \textit{Rulers' Dwellings}, both with refs.

or even separate fortifications (Corinth)\textsuperscript{93}. This form of spatial organization coincides with Aristotle's remark that the nascent Greek \textit{poleis} were formed from a partnership of villages or hamlets (\textit{komai})\textsuperscript{94}. But what is of particular interest for the present discussion is the social organization of these settlements. The relevant questions are: what was this clustering based on, how were these nuclei related in social terms, and what social groups can be expected to have inhabited these settlement clusters?

For what it is worth, Aristotle makes some remarks also on this aspect of the early \textit{polis}. He says about the clusters of \textit{komai} from which the early \textit{polis} was born, that each was under the rule of kings. He seems to have had in mind the image of a number of stratified micro-societies that together formed a polis community. But Aristotle was also acquainted with a very different type of settlement organization that is characterised by social segregation and is probably more firmly based on a historical situation. He tells us that in Archaic Naxos, the town was the domain of the wealthy, while the rest of the population lived in villages in the countryside\textsuperscript{95}. A similar situation of social segregation seems to underlie his remark that, while the acropolis is convenient to oligarchy and monarchy, and the plain to democracy, neither of these suits the aristocracy, "but rather a certain number of fortified places"\textsuperscript{96}.

So, what about the social structure underlying the aggregate of habitation nuclei at Eretria during the 8th and the 7th century? According to some authors, each of the three clusters or hamlets could be assigned to one of the three original Eretrian tribes\textsuperscript{97}; others prefer to attribute the various cemeteries to smaller social entities, like family groups\textsuperscript{98}. I should like to suggest a model that incorporates the evidence from both the settlement and the cemetery and takes into consideration the revised interpretation of the West Cemetery suggested in this paper, using the Homeric epics to render some details of this picture. In general, a habitation nucleus or \textit{komé} would contain the houses and households of several families, possibly including members of the élite (we seem to encounter this situation also in the Central Quarter at Oropos; see the less conspicuous buildings situated around chieftain's dwelling Θ). If gold bands do indicate élite tombs, those found dispersed over the settlement area of Eretria (Od. Arist. Eratonymou on the coast, Alexandri and Vouratsa plots near the agora, the Museum area in the North) may be attributed to these aristocratic individuals. Perhaps we may add to this the two locations where fragments of monumental vases were found (the area of House IV in the Northwest, O.T. 740 in the North). This leaves us with a relatively high concentration of aristocrats living in the early \textit{polis} settlement, but this is not \textit{a priori} impossible, as Aristotle's remark about Archaic Naxos shows. On the other hand, the cluster of buildings located in the area of the Apollo sanctuary may have belonged exclusively to one or more élite households. Perhaps we may even assume that if the male members of the élite can be referred

\textsuperscript{93} Lang, \textit{op. cit.} n. 92, 171, 198-199; De Angelis, \textit{op. cit.} n. 92, 37-38; F. E. Winter, \textit{Greek Fortifications} (Toronto & Buffalo 1971), 64.

\textsuperscript{94} Arist., \textit{Pol.} 1252b: "Η δ' ἐκ πλειώνων κωμῶν κοινωνία τέλειος πόλις".

\textsuperscript{95} Arist. fr. 558 (Rose).

\textsuperscript{96} Arist., \textit{Pol.} 1330b: "αλλά μάλλον ισχυροί τόποι πλείους".


\textsuperscript{98} S. Verdan, in \textit{Épôtrie guide}, 21. For the West Gate cemetery, see also Coldstream, GG, 197: "powerful \textit{genos}"; cf. \textit{Eretria III}, 31: war band of "war lord and his squires".

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to collectively as *basileis*, the households living in the area of the Apollo sanctuary and burying their dead near the West Gate (perhaps the same group) were *basileuteros* in comparison to the other aristocratic families\(^9\). The Hygeionomeion plot possibly belonged to a rivalling élite group that also included warriors and received a cult status in later times. However, those who buried their dead near the later West Gate were apparently able to outbid the other élite families by claiming a prominent burial location and more exclusive burial rites.

99. In Homer, some individuals or families are said to be more "kingly" (βασιλεύτερος) than others: *Iliad* 9.160, 392 (cf. 9.69: βασιλεύτατος); *Odyssey* 15.533.
Fig. 1. Plan of Eretria showing important locations of the 9th to early 7th c. BC, drawn by J. Fokkema on the basis of Mazarakis Ainian, *Rulers' Dwellings*, fig. 101; *Eretria XIV*, vol. II, pl. 2; G. Le Rider & S. Verdan, *AntK* 45 (2002), 135 fig. 1.

**Key**

- Classical city wall
- present coastline
- Geometric coastline (hypothetical)
- river course (hypothetical)
- Geometric structure
- Geometric pottery
- cremation
- *enchytrismos*
- inhumation

1. Hygeionomeion plot
2. Od. Arist. Eratonymou
3. “Harbour quarter”
4. Alexandri and Vouratsa plots
5. Apollo Daphnephoros sanctuary
6. Northern sacrificial area
7. Plot O.T. 740
8. Heroon near West Gate
9. Area of House IV
10. Archaeological Museum
11. Area F/5
Fig. 2. Eretria: burial plot near West Gate (after C. Bérard, Eretria III, pl. III).
Fig. 3. Gold bands found at Eretria (not to scale).

a. Hygeionomeion plot (NM 12153 = Ohly E 4);
b. Hygeionomeion plot (NM 12154 = Ohly E 1);
c. Hygeionomeion plot (NM 11720 = Ohly E 5);
d. West Gate, t. 14,4;
e. Northern sacrificial area (071-074).

Fig. 4. Neck of a monumental amphora (MG II/LG I) found under House IV at Eretria (after K. Reber, *AntK* 42 (1999), 129 fig. 2).

Fig. 5. Oropos, Central Quarter: plan of “Heroon” (after Mazarakis Ainian, ‘Excavations’, 163 fig. 8).

Fig. 6. Burial amphora from West Cemetery at Eretria (after J. Boardman, ‘Pottery from Eretria’, 25 fig. 21e).
Fig. 7. Eretria, building plot 740
(after P. G. Themelis, Prakt (1983), pl. 6).
Building 1: so-called 'Daphnephoreion', ca. 750-early 7th c.
Building 2: hekatompedon, ca. 740/720-early 7th c.
Building 5: LG
Building 9: LG
Structure 12: altar, MG II/LG-Archaic
Building 17: bronze worker's workshop, ca. 750/725-700
Building M6/M10-M4: ca. 750-
Structure 19: retaining/enclosure wall, contemporary with hekatompedon (?)

Structure 20: in situ cremation, ca. 850-825
Structure 45: "altar" of the northern sacrificial area, ca. 740
M3: retaining/enclosure wall, ca. 750
M5: division wall, ca. 740 (?)
Fo 36: pit, ca. 740 (?)
Fo 44: large pit, ca. 750-740 (?)
Fo 69: pit, LG
À PROPOS DES SÉPULTURES EN VASE D’ÉRÉTRIE *

Béatrice Blandin

Cette étude est consacrée à l'examen d'un type de sépulture que l'on rencontre abondamment sur le site d'Érètrie. Il s'agit des trouvailles que l'on appelle habituellement « tombes en vase », « tombes en jarre » ou encore « tombes à enchytrisme ». Ce mode d'ensevelissement est attesté à Érètrie à partir du VIIIème siècle; il y perdure au moins jusque vers le milieu du VIème siècle. Nous ne nous intéresserons ici qu'aux vestiges de la période géométrique et du début du VIème siècle.

Notre recherche se développe en trois parties : il s'agit tout d'abord de définir le mode d'ensevelissement étudié, de préciser ensuite l'identité des défunts, d'examiner enfin les différents types de récipients employés pour constituer les tombes. En conclusion, nous comparerons les tombes à enchytrisme d'Érètrie à celles mises au jour sur le site voisin et contemporain d'Oropos, en prêtant une attention toute particulière à leur localisation. Notons qu'à ce jour, aucune sépulture de ce genre n'est apparue sur le site de Lefkandi.

* Nous remercions le Professeur A. Mazarakis Ainian qui nous a offert la possibilité de présenter une communication à l'occasion de cette table ronde organisée à l'Université de Thessalie. Nos recherches sur le site d'Érètrie peuvent être menées à bien grâce aux facilités accordées par Madame A. Karapaschalidou, directrice de l’Éphorie des Antiquités Préhistoriques et Classiques d’Éubée. Nous savons gré à l’École suisse d’archéologie en Grèce et à l’École française d’Athènes de leur soutien.

ABBREVIATIONS:

1. Prakt 1897, 21-22 ; Prakt 1898, 96-97 ; Kourouniotis, 'Άγγελα Ερέτριας', 30 ; Boardman, 'Pottery from Erétrai', 13 ; Andreiomenou, 'Ερέτρια II', 197-212.
DESCRIPTION DES TOMBES

Les sépultures à enchytrisme que l'on rencontre à Érétrie au VIIIème et au début du VIIème siècles sont constituées d'un vase en céramique à l'intérieur duquel repose le défunt. Ces tombes abritent exclusivement des enfants. Leur corps est introduit, par l'embouchure, dans un récipient qui a été préalablement couché sur le côté (Fig. 1). Dans la grande majorité des cas, les pieds du défunt se trouvent vers le fond du vase tandis que la tête repose du côté de l'ouverture. Il est difficile de fournir des indications précises concernant la disposition des corps. En effet, peu de tombes étaient suffisamment bien préservées lors de leur découverte et ont été fouillées avec assez de minutie pour apporter des éclaircissements sur ce point2. On peut suggérer toutefois, sur la foi de quelques cas, que les défuntas étaient plutôt placés en décubitus latéral ou dorsal.

Après la déposition du corps, le récipient céramique est placé en position horizontale au fond d'une fosse creusée dans le sol. Le vase est parfois calé à l'aide de pierres de petites dimensions. Bien que l'orientation des tombes soit sujette à variation, on note cependant une tendance à placer l'ouverture des récipients vers l'Est. L'embouchure des vases est habituellement obstruée avec soin, que ce soit avec une simple pierre, un gros tesson, un petit vase (par exemple un skyphos ou une jatte) ou parfois avec un couvercle en céramique parfaitement adapté au récipient qu'il surmonte (Figs. 2-3).

À Érétrie, le dépôt d'offrandes est inhabituel dans les sépultures à enchytrisme. Les rares objets qui constituent le mobilier sont des vases miniatures de type très commun. Il s'agit essentiellement de tasses3. Les offrandes sont habituellement déposées à l'intérieur du récipient, près du corps. Il arrive néanmoins que des vases soient déposés dans la fosse, à côté du vase funéraire. La tombe est ensuite remblayée, très vraisemblablement avec la terre précédemment excavée. Ce procédé expliquerait pourquoi le tracé des fosses a été, à plusieurs occasions, difficile à percevoir lors de la fouille4. Dans certains cas, la couche de remblai contenait des nodules de charbon; on signale aussi la présence de particules charbonneuses à l'intérieur de certains récipients5. L'interprétation de ces vestiges est compliquée par le manque de description précise (« ιχνη πυράς ») et par l'absence de prélèvement. Il ne semble pas que ces nodules

2. Les fouilleurs n'ont jamais bénéficié de l'appui d'un anthropologue si bien que les ossements, lorsqu'ils ont subsisté, ont souvent été prélevés sans avoir fait l'objet d'un relevé précis et parfois même sans avoir été photographiés.

3. Kourouniotis, 'Αγγεία Ερέτριας', 5, 25-26, pl. 10 ; Boardman, 'Pottery from Eretria', 2 (et 11 no. 1) ; Andreiomenou, 'Ανασκαφή αρχαίων οικοδομών', 210 fig. 48, 211 n. 68, 213 fig. 55.

On signale la présence, dans certaines sépultures d'Oropos, de fibules et de petits vases, Mazarakis Ainian, 'Oropos (1985-87, 1996), 90, pl. 28y, 110 ; Prakt (1999), 57-59 ; id., 'Excavations', 166 et la contribution de V. Vlachou dans ce volume.

4. Nous ne disposons que de peu d'informations sur la forme et les dimensions des fosses. Les fouilles conduites à Oropos ont fourni, en revanche, des indications relativement précises sur ce sujet (voir notamment Mazarakis Ainian, 'Excavations', 166 et l'étude de V. Vlachou).

soient accompagnés d'ossements animaux. Il est donc peu probable qu'il s'agisse de vestiges de sacrifices ou de repas funéraires.

Notons enfin la présence d'un petit amas de pierres qui repose au-dessus d'une sépulture mise au jour dans la parcelle Roussos, en bord de mer. À Érétria, les *semata* que nous avons recensés surmontent, dans la plupart des cas, des tombes d'individus adultes. Ces derniers sont ensevelis dans des aires funéraires placées à distance de l'habitat et les marqueurs qui couronnent la sépulture peuvent avoir des dimensions imposantes. Le modeste aménagement qui surmonte la tombe à enchytrisme de la parcelle Roussos se distingue donc des autres marqueurs non seulement parce qu'il surmonte la sépulture d'un très jeune enfant, mais aussi parce que ce dernier est enseveli dans une zone habitée.

À Oropos, des marqueurs sont aussi apparus dans les aires d'habitation : des tumuli signalent l'emplacement de certaines tombes mises au jour dans le Quartier Central.

Avant d'aborder la question de l'identité des défunts, il est utile de faire un petit mise au point concernant des récipients qui sont apparus lors de fouilles d'urgence conduites dans la moitié occidentale de la rue Eratonymou et dans la parcelle O.T. 29β, c'est-à-dire au Sud-Ouest du site, à proximité du littoral (Fig. 4). Une certaine confusion règne, en effet, autour de cette série de récipients.

Les tombes en vase découvertes lors de la fouille de la rue Eratonymou et dans l'O.T. 29β ont été considérées, dans un premier temps, comme des urnes cinéraires, c'est-à-dire des récipients qui auraient renfermé les ossements d'individus incinérés sur un bûcher. Cette interprétation a été réfutée par la suite : la découverte, dans la même région du bord de mer, de sépultures d'un type semblable et contenant assurément des ossements humains de petites dimensions a suggéré, en effet, que les vases en argile précités avaient probablement servi, eux aussi, à ensevelir de jeunes enfants. Il est évident que seule une analyse détaillée du contenu...
des vases aurait permis de lever toute ambiguïté sur la nature de ces tombes12. Puisque c'est
chose désormais impossible, il convient de se fier aux dires de l'archéologue que semblent
d'ailleurs confirmer certaines de nos observations. Cinq arguments nous paraissent appuyer
l'interprétation des trouvailles de la rue Eratonymou et de la parcelle O.T. 29β comme des sé-
pultures d'enfants à enchytrisme :

1. L'absence —au moins apparente— d'ossements. Il semble que le contenu des vases n'ait
pas livré d'ossements humains brûlés ou du moins identifiables comme tels par quelqu'un qui
n'est pas formé en anthropologie. Or, on constate que les portions osseuses provenant d'inciné-
inations mises au jour ailleurs sur le site sont relativement bien conservées (et donc reconnaiss-
able), même lorsque les os ont été découverts en pleine terre, c'est-à-dire dans des sépultures
to incinération primaire. Il est donc difficile d'expliquer comment les ossements récoltés après
la crémation —et donc précisément identifiés parmi les restes du bûcher lors de l'ostéologie—
puis déposés dans une urne protectrice, seraient devenus, dans le cas précis des fouilles de la
rue Eratonymou et de la parcelle O.T. 29β, totalement méconnaissables.

Dans le cas d'inhumations d'enfants, l'absence de matériel osseux serait en revanche peu
surprenante. Il est bien établi que les squelettes des jeunes individus, plus fins et moins calcifiés
que ceux des adultes, ont tendance, au fil des ans, à disparaître, surtout si le terrain dans lequel
ils sont déposés est acide.

On peut donc formuler l'hypothèse que ce sont les particules charbonneuses que l'on re-
trouve dans et autour de certaines tombes d'enfants en jarre qui ont pu conduire à identifier ces
découvertes comme des incinérations en urne13, mais aussi, peut-être, une comparaison rapide
avec la pratique, bien attestée et bien diffusee dans les nécropoles d'Attique, de l'incinération
en urne de terre cuite.

2. La position couchée de la plupart des recipients. Le dépôt des vases sur le flanc s'ex-
plique aisément dans le cadre d'une sépulture à inhumation où l'on se préoccupe de déposer
le corps du défunt horizontalement. La présence de petites pierres destinées à caler certains
recipientstémoine du soin que l'on prenait, d'ailleurs, à disposer le vase dans une position
adéquate14. Relevons cependant qu'un recipient de la rue Eratonymou et quatre autres exem-
plaires de la parcelle O.T. 29β ont été retrouvés en position verticale15. Il est établi toutefois que
l'on ne peut se fier à la seule orientation verticale du vase pour en déduire qu'il renfermait les
ossements d'un individu incinéré\textsuperscript{16}: une autre fouille conduite à Érérie a livré un vase placé verticalement qui contenait des ossements d'un enfant inhumé\textsuperscript{17}.

3. L'emplacement des sépultures, non loin d'édifices contemporains, est également un indice qui semble confirmer l'identification des vases de la rue Eratonymou et de l'O.T. 29β comme des tombes à inhumation d'enfant\textsuperscript{18}. L'incinération, primaire ou secondaire, est pratiquée exclusivement, à Érérie, pour les individus adultes. Or, toutes les sépultures d'adultes de l'époque géométrique recensées à ce jour sur le site, quel que soit leur type, se situent dans des aires funéraires qui se trouvent disséminées à la périphérie de l'habitat. Ce sont en revanche les enfants, qui n'appartiennent pas encore à la communauté, mais qui sont considérés comme appartenant à la famille, qui sont ensevelis à proximité des maisons au VIII\textsuperscript{ème} siècle. Les découvertes de la parcelle Roussos le confirment.

4. Nous n'avons aucune attestation de la pratique de l'incinération en urne de terre cuite à Érérie pour le début de l'Âge du Fer. Rappelons, par ailleurs, que les incinérations en urne d'argile sont également rares sur le site de Lefkandi. Leur présence explique sans doute par une influence attique\textsuperscript{19}.

5. On relèvera enfin, même si cela n'est pas un argument de poids, que depuis les fouilles de la rue Eratonymou et de la parcelle O.T. 29β (années 1970), le nombre de tombes d'enfant en vase n'a cessé de croître.

Il n'est pas inutile de rappeler que les fouilleurs du Quartier Central à Oropos se sont trouvés confrontés à des difficultés comparables à celles que nous venons de dresser pour la région d'Érérie. En l'absence d'analyses anthropologiques, il a été difficile de préciser l'identité de certains défunts enterrés dans des vases à proximité d'habitations. Les chercheurs ont également révélé que l'incinération est apparue pour le début de l'Âge du Fer\textsuperscript{20}.

\textit{16.} A. Andreiomenou a suggéré que des vases en céramique grossière placés en position verticale à proximité d'édifices étaient probablement des récipients de stockage. Cette hypothèse doit effectivement être envisagée. C'est l'altitude des vases par rapport au niveau de sol et surtout l'analyse de leur contenu qui permet de clarifier leur fonction. En outre, il semble plus vraisemblable que les vases de stockage soient déposés à l'intérieur des édifices qu'à l'extérieur de ces derniers (Andreiomenou, 'Γεωμετρική κεραμεική', 206 n. 4).

\textit{17.} Tombes inédite de la parcelle Roussos (F/12).

\textit{18.} Les trouvailles de la parcelle Roussos à Érérie fournissent un parallèle intéressant tout comme les fouilles menées sur le site d'Oropos. Voir également infra.


\textit{20.} Mazarakis Ainian, Oropos (1985-87, 1996), 85, 90 (à propos de la tombe à enchytrisme IV), 98-99 (à propos de la tombe à enchytrisme XXβγ), 108-109 ; id., 'Oropos', 205 et n. 110 et 206 ; Prakt. 1999, 59 ; id., 'Excavations', 166. L'analyse du remblai de certaines fosses a révélé que la couleur grisâtre n'était pas nécessairement due à une contamination par des vestiges brûlés (cendres), mais pouvait résulter d'une modification de toute autre nature, même lorsque l'on observait la présence de particules de charbon, v. id., 'Oropos' (1985-87, 1996), 96 (à propos des fosses XV et XVI).

\textit{21.} Voir la contribution de V. Vlachou.
IDENTITÉ DES DéFUNTS

Ce sont des considérations empiriques sur les dimensions des ossements humains, conjuguées aux proportions des récipients employés pour constituer les tombes, qui ont conduit à attribuer les sépultures en vase d’Érètrie à des enfants. Une campagne d’analyses anthropologiques a toutefois permis d’apporter quelques précisions sur l’âge de ces jeunes défunts. Il est ainsi apparu qu’il s’agissait tantôt d’enfants morts-nés ou même morts avant terme, tantôt d’enfants décédés au cours de leurs tous premiers mois d’existence. A partir du VIIème siècle, il semble que l’on ensevelisse dans des tombes à enchytrisme également des enfants plus âgés, ce qui semble aller de pair avec l’emploi de vases de dimensions plus importantes.

Le fait que des enfants morts-nés ou mort avant terme aient été ensevelis dans des tombes en vase, soit dans des sépultures qui nécessitent quelques préparatifs et aménagements, mérite d’être souligné. Cela indique très clairement qu’à Érètrie, le droit à la sépulture est acquis à la naissance. Dès sa venue au monde, l’enfant est considéré comme un être à part entière et comme un membre de la famille.

On signalera les cas intéressants de deux sépultures doubles. On peut supposer qu’il s’agit de tombes de jumeaux : les squelettes avaient des proportions et des dimensions identiques et la dépôtion des corps s’est faite en un laps de temps bref. Dans un cas, l’analyse des ossements a permis d’établir qu’il s’agissait de nouveaux-nés. Dans la seconde tombe, les deux crânes, retrouvés superposés, étaient intacts, ce qui donne à penser qu’il s’agit d’enfants plus âgés.

LES RÉCIPIENTS EMPLOYES POUR CONSTITUER LES TOMBES

Les récipients employés au VIIème siècle pour constituer les sépultures à enchytrisme sont, dans leur écrasante majorité, des récipients en céramique grossière. Il s’agit de cruches ou d’amphores (Figs. 1-2). Ces vases sont fabriqués dans une argile à gros dégraissant, caractéristique des pots à feu. Leur forme est toujours très simple, peu articulée. Le fond est plat, parfois légèrement bombé, la panse rebondie, le col peu marqué et l’embouchure légèrement déversée. Les anses — généralement en bandeau — sont larges et massives, c’est-à-dire conçues pour faciliter la manipulation du récipient. On relèvera que ces objets ne comportent aucune ornemen-
tation si ce n'est, dans certains cas, une dépression ovale située au niveau de l'attache inférieure de l'anse, probablement exécutée par pression du pouce dans l'argile encore malléable.

Des cruches et des amphores en tout point semblables à celles que nous venons de décrire ont été mises au jour dans des contextes variés (domestique, artisanal et cultuel). Cette diffusion confirme ce que lon pouvait déjà pressentir au travers de la facture des vases, à savoir que les amphores et les cruches qui ont servi à ensevelir des enfants sont des récipients communs, largement répandus et qui n'ont aucune particularité funéraire. Il arrive que des exemplaires présentent, près de leur fond, des traces de surchauffe. Cela donne à penser que lon a parfois réemployé un vase qui avait précédemment été exposé à la flamme pour ensevelir un petit défunt.

On comprendra mieux, dans ce contexte, que deux sépultures à enchytrisme du VIIème début du VIIème siècle retiennent particulièrement l'attention. Les tombes en question sont constituées d'un vase en céramique fine, habilement tourné et orné d'un décor peint (Fig. 3)\textsuperscript{26}. Il s'agit, dans un cas comme dans l'autre, d'amphores d'un type particulier : ces dernières sont dotées d'un pied haut conique, d'une panse ovoïde, d'un col particulièrement développé et d'une large embouchure. Les anses, gracieuses en regard des proportions du vase, sont fixées sur l'épaule. La forme des amphores répond apparemment autant à des critères esthétiques qu'utiles. Le décor comprend des motifs géométriques qui sont fréquents sur la céramique contemporaine.

Il est inutile d'insister davantage sur la différence de qualité de ces amphores et des vases modèles en argile grossière. Néanmoins, pour apprécier pleinement l'originalité des deux amphores peintes employées pour ensevelir des enfants, il importerait de déterminer si ce type de vase est attesté à Érètrie dans des contextes autres que funéraires. Mais il est relativement difficile de répondre à cette question pour deux raisons : la céramique mise au jour sur le site est très fragmentaire. Identifier une amphore peinte à pied conique sur la base de tessons aux dimensions souvent réduites s'avère par conséquent malaisé, voire impossible. A cela s'ajoute le fait que la céramique mise au jour sur le site n'a pas toujours fait l'objet de publications détaillées. Par conséquent, notre appréciation de la diffusion de ce type de vase est moins objective que celle des récipients en céramique grossière. \textit{A priori}, il ne semble pas que les amphores peintes à pied conique constituent une forme céramique particulièrement répandue entre la fin du VIIème et le début du VIIème siècle. On signalera, à titre de comparaison, que l'habitat de Zagora, qui a livré de la céramique géométrique très proche de celle découverte à Érètrie, n'a fourni aucune amphore du type qui nous intéresse\textsuperscript{27}. Les fouilles du Quartier Central à Oropos n'ont pas non plus livré de vases de ce genre.

\textsuperscript{26} Amphore peinte apparue dans la rue Eراتοmyou, Inv. 16638 α et β, déjà publiée notamment dans Andreiomenou, 'Αμφορεύς και κρατήρ. La seconde amphore a été mise au jour dans la parcelle O.T. 740, Inv. 15429, voir Prakt (1979), 51-52, pls. 32-33a (la planche 32β est publiée à l'envers). Une bonne photographie en couleur de ce récipient est publiée dans E. Sapouna-Sakellaraki, Eretria. Site and Museum (Athens 1995), 74 pl. 55.

Comme l’a déjà relevé A. Andreiomenou, il est intéressant de mettre en relation les deux amphores peintes à pied conique avec une série de trouvailles postérieures28. Les fouilles conduites à la fin du XIXème siècle, au Sud-Ouest du site d’Érétrée, ont livré une série d’amphores de style SG et orientalisant29. Ces vases présentent des affinités morphologiques frappantes avec les récipients de tradition géométrique examinés précédemment : même pied conique, même panse ovoïde et large embouchure. À cela s’ajoute le fait que nombre d’amphores SG et orientalisantes ont été découvertes en contexte funéraire ; ces récipients, couchés sur le côté, renfermaient eux aussi les squelettes de petits enfants30. Le parallélisme entre les deux vases de tradition géométrique et la série postérieure est donc frappant à plus d’un titre31.

En dépit du contexte de découverte de l’écrasante majorité de ces amphores SG et orientalisantes, il a été suggéré qu’il s’agissait de vases réemployés pour constituer des tombes d’enfant32. On a parfois proposé y reconnaître des semata33. Cette thèse ne nous semble pas entièrement convaincante pour les raisons que voici :

– Le caractère conservateur de la forme des amphores peintes conjugué à leur présence redondante dans des sépultures d’enfants peuvent difficilement être le fruit du hasard34. En outre, il parait difficile d’imaginer un « dépouillement organisé » des semata d’une nécropole, sur plus d’un siècle, afin d’enrober des enfants.

– Bien que les marqueurs placés au-dessus des sépultures soient particulièrement exposés et ne résistent qu’occasionnellement aux aléas du temps, on notera l’absence de vestiges d’amphore à pied conique, au-dessus des sépultures du VIIème siècle découvertes à Érétrée.


32. J. Boardman est prudent dans son appréciation. Il écrit en effet: « Their use, as originally intended, may not have been funerary, but it was certainly not utilitarian … » (Boardman, ‘Pottery from Eretria, 13).

Cette même fonction première est proposée pour des amphores peintes qui contenaient des squelettes d’enfants, mises au jour dans la nécropole de Paros. Dans ce cas, le pied conique manque, ce qui suggère un remploi (Zaphiropoulou, ‘Nécropole’, 139 et 141 fig. 20, 142 figs. 21-22, 145).


34. La série des amphores à pied conique érétriennes commence en effet à la fin du VIIème siècle et se poursuit jusque vers le milieu du VIème siècle.
La nécropole de Mendé a livré des tombes en jarres modelées dans une argile grossière et en jarres peintes de motifs géométriques. J. Vokotopoulou notait à ce propos : « L'usage d'ensevelir les petits enfants dans des vases peints vient probablement d'Érètrie. Certains pithoi portent une décoration purement géométrique directement associée à la tradition de la Macédoine Centrale (...). L'organisation de la décoration peinte sur les amphores et les jarres rapproche ces œuvres gracieuses de la production et de l'esprit des Cyclades et de Corinthe plus qu'à ceux de la métropole de Mendé, Érètrie ». On relèvera que dans la nécropole de la colonie érétrienne, largement fouillée, aucune sépulture du VIIème siècle ne semble avoir été surmontée d'un sema constitué d'une amphore peinte montée sur un pied conique.

Il convient de mentionner également une découverte effectuée dans le premier établissement éubéen en Occident, plus exactement dans la nécropole de la Valle di San Montano à Pithekoussai. La tombe 1000 de cette aire funéraire est constituée d'une amphore de production locale, qui imite les vases érétriens montés sur pied conique. Ce vase abritait une inhumation d'enfant. En outre, aucune amphore peinte montée sur pied n'est attestée comme sema dans la nécropole pithekussaine. Les tombes y sont signalées au moyen de tumuli.

À Paros, des enfants ont également été inhumés dans des amphores dites « méliennes ». Selon Ph. Zaphiropoulou, ces amphores seraient des réemplois. L'archéologue relève néanmoins : « Notons encore la grande mortalité enfantine et en même temps la grande tendresse des adultes envers leurs enfants : très souvent les tombes les plus soignées étaient celles des enfants ; fréquemment, parmi les tombes à ciste d'adultes se trouve un beau vase mélien bien décoré dans lequel on a inhumé un enfant... ».

Force est donc de constater que les amphores peintes de « type érétrien » apparaissent de manière récurrente dans les nécropoles d'Érètrie, de Mendé, mais aussi occasionnellement à Pithekoussai. Elles y figurent toujours, à notre connaissance, dans des sépultures d'enfants. Dans les Cyclades, on observe une tradition comparable avec les amphores dites « méliennes ».

L'ampleur de ce phénomène ne serait-il pas un indice du fait que des amphores peintes à pied conique ont été conçues pour ensevelir des enfants ? Est-il pertinent d'attribuer systématiquement aux vases retrouvés dans des tombes à enchytrisme une fonction primaire de marqueur parce qu'ils sont ornés d'un décor figuré ? Les funérailles, on le sait, ont un enjeu...
social. Elles sont souvent l'occasion d'affirmer la position sociale du défunt mais aussi l'importance de la famille à laquelle ce dernier appartient. Cela se perçoit particulièrement bien dans les différents modes d'ensevelissement des adultes, mais aussi, parfois, dans ceux des défunts plus jeunes. Ainsi, à Érètrie, on constate que la tombe 14 de la nécropole de l'Hérôon abrite un enfant âgé de 9 ± 3 mois, qu'accompagne un mobilier étonnamment riche : un collier de 50 perles de verre, deux bracelets en bronze plaqués d'une feuille d'or, une épingle en or, un diadème du même métal avec un décor orientalisant et trois récipients céramiques. La tombe 14 est, par ailleurs, une tombe à fosse qui est dotée d'un aménagement particulier : les parois de l'excavation sont recouvertes de 5 couches d'argile crue. Or, on observe, à l'échelle du site, que les enfants qui appartiennent à la même classe d'âge sont habituellement ensevelis dans des tombes à enchytrisme. Lorsque du mobilier les accompagne, il s'agit de pièces céramiques modestes. La famille du défunt de la tombe 14 — qui appartient à l'élite de la communauté comme l'attestent les incinérations en chaudron voisines — a donc délibérément adopté un mode d'ensevelissement inaccoutumé à l'occasion des funérailles de l'un de ses plus jeunes membres.

Forts de cette constatation, on peut supposer que le choix du récipient employé pour ensevelir le défunt et celui de son iconographie pourraient être un biais auquel certaines familles recourent, à partir de la fin du VIIIe siècle, pour affirmer le statut à part de leurs enfants.

Si, au cours du VIIIe siècle, il semble que l'on emploie essentiellement des récipients de type usuel (cruches et amphores en céramique grossière), on perçoit une transformation à partir de la fin du VIIIe siècle au travers de l'emploi d'amphores en céramique fine, montées sur pied conique et dotées d'un décor peint géométrique. A partir du VIIe siècle, nombre de vases employés pour ensevelir les enfants sont dotés d'un pied conique souvent découpé, d'une panse ovoïde, d'un col large et développé et d'une embouchure de grand diamètre. Certains récipients sont fabriqués dans une argile à gros degraisant ; ils sont donc montés à la main ou au tour lent et ornés d'un décor incisé (Fig. 5) ; d'autres sont en argile fine, tournés avec adresse et portent un décor peint (Fig. 3).

orientalisant, un certain nombre d'enchytrismes en pithoi. La forme de ces vases modèles dans une argile grossière fait écho à celle des amphores (pied conique parfois découpé, panse ovoïde, col et embouchure larges). Ces pithoi sont parfois ornés de motifs géométriques incisés (swastikas, zigzags, motif en arête de poisson...) et d'adjonctions plastiques (cordes, mammelons). Leur présence n'a pas paru incongrue dans des tombes d'enfants et aucun archéologue n'a suggéré qu'il s'agissait de *semata* réemployées pour inhumer des enfants. À notre connaissance, les pithoi à pied conique ne sont attestés à Érètrie, qu'en contexte funéraire. Mais il faut relever que les données concernant l'habitat du début du VIIe siècle sont trop maigres pour permettre de tirer des conclusions définitives. La présence en contexte funéraire d'une forme de vase qui a pu être employé dans d'autres contextes ne sous entend pas nécessairement que les récipients découverts dans les nécropoles sont des reemplois.


LOCALISATION DES SÉPULTURES À ENCHYTRISME DU VIIIÈME SIÈCLE

Les tombes d'enfant en vase sont les sépultures les mieux attestées sur le site d'Érètrie en raison du caractère inaltérable des récipients de terre cuite qui les constituent et, par conséquent, de la bonne visibilité de ces vestiges.

À Érètrie, les sépultures à enchytrisme sont apparues de manière récurrente à proximité immédiate de murs de pierres sèches. Ces soubassements, de plan absidal ou rectiligne, ont été interprétés, le plus souvent, comme des vestiges d'habitat. Il est important de souligner que les ensevelissements sont contemporains de l'utilisation des bâtiments.

Édifices et sépultures se côtoient également dans la fouille du Quartier Central, sur le site voisin d'Oropos: autour de structures dévolues à des activités artisanales (travail du métal et production céramique) et de bâtiments correspondant à des habitats, sont apparues une trentaine de sépultures qui abriteraient, pour la plupart, des enfants. Certains de ces jeunes défunt étaient enterrés, comme à Érètrie, dans des cruches ou dans des pithoi en céramique grossière, mais on note également la présence de quelques tombes à fosse et de deux tombes à ciste. D'après A. Mazarakis Ainian, le Quartier Central d'Oropos était celui d'un clan relativement puissant qui contrôlait les activités métallurgiques.

L'association sépulture d'enfant en vase - habitat et structure artisanale est donc patente et récurrente tant à Érètrie qu'à Oropos au VIIIème et au début du VIIème siècle. Il y a toutefois une zone qui fait curieusement exception. Il s'agit du chantier du sanctuaire d'Apollon à Érètrie, une aire qui a livré de nombreux édifices d'époque géométrique: on y constate une absence totale de tombe d'enfant en vase. Même dans la partie Nord-Ouest, où l'on a travaillé le métal, les sépultures à enchytrisme font entièrement défaut. Comment expliquer cette absence ?

44. Il n'est pas exclu que des activités artisanales aient aussi été pratiquées en ces lieux.
45. Les fouilles conduites le long du bord de mer illustrent particulièrement bien ce phénomène.
46. Mazarakis Ainian, 'Excavations', 161, 165 ; id., 'Péripolès'.
50. Mazarakis Ainian, 'Excavations', 166 ; id., 'Péripolès', 197 avec références. Les tombes à fosse sont bien attestées à Érètrie, mais le plus souvent elles se trouvent dans des aires funéraires (Blandin, 'Tombes à inhumation').
À PROPOS DES SEPULTURES EN VASE D’ÉRÉTRIE

particularité ? À la suite des études d’A. Mazarakis Ainian54, il ne semble pas que l’on puisse rendre compte de l’absence de tombe enfant en invoquant le caractère sacré de l’ensemble de la région fouillée. Les murs de péristole sont bien attestés dans la zone du sanctuaire dès la première moitié du VIIIème siècle. Ils délimitent clairement plusieurs espaces. Si l’on admet que le chantier du sanctuaire d’Apollon abritait un quartier d’habitation où résidaient des membres éminents de la communauté, on peut alors suggérer que ces derniers ont, pour des questions de prestige, choisi d’ensevelir leur progéniture à l’écart de la zone habitée, peut-être même dans des aires funéraires spécifiques55 ? Nous avons mentionné plus haut le cas particulier du défunt de la tombe 14 de la nécropole de l’Héraon. L’existence même de cette sépulture « hors norme » vient à l’appui de l’existence de modes d’ensevelissements particuliers à l’élite. A. Mazarakis Ainian avait déjà proposé de reconsidérer, dans les défunts de la nécropole de l’Héraon, les habitants de la zone du chantier d’Apollon, en se fondant sur les sépultures des adultes : « I am tempted to link the honours presented to the deceased “leader” and his relatives with the earlier instance of the pious preservation of Building A when the monumental temple of Apollo was built ca. in the beginning of the last quarter of the 8th c. One could even assume that Building A had been the residence of the “leader” who was accorded a Homeric funeral and was later honoured like a hero by the West Gate »56. C’est une thèse séduisante, mais qui demeure hypothétique puisque nous ne connaissons qu’une partie de l’habitat et des aires funéraires du site.

Ces quelques constatations sur les sépultures à enchytrisme ouvrent, nous semble-t-il, des perspectives de recherche intéressantes sur l’évolution de la perception de l’enfant, sur sa place dans la communauté, mais aussi sur le statut de l’image à l’époque archaïque.

scories et coulures de bronze, des fragments de creusets (?) et de tuyères ainsi que des déchets ferreux et cuivreux indiquent également l’existence d’activités métallurgiques (S. Verdan, ‘Fouilles dans le sanctuaire d’Apollon Daphnéphoros’, AntK 45 (2002), 129 fig. 2 sondage 20, 130).

55. Nous n’avons à disposition que peu d’indices pour établir un lien entre les différents noyaux d’habitation et les aires funéraires.
Fig. 1. Parcelle Roussos, tombe en cours de fouille, Inv. F/12–61.196.
À PROPOS DES SÉPULTURES EN VASE D’ÉRÉTRIE

Fig. 2. Parcelle O.T. 740, enchytrisme constitué d’une amphore en argile grossière fermée avec un petit vase en céramique fine, Inv. 15437.

Fig. 3. Od. Eratonymou, enchytrisme en amphore peinte avec couvercle conique, Inv. 16638a.
Fig. 4a. Plan d'Érètrie dans la première moitié du VIIIème siècle (ESAG).
À PROPOS DES SÉPULTURES EN VASE D’ÉRÉTRIE

Fig. 4b. Plan d’Érérie dans la seconde moitié du VIIIème siècle (ESAG).
Fig. 5. Maison aux mosaïques, enchytrisme en pithos, Inv. E/5-218, V 421.
OROPOS: THE INFANT AND CHILD INHUMATIONS FROM THE SETTLEMENT (LATE 8TH – EARLY 7TH CENTURIES BC)

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INTRODUCTION

Excavations in the area of Skala Oropou have brought to light extensive architectural remains of the EIA (8th and 7th c. BC). Within the settlement, which consists of a series of enclosure walls and a number of oval, apsidal, round and rectangular structures, various pits, as well as other assemblages were unearthed (Figs. 1-2).

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ABBREVIATIONS:
Thorikos VIII = H. F. Mussche, J. Bingen, J. Servais & P. Spitaels, Thorikos VIII. Rapport préliminaire sur les 9e, 10e, 11e et 12e campagnes de fouilles (Gent 1984).

1. Most of the pits were found and investigated during the excavation of the foundations of the school buildings I (to the E, which was never built) and IV (to the W). During 1985 pits I-Xla were excavated, in 1986 pits XII-XXVII, in 1987 pits XXVIII-XXXIII, in 1996 pits XXXIV-XXXVI, in 1998 pits XXXVII-XL, in 1999 pits XLI-XLI and finally during the 2001 excavation season burials I and II of the West Quarter. For the excavation reports see Mazarakis Ainian, 'Oropos (1985-87, 1996)', 85-111, fig. 17, pls. 28-36; id., 'Ανασκαφή Σκάλας Ωρωπού', Prakt (1998), 65-67, pls. 24-27; id., 'Ανασκαφή Σκάλας Ωρωπού', Prakt (1999), 56-59, pls. 38-40; id., 'Oropos (2001)', 41-42, pls. 26β, 27α.
Most pits served for infant and child inhumations, while a small number seems to have served other functions: deposit-pits (III, V and X1-6, in the area N of Buildings A and B-I), pits with auxiliary use within the households (pits XXXI and XXXV inside the main rectangular enclosure —walls 23/27/32/61— and pit XXXVII, which, most probably is related with the exterior area of Building Θ during its second phase of use). A series of pyres were also identified (VII, XXIVa, XXVa and XXXVIII), the use of which is probably related to metalworking activities and the manufacture of clay vases.

In this paper only the pits related to infant and child inhumations will be discussed. Most of them were excavated in the Central Quarter, two were investigated in the South Quarter and two more in the West Quarter of the excavation area (Fig. 2a-b). The burials belong to three distinct types: 1) shallow pits and shaft graves, 2) deep pits and 3) cist graves. With the exception of the shaft and cist graves, inhumation inside small coarse jugs and pithoi (enchytrismoi) constitutes the general rule for the burials inside the settlement. All pits and burials can be dated from the second half of the 8th c. BC to the end of the first decade of the 7th c. BC, that is to say phases 1 to 5 of the settlement that will also form the chronological framework of our discussion (Fig. 3).

THE TOMBS

Shallow pits and shaft graves

Eleven shallow pits were excavated in the Central Quarter and two more in the West, all containing the funerary vases of infant and child enchytrismoi. The burials may be distinguished into two groups: the burials of group A (XXb-c, XXI, XXII, XXIV, XXV, XXXII, XXXIX) belong to phases 3 and 4 of the habitation quarter. During the former they were concentrated at the N and NE of the settlement, at some distance from the dwellings, while during the latter they are basically restricted to the East of the inhabited area. The pits were usually...
oval or round in shape\textsuperscript{5}, with a diameter of 0.60m and a depth of 0.30m. A small coarse jug, usually one-handled, and in one case a coarse amphora, around 0.35m high, with a belly 0.25m in diameter was placed on the side at the bottom of the pit\textsuperscript{6} (Figs. 4-6). All vases bore traces of fire around the base and the lower part of the body, an indication that they had been previously used, probably for cooking. Few bone fragments belonging to infants were found inside most of the vases\textsuperscript{7}, while neither the vases nor the pits contained any offerings. The funerary vases were usually sealed with a piece of a broken coarse vase, usually from the base, or with a small drinking vessel, usually incomplete. There is no particular orientation of the vases inside the pits. After their deposition, the pit was filled with earth. Few sherds and occasionally few animal bones were gathered from the fill\textsuperscript{8}. No covering (of stones or pebbles) associated with the pits was found, nor some kind of marker. The evidence of the human remains found inside the vases, along with the small size of the funerary urns, leave no doubt that newborns were buried there.

The burials of group B (IV, IX, XIII and burials I and II of the West Quarter) belong to the 5th phase of the settlement. In the Central Quarter the shallow pits were found to the North of buildings A and B, while in the West Quarter the pits were found at the West, outside the enclosure wall (walls 90/95). Two small one-handled coarse jugs (pits I, XIII), two undecorated pithoi around 0.70m high, with a belly 0.50m in diameter (pits II, IX), and a pithos (pit IV) with rich incised decoration\textsuperscript{9} served for the burials (Fig. 7a-b). The pithoi were sealed with a

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\item In just one case the shaft of the burial XXXII was rectangular in shape (dimensions 0.65 x 0.45m).
\item For the coarse amphora: A. Mazarakis Ainian, Prakt (1998), pls. 26-27a. In one case, the upper part of a painted amphora was found (pit XXV), in an upright position, but no safe conclusions can be reached as to its use since the area was disturbed by the later pit XVIIa.
\item Among the 8 enchytrismoi of this group, only in two cases no traces of human bones were found inside the burial vases. All bones were badly preserved, having a brownish colour. Dr A. Papathanassiou, who examined all the human bones from the funerary pits, concluded that the vases contained the burials of newborns and infants, aged between 0-1 year old.
\item Dr K. Trantalidou is currently studying the animal bones from the excavations of Oropos (see her contribution in this volume). The presence of animal bones among the upper layers of burial pits is not unusual. Cf. tombs 12 and 17 from the cemetery of the West Gate at Eretria. Eretria III, 33, 46.
\item Mazarakis Ainian, 'Oropos (1985-87, 1996)', pl. 28a-β. Coarse pithoi with incised decoration often served as funerary vases for infant and child burials. In the publication of the Hygeionomeion cemetery (close to the shore) at Eretria, Kourouniotis mentions twenty coarse pithoi with incised decoration, found whole or in pieces. All of them were used as funerary urns for child burials. Kourouniotis, 'Αγγεία Ερέτριας, 26, fig. 10; Boardman, 'Pottery from Eretria', 11, fig 16b-h. Andreiomenou mentions child burials in coarse pithoi with incised decoration among the dwellings that she excavated at the southern area close to the shore. Andreiomenou, 'Ερετριανή κεραμική', pl. 53β (a): edd., 'Αψιδωτά οικοδομήματα', 210 fig. 51, 211 n. 71, 212, 214 figs. 58-59; Mazarakis Ainian, 'Ερέτρια', 4, text fig. 1 and 12, no. 1. A total of seven pithoi-amphorae with incised decoration and high fenestrated foot served for child burials at the necropolis of Mende in Chalkidike. This type of funeral vases is also compared with the similar vases from Eretria. S. Moschonissioti, 'Εγχώρια διακοσμημένη κεραμική από το νεκροταφείο της αρχαίας Μένδης στη Χαλκιδική' in EIA Aegean, 280-281. This group of 'Eretrian' pithoi is generally dated to the end of the 8th and the beginning of the 7th c. BC.
\item According to J. Boardman the high fenestrated foot of the Eretrian pithoi seems to be typical at Eretria. The coarse pithos from burial IV at Oropos had also a fenestrated foot, now broken and missing, judging from the traces around its base. It is 0.51m high (the pithoi from Eretria are 0.53 to 0.89m high) with a rather rich incised decoration around the rim, the neck and the belly, as well as five equal-spaced nipples around the belly. It is probable that the foot was already broken before the funerary use of the vase. I wish to thank Jean-Sébastien Gros for sharing with me his observations on the pithos from Oropos.
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round stone. No skeletal remains were detected inside the small jugs. Some bone fragments and some teeth were found inside the pithoi, belonging, according to Dr A. Papathanassiou, to young children around 5 years old, while inside the pithos of burial II of the West Quarter, the skeleton of a child aged between 4 and 5 years old was preserved, placed in a contracted position, with the legs towards the bottom of the vase and the head towards its opening.

Offerings accompanied the burials of this group in contrast to the burials of group A: a small monochrome skyphoid cup was placed along with the skeleton of the child of burial II; an ivory spectacle fibula was found on the belly of the pithos from burial IV, which was probably once contained inside the vase; an almost complete skyphos of the Euboean type found in the area of the disturbed burial XIII might also represent a similar offering. Quantities of fragmentary pottery, deriving almost entirely from drinking vessels, animal bones and charcoal were mingled with the earth that covered the pits.

Along with the enchytrismoi two shafts graves were excavated (XXa, XXIII), dating to phase 3 of the settlement (Fig. 8). They contained the burials of small children placed directly at the bottom of the shafts. They were rather oblong in shape and of small dimensions, reaching a depth of ca. 0.40m. The interior sides of pit XXa were coated with red clay; an almost rectangular sandstone that was found in two pieces inside the grave could represent the cover stone of the shaft. Only few bone fragments, badly preserved, were gathered and some teeth. No burial offerings were related with these pits either, as in the case of the shallow pits of group A.

In the area of the later Buildings A and B, the burial of an individual around 16 years old was detected. What was unusual about this burial was its location in an area where no other earlier, contemporary or later adult burials were detected, within the limits of the habitation plot, where only infant and child burials were found. Additionally, the individual was

10. Pit XIII was found some meters to the NE of pit XII. The area of the burial was disturbed, with the funerary jug broken and the other finds mingled with the stones that once most probably formed the stone cairn. Mazarakis Ainian, 'Oropos (1985-87, 1996)', 94-95, pi. 31a.

Close to the funerary jug of burial I of the West Quarter part of the skull (the frontlet) of a small animal was found. The area where the jug was found was also disturbed. A. Mazarakis Ainian, 'Oropos (2001)', 41-42.

11. Some bone fragments and a tooth were found inside the pithos of burial IV. The area of pithos burial IX was found disturbed, with the funerary pithos broken in several pieces and the other finds, probably once inside the vase, scattered in the area, which does not allow to reach safe conclusions.

12. For burial II see Mazarakis Ainian, 'Oropos (2001)', pl. 27a. For the ivory fibula from burial IV see id., 'Oropos', fig. 24. For burial XIII see id., 'Oropos (1985-87, 1996)', 94-95, pls. 31a, 32a. As the area of the burial was found disturbed and the skyphos was found broken in several pieces, it is not clear whether it represents a burial gift or was broken deliberately inside the pit during the burial ceremony.

13. The dimensions of pit XXa were 1.20 x 0.85m with a NE-SW orientation, and of pit XXIII 0.95 x 0.48m.

14. Red clay and mud bricks were also used for the interior faces of tombs 14 and 20 of the cemetery near the West Gate at Eretria. A stone found at the bottom of tombs 17, 19 and 20, of the same cemetery may have also once served for the covering of the tombs. Eretria III, 35, 46.

15. Mazarakis Ainian, 'Oropos (1985-87, 1996)', pl. 30a. A. Dragona notes in the excavation journals that the skeleton of a young child was detected on the bottom of the shaft grave XXa, with the head to the S (XXIII, 22, 1986, 47). The bones were gathered some days later, discoloured and in bad condition, making her wonder whether they were burned or not (diary XXIII, 22, 1986, 273). Dr A. Papathanassiou, who examined the bone-fragments, coming mostly from the skull, concluded that they belonged to a child no older than 5 years old. To a child of the same age belonged the bone fragments that were gathered from grave XXIII.
placed in a contracted position, on the contrary to the contemporary funerary customs¹⁶. The burial can be safely dated to the LG period, as it was found immediately to the South of Wall 40, which seems to be slightly earlier than the burial and dates to the LG period.

Sizeable deep pits

All the deep pits were found in the Central Quarter. From the twelve pits excavated, five form a homogenous group with no apparent connection to the child burials (pits XIV, XV, XVIII, XXXa and XXXIII). They all date, according to the stratigraphical sequence, to the first phase of the settlement, which cannot be securely associated with architectural remains (Fig. 3). They were conical or round-shaped, ±0.90m in diameter and their depth varied from 0.95m to 1.30m. Some river stones, usually 2 to 4 were found in all cases 0.90m higher than the bottom of the pits, marking a fill of grey earth. No finds were mentioned from inside the fill, except for pieces of charcoal. A hypothesis is that they may represent the traces of circular clay bases which could belong to constructions made out of perishable materials, like the flimsy huts that are considered to form the phase before the stone foundations found at the Roussos plot at Eretria¹⁷.

Five deep pits (XIX, XXVI, XIX, XLII, XLIII) form a rather unique type of burial,
unparalleled from elsewhere\textsuperscript{22}. They were conical and in one case cylindrical in shape (pit \textit{XIX}), with a diameter at the upper surface varying from 1m to 1.40m. Their depth varies from 1.15m to 1.75m and as a rule their bottom reaches down just above the presumed virgin soil\textsuperscript{23}. The pits were filled with grey earth, immediately after the burial according to the evidence of the pottery\textsuperscript{24}. Animal bones, as well as charcoal and seashells\textsuperscript{25} were found inside the pits; these were usually restricted to the upper levels of the fill and were mingled with small quantities of broken pottery (Fig. 9).

A pile of medium-sized river stones covered the upper surface of pits \textit{XXVI} and \textit{XLII} – \textit{XLIII}. Whether a covering of perishable materials had been used for the rest of the pits is difficult to determine, as no such traces have survived. Two pits (\textit{XXVI} and \textit{XIX}) had their interior faces coated with red clay\textsuperscript{26}. In two cases there was evidence for a floor lining: the bottom of pit \textit{XIX} was dressed with a layer of red clay, while that of pit \textit{XLII} was formed by parts of a large coarse pithos, overlapping one another.

Close to the bottom of the pits, a small coarse jug (usually ca. 0.30m. high, with a belly 0.20m in diameter) was encountered, placed on the side (Fig. 10a-c). A few river stones (one to four) and in some cases fragments of large pithoi and mud bricks were found around and over the coarse jug. Quantities of fragmentary fine and hand-made pottery were found close to the coarse jug as well as in the upper layers of the fill. No cover for the opening of the coarse vases was found in place. Some parts of coarse ware found near the vases may have been used for such a purpose.

Inside the jug of pit \textit{XLIII} some bone fragments were detected, extremely fragile and discoloured, as all the skeletal remains found in the site. The study of those bone fragments indicated that not a post-term infant but a premature, which died sometime less than full term, was inhumed inside the vase. Consequently, all the other pits of the same type, with small coarse jugs placed at the bottom of the pits in the same manner, could probably be interpreted in the same way. The absence of physical remains from the interior of the remaining coarse jugs does not necessarily exclude such an interpretation as the poor preservation or the total absence of skeletal remains from infant and child inhumations is something common\textsuperscript{27}.
Close to the bottom of pit XXVI, two coarse jugs were found, one placed on the side, and the other standing in an upright position. It is difficult to say whether this is a case of a twin burial, as no skeletal remains were detected. However, twin burials are usually made inside one vase and not separately\(^2\); consequently this probably represents an offering to the deceased. Immediately to the N, pit XIX had its interior faces coated with red clay. Close to the bottom, where a coarse jug is usually encountered, a small oinochoe was found, placed on the side, a monochrome cup and some river stones. One could suggest that some alternative mean of disposal was used replacing the coarse jug, even though no such traces were detected\(^3\), or that the burial was made directly on the bottom of the pit, which was also coated with a layer of red clay.

It is not easy to identify markers for those pits. As mentioned above, small stone cairns were found in some cases, which distinguish those pits from the others. Whether such cairns were also used for the covering of the rest of the pits and probably destroyed or removed for some reason later on, is difficult to say. However, the use of stone covers is not unusual at the site: a sandstone once covered shaft grave XXa, a stone slab covered cist grave VI, a disturbed stone cairn was covering shallow pit XIII. A small painted amphora set on the side was placed close to the upper surface of pit XII (Fig. 11a-b). The interior of the pit was also filled with grey earth, including small charcoal fragments, some animal bones and numerous sherds. The lower part of the amphora was missing, while the interior was filled with earth. Even though A. Dragona interpreted the amphora as the grave marker (τέμνα), the presence of a rounded stone beneath the neck of the amphora suggests that the vase was originally placed on the side and the stone was set there as a support, leaving no doubt as to its funerary use\(^4\). The position of the amphora close to the upper surface of the pit is in any case unparalleled at the site (Fig. 12a).

bones of the skeleton', suggesting that "the fetus may have been partially protected within the mother's body". M. A. Liston & J. K. Papadopoulos, 'The "Rich Athenian Lady" was Pregnant. The Anthropology of a Geometric Tomb Reconsidered,' Hesperia 73 (2004), 7-38.

Few bone fragments were found inside the vases of child burials, placed among the foundations of the buildings inside the settlement by the shore at Eretria. In a few cases no skeletal remains are mentioned. Andreiomenou, 'Ἄμφορεύς και κρατήρ εκ της Γεωμετρικής Ερέτριας', Prakt (1980), 97, 98 figs. 5-6. See now B. Blandin, Espace des vivants, demeures des morts. Les pratiques funéraires d’Eretria à l’époque géométrique, Thèse, Université de Lausanne (Lausanne 2005), and her contribution in this volume.


28. For twin burials inside one vase: A. K. Andreiomenou, 'Ἀμφορεύς και κρατήρ εκ της Γεωμετρικής Ερέτριας', Archaioignosia 1: 1 (1980), 167-174, pls. 9-10 α-β. See also the contribution of B. Blandin in this volume.

29. Eretria III, 49.

30. Coarse ware as well as fine amphorae served as funerary vases of infants and young children within the settlement at Eretria as well as at the necropolis close to the shore. Andreiomenou, 'Γεωμετρική κεραμική', pl. 64 Γ; ead., 'Ἀμφορεύς και κρατήρ εκ της Γεωμετρικής Ερέτριας', 198, 220-221 fig. 74, 223; Kourouniotis, 'Ἀγγέλλα Ερέτριας', 4-5, 28-38. See also the contribution of B. Blandin in this volume. At the necropolis of the San Montano Valley at Pithekoussai fine amphorae served for the same purpose. Ridgway, Western Greeks, 51.

The possibility of a twin burial, one inside the pit and a second inside the amphora, does not seem likely, as no traces of a burial vase or of a single burial were detected inside the pit.
Two more deep pits XVI, XVII were detected to the South of Buildings A and B-Γ (Fig. 12b), but they were only partially excavated, due to technical reasons during the excavation and consequently cannot be studied with the same group of pits as much information is missing. A thin layer of ashes that is mentioned from the upper fill of those pits (with no other comments in the excavation journals) is a unique element that unfortunately cannot be confirmed and evaluated.

Cist graves

Only two graves of this type were excavated, unfortunately both of them disturbed. For grave XI, close to the northern end of Wall 32 of the rectangular peribolos only the stones once limiting the area of the tomb were found. Tomb VI was found at the East of Building ΙΣΤ. Three stone slabs formed the three sides of the grave, while a fourth one seems to have served as the cover. Two complete cups and a kantharos were placed close to the stone slabs limiting the side of the grave as well as the neck and rim of an unpainted amphora placed towards the centre of the grave.

THE DISTRIBUTION OF BURIALS INSIDE THE SETTLEMENT

All burials discussed here belong to phases 2-5 of the settlement, namely from the first period that architectural ruins can be detected, until the period of the expansion of the settlement. On the basis of the finds, and mostly of the pottery, as well as of the stratigraphical sequence between the burials, the dwellings and the free space around them, an absolute chronology is proposed here for those phases, ranging between 760/750 and 690 BC (Fig. 13).

The burials were found in the periphery of the dwellings, at some distance from them and always outside the areas enclosed by the enclosure walls. As only two burials were found in the West Quarter, some general conclusions can be reached primarily in relation to the burials from the Central Quarter that represent a rather significant group.

In the Central Quarter, during the 3rd phase, five burials were found in the area Northeast and East of oval Buildings I and E as well as the circular structure ΙΔ, the use of which is probably associated with the two oval buildings. The burials were located outside the enclosure wall (Walls 60/69/70/76) which was probably still in use during that time.

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31. They were both of the conical type, with a diameter around 1m, excavated for only 0.90m in depth. The excavation of the pits was never completed and was unfortunately restricted to the upper levels only, due to technical reasons during the excavation in the area.

32. Mazarakis Ainian 'Oropos (1985-87, 1996)', 91, pl. 29α-β. The stone was set horizontally over the west end of the south side of the tomb, and it does not seem likely that this was the marker of the tomb, as A. Dragona had initially supposed. The tomb measured 0.55 x 0.45m and may have extended a few meters to the West, as nothing was framing that side.


34. The two burials that were excavated in the West Quarter provide additional information as to the organisation of the burials in relation to the dwellings and the periboloi and confirm the conclusions already reached for the Central Quarter. In the discussion only the best documented burial pits are considered.

35. Op. cit. n. 4. No traces of the enclosure Wall 69/70 were found underneath the later Building Θ, which
or families that lived in Buildings I and E buried their dead infants and children close to the inhabited area. Three shallow pits that contained small funerary jugs\textsuperscript{36} and two shaft graves\textsuperscript{37} were unearthed. During the 4th phase the number of buildings and structures of the Central Quarter multiplied. Two buildings, A and B, were erected side by side at the West, while at the East a rectangular peribolos (Walls 23/27/32/61) of rather big dimensions enclosed two new Buildings IA and Θ, as well as a number of circular constructions. Seven burials were found to the East of the inhabited area, close to the burials of the previous period: five burials in small jugs\textsuperscript{38} were found, while two deep pits (XIX, XXVI) make their first appearance at the Southeastern corner of the settlement. Once again the burials were made close to the dwellings but outside the enclosed area. They may relate to the buildings inside the rectangular peribolos and probably to Building ΙΣΤ to the South of the peribolos.

During the 5th phase the number of burials is almost the double compared to the previous phases. All burials are detected in the area North and South of Buildings A and B. Five deep pits were found on the South and Southeast (XII, XVI, XVII, XLII and XLIII), while three burials in shallow pits were excavated North and South of this building unit (pithoi burials IV, IX and pit XIII). One cist grave (VI) was found on the East of the circular construction IZ, which was erected over Building ΙΣΤ, which had passed out of use. It is rather difficult to establish a relation between the burials and the buildings of the period, although, the burials found in the periphery of Buildings A and B appear to be related to them\textsuperscript{39}. In the West Quarter, two burials (I, II) probably belong to the same period; these lay to the West and Northwest of the dwellings, outside the peribolos wall (Walls 83/90/95).

It seems that the distribution of burials inside the inhabited area relates to the organisation of the space, imposed in most cases\textsuperscript{40} by the erection of enclosure walls, which apparently served a variety of functions (especially for protection against inundations), though the most important, according to A. Mazarakis Ainian, relates to social organization\textsuperscript{41}. Based on the division of the various dwellings into oikos units surrounded as a rule by enclosure walls, one could associate the burials found in proximity to the dwellings but always outside the enclosed areas with those oikos units. This hypothesis is based upon to the general idea that the differential burial of infants and children reflects the family’s dominant role\textsuperscript{42}. As those burials probably indicates a leveling of the area before the construction of the building and that of the rectangular enclosure Wall 23/27/32/61.

36. Enchytrismoi XXXII, XXXIX and XXV. Infants (0-1 year old) were buried inside the coarse, funerary vases. The case of pit XXV remains uncertain for the reasons exposed above (op. cit. n. 6).

37. Shafts XXa and XXIII. Children, not older than 5 years old, were buried at the bottom of the shafts.

38. Enchytrismoi XXb, XXy, XXI, XXII and XXIV. No bones were found inside the vases of pits XXb and XXI. Infants (0-1 year old), according to the skeletal remains, were buried inside the remaining coarse jugs.


40. No enclosure wall has been attributed to the unit composed by Buildings A and B.

41. A. Mazarakis Ainian, 'Γεωμετρική Ερέτρια. Αρχιτεκτονική, πολεοδομία και κοινωνική οργάνωση', in AETHSE 1 (2003), 956-957, 961-962; id., 'Architecture.'

42. Hertz, one of the earliest to argue for a differential mortuary treatment according to the social character of the deceased, that is to say the social character of the person within the living society, regarded the death of children to "provokes only a very weak social reaction which is almost instantaneously completed". R. Hertz, Death and the Right Hand (1907. Translated by R. & C. Needham, Ill. 1960), 82-84. Binford wrote some years ago in his theoretical study of the mortuary practices: "when a child dies within a society in which social position is not inherited, very few duty-status relationships outside of the immediate family are severed. The level of corporate involvement in the
are regarded more as a family affair every burying group is rather likely to be related with the building unit closer to it, which would probably belong to the family. According to Mazarakis Ainian, the number, type and size of these units could reflect the economic or social status of each family. The comparative study of the burials and their finds, as will be shown below, leads to the conclusion that the evidence from the burials coordinates well with that from the settlement as to the economic and social status of the oikoi during the late 8th and early 7th c. BC.

OFFERINGS – BURIAL RITUAL

No offerings can be attributed to burials associated with phases 2-4. Infants and children were either inhumed inside coarse jugs that were most probably previously used within the household, or directly on the bottom of the shaft and cist graves. On the contrary, a number of sherds were found close to the bottom of the two deep pits of phase 4: a monochrome cup (pit XIX) and a kotyle of the Aetos 666 type (pit XXVI) were reconstructed out of numerous sherds, while an entire small trefoil oinochoe (pit XIX) and a coarse jug (pit XXVI) were also collected. One cannot tell if the vases were thrown and smashed inside the pit during the burial, before the pit was filled up or were deliberately positioned there. However, their presence there distinguishes those burials from the simple inhumations of the same period.

Numerous fragments of vases of good quality were found inside the deep pits of the 5th phase; during this same period the pithos with incised decoration (IV) and a painted amphora (XII) were used as the burial vases, while offerings were placed with the pithoi and cist burials. The fragmentary pottery found inside the pits, apart from the entire funerary urns, consists of drinking vessels such as, kantharoi, skyphoi, kotylai and cups, kraters and oinochoai, while other shapes are extremely rare. Judging from the example of pit XLII, fragments from the same vases were gathered from the bottom, the fill and the cairn covering the pit (Fig. 14). This strongly suggests that these vases were broken outside the pit. A small gathering, probably of the family of the deceased, during the burial, which would have included drinking and perhaps eating, is a rather likely hypothesis. The vases were presumably afterwards deliberately smashed and mingled with the earth, with which the pits were finally filled. Charcoal, animal bones and in one case seashells that were found inside the pits, could represent the remains of such humble “funeral feasts”.


43. Mazarakis Ainian, 'Architecture'.

44. For stone cairns above the tombs, as well as for the perideipna, a reference has already been made to the case of Pithekoussai. Mazarakis Ainian, 'Excavations', 166, n. 71. Pithekoussai I. See also id., Όι πρώτοι Έλληνες
Intact vases placed deliberately close to the deceased as offerings were found only in relation to burials of children dated to the 5th phase. Inside cist grave VI, two complete cups and a kantharos were placed close to the sides of the grave. An ivory spectacle fibula found on the belly of the pithos-burial IV, probably once belonged to the family of the deceased child. In the area of the burial XIII an almost complete skyphos was found, broken in various fragments, and a fragmentary cup containing some charcoal and the horn of a small animal. Inside the pithos of burial II of the West Quarter a monochrome skyphoid cup was found. No toys or other items generally considered to be associated with children were found within the burials.

It is evident from the above that the pottery, found either intact or fragmentary, related to the burials of the 5th phase is much more sophisticated than that of the previous phases. During the same phase various buildings and structures were in use both in the West and the Central Quarters, the finds from the interior of the dwellings as well as the free space around them appear to be more numerous than before and the burials are multiplying. The general impression is that the settlement reaches during this period its peak of expansion and prosperity, which is also reflected in the burials of this period. Grave goods such as the ivory fibula, elaborate funeral vases, as the pithos with rich incised decoration, probably an import from Eretria, and the small painted amphora of pit XII, an Athenian import, as well as a number of sherds of fine pottery found inside the pits reflect the rather elevated status of the family groups. The absence, however, of a consistent and distinct burial ritual for the dead infants and children suggests that these burials were regarded as a family affair.

THE AGE OF THE DECEASED

Although it is difficult to predict social structures based on the presence of infant and child burials within settlements or organized burial areas, the separation of dead infants and children from the rest of the dead is of great importance in order to understand the functioning behaviour of those communities. The probable organisation of the dwellings at Oropos in oikos units, in combination with the existence of groups of child burials at some distance from the dwellings and always outside the enclosure walls, indicates that the burial of children was a private family affair that would probably take place within the environs of domestic sphere.

45. The disturbed pithos burial IX is not discussed here and consequently no safe conclusion can be reached.
46. The area of burial XIII was disturbed. The stones of the stone cairn that once covered the burial were dismantled and the burial jug was found broken in several pieces, as well as the pottery. However, it is most probable that the reconstructed skyphos and the cup were positioned there as offerings to the dead.
47. Blandin, 'Tombes à inhumation', 142-143; S. Houby-Nielsen, 'Child burials in ancient Athens', in J. Sofaer Derenski (ed.), Children and Material Culture (London & New York 2000), 153-155, on the choice of grave goods according to the age of a child at death in Athens. She notes that infant burials were provided with vases for food, while "the small and older child with toys, and the older with items relating to its unattained adult gender role".
48. Sourvinou-Inwood 1983, op. cit. n. 42, 44-45, where she argues that "small children's deaths affected only the close family, for they have no social persona and almost no extra-familial social relationships"; ead., 1995, op. cit. n. 42, 430-431; Ridgway, Western Greeks, 52; Binford, 'Mortuary practices, op. cit. n. 42, 233-234.
As E. Scott clearly points out "at a bland level infancy equates to babyhood, but exactly when an infant ceases to be an infant and becomes a child is open to debate and varies from culture to culture". It is not the purpose here to discuss the developmental stages of infancy, so a rough distinction will be made in two categories in relation to the evidence provided by the burials of Oropos. The examination of the skeletal remains found inside the funerary coarse jugs showed that newborns, and in one case a premature, were buried there, in conformity to their size. The lack of calcification of young remains is thought to contribute towards poor preservation and consequently often few or no skeletal remains survive. The composition of the earth, and the dampness which is due to the proximity of the water table, apparently discoloured the preserved bone chips, leading Dragona at the moment of their discovery to suggest that these could represent the remains of cremation burials. What is preserved from those burials today are some small bone fragments, of brownish colour. Inside larger pithoi some bone fragments of the same colour have survived but also some teeth and in one case the skeleton of a child no older than 5 years old. Cist and shaft graves also contained the burials of young children. The small dimensions of the shaft graves that do not exceed 1.20m in length and 0.48m in width conform to the size of children.

It becomes evident from the above that two distinct age groups can be distinguished: in-

49. E. Scott, The Archaeology of Infancy and Infant Death, BAR Int. series 819 (Oxford 1999), 2-5, where she deals with the definition of infancy. Houby-Nielsen suggests concerning the child burials in Athens, that from the way women often buried their infants and children, it is possible to distinguish up to three age groups during the "city-state period" as she calls the period of formation and peak of the Athenian city-state (720-400 BC): the infant (0-1 year old), small children (1-3 to 4 years old) and older children (3-4 to 8-10 years old). Houby-Nielsen 2000, op. cit. n. 47, 151-152. For a "vocabulary of childhood and its stages" with references to the ancient authors: M. Golden, Childhood in Classical Athens (Baltimore 1990), 12-22.

50. Inhumation inside jugs, amphorae and pithoi is a rather usual procedure for infants and young children. Eretria III, 48-49. In the San Montano valley at Pithekoussai, the amphora burials of children and newborns constitute the second largest group of burials. Ridgway, Western Greeks, 51; Blandin, 'Tombes à inhumations', 141. See also the contribution of B. Blandin in this volume.

For the poor preservation or total absence of bones from infant and child burials, see op. cit. n. 28.

51. A clay matrix may lead to corrosion through acidity. Alluvial muds may produce many dark brown stained bones. D. R. Brothwell, Digging up Bones (Oxford 1981), 7.

52. Cist grave VI was found disturbed only on the western half of the grave. It measures 0.55m in length and 0.48m in width, but originally it should have also reached around 1.20m in length. According to I. Morris "...in inhumations the length of the grave is directly related to the length of the skeleton". Morris, Burial, 58-59. The single burial Xla of the adult does not belong to the discussion of the child burials.

Cist grave 93 at Thorikos measures 1.10 x 0.54m and is regarded as a child grave. No skeletal remains were found inside. Thorikos IV, 93-98.

In the small cemetery by the West Gate at Eretria the study of the teeth found inside five of the graves showed that inside grave 14, which measures 1.35 x 1.10m, the young child buried was 9-12 months old, while in three graves which measured around 1.40m in length, young children between 2½ and 4-5 years old were buried. Inside grave 15, the biggest of the graves, measuring 1.70 x 0.60m, an adolescent of 12 to 14 years old was buried. Blandin, 'Tombes à inhumations', 140-141.

Children as well as adolescents were buried inside shaft graves in the necropolis of San Montano at Pithekoussai. Pithekoussai I; Ridgway, Western Greeks, 52.

According to Houby-Nielsen, during the period of formation and peak of the Athenian city-state ("the period of the city-state") "...mortuary practice became even more distinct and specific. Differential disposal of the infant and child body meant that the three age groups —infants, small children and older children— were often clearly expressed". Houby-Nielsen 2000, op. cit. n. 47, 153. For a discussion on infant and child burials and their distinction from the adult burials: Garland, op. cit. n. 42, 78-88.
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fants (0-1 year old) were buried inside coarse jugs that were afterwards placed at the bottom of shallow or deep pits. Children (up to 5 years old) were inhumed inside coarse pithoi or directly at the bottom of cist and shaft graves. From the 13 funerary vases (10 coarse jugs and 3 pithoi) found inside the shallow pits of phases 3-5 of the settlement, bone fragments were found inside 8 vases. Four pits were found disturbed, the funerary vases broken in several pieces and consequently no bones were found (pits XXV, IX and XIII). Bones were absent only from the interior of two funerary vases (pits XXb and XXI). All bone fragments that were examined belonged to infants 0-1 year old. In the case of pit XXXII, the bone fragments found inside the coarse jug belonged to a premature born infant. The bone fragments found inside the pithos of burial IV belonged to a child no older than 5 years old, while the skeleton found inside the pithos of burial II of the West Quarter belonged to a child of approximately the same age. The bone fragments from the interior of shaft grave XXIII belonged to a child no older than 5 years old. From the five deep pits, which are regarded as burial pits, only inside the coarse jug of pit XLIII some bone fragments were found, belonging to a prematurely born infant.

All types of burials co-existed during the successive chronological phases of the settlement; the infant burials, however, were more numerous, compared to the child burials (Figs. 15-17). The deep pits are related exclusively to infant burials. While some kind of burial ceremony within the family can possibly be detected for infant and child burials, offerings relate with the latter only53.

Rather unique is the presence of the deep burial pits. The deposition of the funerary urn at the bottom of the pit shows that such a depth was reached deliberately. No parallels from elsewhere have so far been published as to the form and the method of the deposition of the funerary vase. The closest known examples are restricted to a number of burials found inside wells, dated from the Aegean Bronze Age to the Hellenistic period54, which seem to constitute

53. All child enchthyrismoi found at Thorikos were accompanied by offerings. Thorikos IV, 99; Thorikos VIII, 81, 88-98, 107, 111, 113, 115, 117, 127 (with the exception of Tombs 138-9, Thorikos VIII, 101).

Most of the child enchthyrismoi that were unearthed in the necropolis of the San Montano Valley at Pithekoussai had no offerings. When offerings accompanied the deceased children, these were usually bronze fibulae and pendants, although pottery or other small objects were not absent from this group. Pithekoussai I, 303-691.

Kourouniotis mentions that some small vases placed as offerings were only found in two pithos burials, from a total of around forty child vase inhumations, in the cemetery by the shore at Eretria. Kourouniotis, Αγγεία Ερέτριας', 5, 26-27.

54. Op. cit. n. 16. Recently P. Themelis excavated a well in the area of the Agora of ancient Messene. The well contained a number of bones of infants, along with the burial amphorases (the upper part of which was missing in most cases) and a number of bones of dogs. According to the excavator, this may be the case of secondary disposal of the burials from the infant's cemetery; he also considers the Hellenistic well G 5:3 from the Athenian Agora as having served the same use. P. Themelis, Ergon (2004), 28-29. For a report on the contents of well G5: 3 of the Athenian Agora, see Session 2C: colloquium: 'The Reanalysis of a Well Deposit from the 2nd c. BC in the Athenian Agora: Animal Sacrifice and Infanticide in Late Hellenistic Athens?', AIA 103 (1999), 284-285.

In his publication of the excavation of the cemetery by the shore at Eretria, K. Kourouniotis notes that some Geometric pits where also detected within the excavated cemeteries, which he identified as wells. He describes those pits as having a diameter of 1.30m and a round shape. He notes for two of those pits that were excavated down to a depth of 4m without reaching their bottom. A number of Geometric vases, as well as animal bones, were found among the lower layers inside the pits. This description brings to ones mind the deep pits found at Oropos and provides a rough parallel, even though a safe classification for the Eretrian pits is impossible. Unfortunately from the brief reports neither the exact number of those wells nor their exact location is evident. However, it is clearly reported that they were detected within the limits of the cemeteries that Kourouniotis excavated at Eretria during the 1897-1900 seasons. Kourouniotis, op. cit. n. 53, 8-9, n. 1. Two more wells are noted, probably outside the city.
a rather different group of burials. The wells contained as a rule multiple burials of adults, children, infants as well as animals. In the case of the deep pits from Oropos, the depth does not exceed 1.75m, while their form does not conform to the shape of wells. Moreover the pits contained only one vase-burial and were immediately afterwards filled with earth. The burial vase was found in all cases entire, close to the bottom of the pit, which points to the conclusion that those were burial pits for primary disposals.

An interpretation of those pits could be attempted in relation to the geomorphology of the site. A suggestion is that this type of burial was preferred in places, which were situated near rivers or torrents. Indeed, in such areas inundation could easily—or in the long run—wash away the small funerary vases contained in shallow pits (for something similar see C. Léderrey in this volume). By reaching the virgin soil, and positioning the burial there, the dangers caused by the above mentioned factors would have been minimized. However, this theory does not coordinate well with the existence of child burials both in shallow and deep pits, during the same period of time and in the same areas. From another point of view, the deposition of the funerary vases at the bottom of deep pits may represent a symbolic gesture that reflects the perception of infantine death in the community of Oropos. At this stage it is not possible to attempt to offer an interpretation of all the problems posed by the presence of burials in the settlement of Oropos and their type differentiation, as it overcomes the limits of this first presentation.

OROPOS, ATTICA AND THE SOUTHERN EUBOEAN GULF

During the LG period it was common to inhume infants and young children in vases, placed within small family cemeteries or larger necropoleis either in the free space among the...
adult burials\textsuperscript{57} or in the periphery of the cemetery\textsuperscript{58}. The method of burial is always the same: infants and young children were inhumed inside pithoi, coarse jugs or amphorae, their head placed towards the opening of the vase and their knees drawn up to the chest. The funerary vase was placed on the side inside a shallow pit\textsuperscript{59}. Offerings were placed inside the urn, or inside the pit, while a number of burials had no offerings\textsuperscript{60}. The urn was sealed with a small stone, a sherd or a small vase. Some stones were often placed around the urn, in order to secure it in place. The pit was afterwards filled with earth. Inhumation inside shaft graves was also current for older children, buried in the same way like the adults, although this practice was not altogether excluded for younger children\textsuperscript{61}.

In the case of Oropos, even though the main cemetery—or cemeteries—of the 8th

\textsuperscript{57} The LG child burials found at the Geometric–late Archaic cemetery at Thorikos, known as West Necropolis 4, were placed among the adult burials. One cist grave (T93) and mostly vase burials (Tombes 109, 111, 112, 113, 123, 124, 126, 127, 128, 138, 139, 151) were unearthed among adult inhumations and cremations. \textit{Thorikos IV}, 93-99; \textit{Thorikos VIII}, 81, 88-98, 101, 107, 111, 113, 115, 117, 127.

\textsuperscript{58} Among the 235 burials in the cemetery of Mende (late 8th-6th century BC) the 173 were infant and child \textit{enchytrismoi}. The burials of the 8th and 7th c. BC were located in the periphery of the cemetery. I. Vokotopoulou, 'Ανασκαφή Μένδης', \textit{ADelt} 21 (1966), Chron., 197-201, pl. 202 a-b; Th. Spyropoulos, \textit{ADelt} 26 (1971), Chron., 215-217; \textit{ADelt} 52 (1997), Chron., 379.

\textsuperscript{59} Generally no particular orientation has been noticed for the deposition of the vase. Although for the main cemetery by the shore at Eretria Kourouniotis mentions that the funerary vases were orientated towards the East. Kourouniotis, 'Αγγεία Ερέτριας', 5. The same orientation is attested for the burials found in the periphery of the larger necropolis in Mende. I. Vokotopoulou, \textit{AEMTH} 3 (1989), 414-415; \textit{ead.}, 'Μένδη – Ποσείδι', \textit{AEMTH}, 4 (1990), 411-415, pl. 2, 4-5; S. Moschonissiot, op. cit. n. 9, 278.

\textsuperscript{60} The LG child burials found in the cemetery by the shore at Eretria had generally no offerings, with the exception of two pithos burials that contained few vases. Kourouniotis, 'Αγγεία Ερέτριας', 6. For the case of the burials at Thorikos and Pithekoussai, op. cit. n. 53.

\textsuperscript{61} The common position of the body was extended supine with both arms at the side. Kurtz & Boardman, op. cit. n. 55, 54-55. Nine child burials along with seven adult cremations were found in the small cemetery in the area of the later West Gate at Eretria. The youngest burial belonged to an infant or very young child aged 9–12 months, while the oldest burial belonged to an adolescent of 12-14 years old. \textit{Eretria III}, 48-49; Blandin, 'Tombes à inhumation', 135-146. Cist grave T93 of the West Necropolis 4 at Thorikos is regarded also as a child grave, based on the character of the offerings (nine vases—most of them miniature—and fragments of a small horse figurine found inside the grave), as no traces of bones were found. \textit{Thorikos IV}, 93-98. A child of six years old was buried in grave E 19-2 of the Athenian Agora that was cut in the bedrock. The cist grave N 11:1 from the same area contained also the burial of a ten-year old child. Brann 1960, op. cit. n. 56, 409, 413. However older children too, up to five years old, were also inhumed inside pithoi, as in the case of pithos burial II from Oropos or, the five-year old burial from Eleusis (tomb Γ11). G. Mylonas, \textit{Το Δυτικό Νεκροταφείο της Ελευσίνας} (Athens 1975), 97-99. It becomes evident from the above that infant and child burials are subject, up to a certain degree, to regional variations. Cf. Sourvinou-Inwood 1983, op. cit. n. 42, 44.
and 7th centuries BC has not been found yet, infant and child inhumations were unearthed within the settlement. On the opposite side of the Euboean Gulf, at Eretria, infant and children *enchytrismoi* of the same period were also found scattered among the foundations of the dwellings close to the shore 62 and in the north part of the settlement 63. There, the funerary vases were placed at the bottom of shallow pits, with no particular orientation and in most cases without offerings 64. Bones from the interior of the funerary vases were only occasionally reported. The chronological sequence of the buildings and the enclosure walls has not been clarified yet, making difficult the establishment of a relation between the burials and the delimitation of the space inside the settlement 65. All burials found within the inhabited area at Oropos can be dated to the second half of the 8th and the beginning of the 7th c. BC 66. Could this absence of later burials constitute an indication for the existence of an organised necropolis, where infant and child burials would have been included? Judging by the example of Eretria and the chronological sequence of the burials from the habitation quarters and the necropolis close to the shore, this is indeed likely 67.

It is evident from the above that a connection between the sites of Oropos and Eretria

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62. Infant and young children inhumations inside coarse vases and fine amphorae were excavated close to the foundations of the dwellings at the southern area close to the shore, where a dense habitation is attested. The total number of the *enchytrismoi* is not clear so far: 1) (D. Arvanitou plot): Andreiomenou, 'Αψιδωτά οικοδομήματα', 209-211; Mazarakis Ainian, 'Ερετρία', 4, text fig. 1 and 12, no. 1. 2) (M. Roussou plot): E. Touloupa, *ADelt 34* (1979), Chron., 175-176; L. Kahil, 'Maisons géométriques', *op. cit.* n. 17, 85-86; *Eretrie*, *op. cit.* n. 17, 165-172; *ead.*, 'Cultes, habitats et colonisation,' in *Erétrie. Cité de la Grèce antique, Histoire et Archéologie. Les Dossiers 94* (1985), 32-35; Mazarakis Ainian, 'Ερετρία', 4, text fig. 4 and 12, no. 3. 3) (Eastern part of od. Aristonikou Eratonymou): Andreiomenou, 'Αψιδωτά οικοδομήματα', 216-220, figs. 72-74; Mazarakis Ainian, 'Ερετρία', 4, 6, text fig. 12, no. 5. 4) (A. Karambetsou plot): A. Andreiomenou, *ADelt 29* (1973-1974), Chron., 468-473; Andreiomenou, 'Αψιδωτά οικοδομήματα', 220; Mazarakis Ainian, 'Ερετρία', 6, text fig. 4 and 12, no. 6. 5) (Ih. Terzaki plot): Andreiomenou, 'Αψιδωτά οικοδομήματα', 222-225; Mazarakis Ainian, 'Ερετρία', 6, text fig. 5 and 12, no. 8. Further investigation revealed some more vase inhumations: E. Sapouna-Sakellaraki, *ADelt 38* (1983), Chron., 143; P. Ducrey, I. R. Metzger & K. Reber, *Eretrie VIII: Le Quartier de la maison aux mosaiques* (Lausanne 1993), 19-21, 100-102. See also the contribution of B. Blandin in this volume.


64. In one case two cups were placed inside the funerary vase. Andreiomenou, 'Αψιδωτά οικοδομήματα', 210 fig. 48, 213 fig. 55a-β.


66. Two incineration tumuli that also were found in the area (I and II of the Central Quarter) date to the 6th c. BC, that is to say after the abandonment of the area. Mazarakis Ainian, 'Οροπος (1985-87, 1996)', 85-88, plan fig. 17; id., 'Periboles', 196-197.

67. I would like to thank Dr Béatrice Blandin for sharing with me the evidence as well as the problems posed during her study on the mortuary practices at Eretria. See now B. Blandin, *op. cit.* n. 27, and her contribution in this volume.
that has already been established on the basis of geomorphological and architectural criteria\textsuperscript{68} can also be established on the basis of infant and child burials. The number of burials found within the inhabited areas shows that this practice was not unusual during the LG period and persisted in the early 7th centuries BC. The absence so far of the reserved burial areas of the 8th and 7th centuries BC at Oropos, do not permit a full comparison with the surrounding areas where the evidence from the cemeteries contributes towards a better understanding of the organisation of the space.

\textsuperscript{68} Mazarakis Ainian 2003, \textit{op. cit.} n. 41, 955-977; \textit{id.}, 'Architecture'.

Fig. 1. Oropos, O.S.K. property. General topographical plan (plan by N. Kalliontzis & A. Gounaris).

Fig. 2a. Oropos, O.S.K. property. Central Quarter (pits and structures III-XLIII).
Fig. 2b. Oropos, O.S.K. property. West Quarter (Inhumations I-II).
Fig. 3a. Central Quarter: tombs and structures of phases 1-3 (original plan by A. Mazarakis Ainian, additions and digital drawing by J.-S. Gros & V. Vlachou).
Fig. 3b. Central Quarter: tombs and structures of phases 4-5 (original plan by A. Mazarakis Ainian, additions and digital drawing by J. S. Gros & V. Vlachou).
Fig. 4a. Central Quarter. *Enchytrismoi XXb-XXc*, view from W (photo A. Dragona).

Fig. 4b. The burial coarse jug of *enchytrismos XXb* (photo V. Vlachou).

Fig. 5a. Central Quarter. *Echytrismos XXXII* (photo A. Dragona).

Fig. 5b. The burial coarse jug of *enchytrismos XXXII* (photo V. Vlachou).

Fig. 6. Burial coarse amphora and lid of *enchytrismos XXXIX* (photo V. Vlachou).
Fig. 7a. West Quarter. Pithos burial II in situ (photo A. Mazarakis Ainian).

Fig. 7b. Pithos burial IV (photo V. Vlachou).

Fig. 8. Central Quarter. Shaft grave XXIII after its cleaning, view from N (photo A. Dragona).
Fig. 9. Central Quarter, stratigraphical representation of the SE corner of the excavated area.

The horizontal distance between the pits is not to scale but is conventionally indicated (drawing by V. Vlachou, digital drawing by J.-S. Gros & V. Vlachou).
Fig. 10a. Burial coarse jug from pit XLII (photo V. Vlachou).

Fig. 10b. Burial coarse jug from pit XLIII (photo V. Vlachou).

Fig. 10c. Burial vase from pit XXVI (photo V. Vlachou).

Fig. 11a-b. Central Quarter. Amphora of pit XII in situ (view from NW, photo A. Dragona) and after its cleaning (photo V. Vlachou).
Fig. 12a-b. Central Quarter, stratigraphical representation of the area S of building B. The horizontal distance between the pits is not to scale but is conventionally indicated (drawing by V. Vlachou, digital drawing by J.-S. Gros & V. Vlachou).
DEPOSITS
PYRES
VARIOUS SHAFTS AND STRUCTURES
SHALLOW PITS
DEEP PITS
SHAFTS AND CISTS GRAVES
LIMITS OF CENTRAL QUARTER

Fig. 13. Central Quarter, phases 1-5 of the settlement (plan by J.-S. Gros & V. Vlachou).

Fig. 14. Fine, painted oinochoe from pit XLII (photo V. Vlachou).
OROPOS: THE INFANT AND CHILD INHUMATIONS FROM THE SETTLEMENT

BURIALS WITHIN THE SETTLEMENT OF OROPOS

Fig. 15. Total number of infant and child burials found within the settlement at Skala Oropou (second half of 8th-early 7th c. BC).

TYPE OF GRAVES

Fig. 16. Total number of graves found within the settlement at Skala Oropou (second half of 8th-early 7th c. BC).

NUMBER OF GRAVE-TYPES

Fig. 17. Distribution of grave-types within the four successive architectural phases of the settlement at Skala Oropou (second half of 8th-early 7th c. BC).
CÉRAMIQUE GÉOMÉTRIQUE ISSUE DE FOSSES DU SANCTUAIRE D'APOLLON À ÉRÉTRIE

Anne Kenzelmann Pfyffer

Plusieurs fosses ont été mises au jour lors des fouilles récentes effectuées dans le sanctuaire d'Apollon à Érétie, entre 1998 et 2001. Deux d'entre elles appartiennent à la première phase d'occupation du sanctuaire ; il s'agit des fosses 197 et 221. Cette première phase voit également l'installation de plusieurs bâtiments, notamment l'édifice 1, appelé plus couramment, 'Daphnéphoréion', l'édifice 150 et l'édifice 9 (voir le plan du sanctuaire Fig. 1 de l'article de S. Verdan dans le présent volume).

Le riche mobilier livré par les deux fosses est intéressant car son étude précise permet de dater les structures du sanctuaire. Les ensembles céramiques issus des bâtiments sont trop peu fournis et souvent perturbés ; par conséquent, c'est le mobilier des fosses, abondant et bien stratifié, qui permet la datation.

LE MOBILIER CÉRAMIQUE

Depuis 2002, la céramique géométrique érétiennne connaît un regain d'intérêt de la part de différents chercheurs de l'Ecole suisse d'archéologie en Grèce. La mise en place d'un sys-

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2. La fosse 197 ressemble à une dépression ovale, de 9×5m dans son extension maximale, pour une profondeur d'environ 70cm. La fosse 221 est morphologiquement très différente : elle est circulaire, d'un diamètre de 2.20m et profonde d'environ 1.40m.

3. Grâce aux travaux de S. Verdan, la connaissance stratigraphique a largement progressé ces dernières années et les diverses successions de bâtiments et de structures sont désormais plus claires. Pour une présentation plus précise des phases du sanctuaire, voir la contribution de S. Verdan dans le présent volume, ainsi que Erétrie guide, 228-229.

tème commun de description et de gestion a donc été nécessaire pour permettre l’homogénéisation des différentes études. Cet outil permet de rationaliser le travail au musée, de faciliter la saisie du matériel, et de prendre en compte l’intégralité du mobilier céramique des ensembles archéologiques. Il propose une identification du matériel en plusieurs étapes : d’abord les catégories (céramique fine peinte, grossière, etc.), puis les formes (skyphoi, tasses, canthares, etc.) et enfin les types (caractérisés par divers critères morphologiques).

Cet outil a été utilisé pour traiter l’intégralité du matériel du sanctuaire, et notamment celui des fosses 197 et 221. Ces fosses ont livré une grande quantité de céramique : 524 vases ont été comptés pour la fosse 197, et 174 vases pour la fosse 221.

Au sein de chaque fosse, on trouve de la céramique fine peinte en abondance, ainsi que de la céramique grossière (voir Fig. 1). D’autres catégories, comme la céramique fine non tournée, apparaissent mais restent extrêmement rares.

Parmi les récipients en céramique fine peinte, ce sont les petits vases ouverts qui sont les plus nombreux. Si l’on considère la totalité de la céramique des fosses 197 et 221, les petits vases ouverts représentent 87% ; les grands vases ouverts, tels que les cratères, atteignent 5% et les vases fermés 8%.

Au sein des petits vases ouverts de chaque fosse, les skyphoi sont majoritaires. A ceux-ci s’ajoutent une part importante des « skyphoi/canthares », dénomination utilisée pour qualifier un vase dont la distinction entre un skyphos ou un canthare reste impossible (pas d’attache d’anse, profil et décor peu caractéristiques). Ensuite viennent les tasses et les lékanides ; plus rares sont les canthares et seules quelques assiettes et quelques kalathoi sont présents (voir Fig. 2).

Les skyphoi sont représentés en abondance par des individus monochromes de morphologie globulaire avec une lèvre déversée (voir Fig. 3: 1) ; ils se caractérisent par des grandes dimensions. Ces grands vases monochromes constituent plus de la moitié des skyphos des fosses 197 et 221. Les quelques rares autres exemplaires de grandes dimensions présentent quant à eux une lèvre très développée, et sont richement décorés (voir Fig. 3: 2). Parmi les petits modules, presque tous les individus portent des décors (voir Fig. 3: 3-5) : la plupart ont une lèvre peu développée, déversée à subverticale, et présentent des motifs de style attique (méandres à crochets hachurés ou chevrons verticaux ; décors de style GM II) ; d’autres ont une lèvre et un pied plus marqués et portent des demi-cercles pendants (SPG III).

Les tasses sont moins diversifiées que les skyphoi : elles sont morphologiquement toutes globulaires à très globulaires, avec un fond plat, et uniformément monochromes (voir Fig. 3 :)

5. Ce système de gestion, ainsi que le mobilier céramique issu des fosses du sanctuaire d’Apollon feront l’objet d’une publication détaillée dans la collection Eretria.
6. Il a en effet été possible de créer une typologie, sur la base de critères morphologiques propres à chaque forme.
7. Les comptages sont exprimés en ‘Nombre Minimum d’Individus’ ; pour cette notion, v. Arcelin & Tuffreau-Libre, Quantification.
9. Au sein des skyphoi du sanctuaire d’Apollon, les exemplaires dont le diamètre excède 12cm sont considérés comme des gros modules.
11. Lefkandi I, 298, fig. 8H, 300-301.
Les lékanides ont des morphologies variées, présentant un simple bord, arrondi ou aplati, ou une lèvre déversée ; leur décor est fait principalement de lignes verticales, mais l'on trouve quelques exemplaires avec des bandes réservées horizontales (voir Fig. 3: 7-8).

La morphologie des canthares est le plus souvent très proche de celle des skyphoi, c'est-à-dire une panse globulaire avec une lèvre peu développée déversée ; seul un cinquième des individus présentent une lèvre très développée subverticale, profil qui rappelle la forme attique de la même période (voir Fig. 3: 9). Le répertoire des décors est très riche, et chaque individu porte des motifs particuliers : méandres avec motifs auxiliaires (voir Fig. 3: 9), méandre encadré de deux oiseaux (voir Fig. 3: 10), bandes horizontales hachurées, décors zoomorphes (oiseaux, chevaux) et anthropomorphes etc. Ces motifs, linéaires ou figurés, semblent dater pour la majeure partie du GM II.

Certains individus pourraient toutefois être légèrement plus tardifs (GR I) ; c'est notamment le cas d'un canthare de facture et de morphologie exogènes, peut-être de réalisation attique, orné d'un tripode encadré par deux chevaux (voir Fig. 4: 11).

Parmi les petits vases ouverts très peu représentés, on trouve des assiettes, ornées de méandres (voir Fig. 4: 12), et des kalathoi monochromes ou incisés de lignes horizontales et portant des larges points (Fig. 4: 13). En ce qui concerne les grands vases ouverts, ils sont le plus souvent pourvus d'une lèvre subverticale aplatie, et parfois d'une lèvre déversée. Indépendamment de la morphologie, deux styles semblent se distinguer : un tiers des cratères se rapproche d'un style SPG (lèvre monochrome, panse avec groupes de lignes verticales, ou groupes de lignes obliques affrontées, voir Fig. 4: 14) et deux tiers sont de style attique ou atticisant (lèvre décorée, panse avec méandre dans le panneau central, autour duquel se développent des motifs auxiliaires, voir Fig. 4: 15).

Au sein des vases fermés (voir Fig. 5), les cruches sont majoritaires, qu'elles soient à embouchure circulaire ou trilobée (voir Fig. 4: 16). Elles se caractérisent en général par des cols relativement larges. Leurs décors sont malheureusement peu connus car mal conservés. Hydries et amphores sont également présentes et il est parfois difficile de les distinguer ; elles portent le plus souvent des décors localisés, peints sur fond d'argile (voir Fig. 4: 17). Certaines formes restent extrêmement rares, comme les lécythes et les pyxides.

13. Ce décor se retrouve sur le site de Lefkandi ; voir Lefkandi I, 303.
14. Coldstream, GGP, 23, pl. 4d ; le canthare présenté ici à la pl. 1.9 est d'ailleurs très proche des réalisations attiques.
CÉRAMIQUE GÉOMÉTRIQUE ISSUE DE FOSSES DU SANCTUAIRE D'APOLLON À ÉRÉTRIE

DATATION

La plus grande partie de la céramique des fosses 197 et 221 est datée de la première moitié du VIIème siècle av. J.-C. (GM II en terme de chronologie attique)\(^\text{20}\). L'influence attique sur les productions érétriennes est manifeste\(^\text{21}\); elle est visible dans la morphologie de certains vases ainsi que dans les décors, comme les nombreux méandres qui apparaissent sur toutes sortes de formes. Le style SPG est également bien représenté, notamment par les lékanides, mais aussi par les skyphoi à demi-cercles pendants et les cratères à lèvre monochrome ornés d'agencements de lignes.

Si le matériel des fosses est attribué en grande partie au GM II, la présence de certains vases pourrait abaisser légèrement la datation de l'ensemble ; c'est notamment le cas du canthare de facture attique (?) orné d'un tripode entouré de deux chevaux, et daté du GR I (voir Fig. 4: 11). Cet individu, dont les fragments ont été retrouvés dispersés dans les fosses 197 et 221, pourrait constituer le terminus post quem pour le comblement des structures. Il faut toutefois savoir que les fosses n'ont pas livré de vases dont la morphologie ou le décor seraient typiques du GR, ni de vases recouverts d'engobe blanc caractéristique des productions eubéennes plus tardives\(^\text{22}\).

Les fosses ont donc livré un matériel daté du GM II au début du GR I. Par conséquent, les édifices qui leur sont liés, comme le Daphnéphoréion et les édifices 9 et 150, appartiennent à cette même période. Cette datation est intéressante car elle fait écho à la question que se posaient les chercheurs sur le site voisin de Lefkandi en 1980 : « What happened between the latest SPG III and the LG pottery ? »\(^\text{23}\). Ceux-ci avaient en effet constaté que les ensembles céramiques marquant la transition entre la fin du SPG III et le GR n'existaient pas à Lefkandi.

Or les fosses 197 et 221 viennent juste s'insérer dans ce hiatus chronologique. S'agit-il d'un simple hasard de la fouille ou d'une véritable coupure de l'occupation à Lefkandi correspondant aux premiers signes d'une réelle occupation à Érètrie ?

ANALYSE FONCTIONNELLE

Si le mobilier des fosses a permis la datation des structures environnantes, il permet également d'appréhender les activités qui se déroulaient dans le sanctuaire d'Apollon durant la première occupation. Les fosses semblent entretien avec les bâtiments un lien fonctionnel important ; elles sont en effet creusées à proximité de ceux-ci, et elles ont livré des vases dont des fragments se trouvaient également à l'intérieur des édifices.

Il faut savoir que les récipients n'étaient pas intacts lorsqu'ils ont été déposés dans les fosses ; en effet, les vases ne sont jamais retrouvés entiers et sont dans tous les cas brisés. De

\(^{20}\) Je remercie ici le Prof. J. N. Coldstream pour m'avoir confirmé cette datation.
\(^{21}\) Notons ici qu'il est encore aujourd'hui très difficile de distinguer les productions érétriennes attisantes des productions proprement attiques ; voir en dernier lieu Eretria XIV, 46-47.
\(^{22}\) Andreiomenou, 'Γεωμετρική κεραμεική. ΙΓ, 160 ; A. Andreiomenou, 'Skyphoi de l'atelier de Chalcis (fin Xe-fin VIIIe av. J.-C.)', BCH 108 (1984), 64 ; Coldstream, GGP, 190.
\(^{23}\) Lefkandi I, 293.
plus, certains individus en céramique grossière portent des traces de surcuisson qui pourraient traduire leur réelle utilisation. Les vases semblent donc avoir été d’abord utilisés, à l’intérieur ou proche des bâtiments, puis brisés lors de leur manipulation (qu’elle soit rituelle ou domestique) et enfin mis dans les fosses.

L’analyse fonctionnelle des vases montre une grande majorité de récipients liés à la consommation (petits et grands vases ouverts, ainsi que les cruches), viennent ensuite les récipients pour la préparation des aliments, comme les vases en céramique grossière (voir Fig. 6). La proportion importante de la vaisselle de table et de la vaisselle culinaire dans les fosses traduit l’importance des activités de consommation dans la zone du sanctuaire d’Apollon dès la première occupation.

Il est intéressant de constater que la céramique grossière est relativement bien représentée par rapport à la céramique fine peinte, puisqu’elle atteint environ 28% dans la fosse 197 et 18% dans la fosse 221 (voir Fig. 1). A cette représentation est liée une diversité de formes ; il y a majoritairement des vases fermés, mais également quelques vases ouverts, comme des petites coupes, des écuelles, des jattes, des plats tripodes ainsi que quelques supports de cuisson24.

Il faut encore noter la faible représentation des récipients de stockage (amphores, pithoi) et des récipients qui remplissent des fonctions diverses tels que les lécythes, les kalathoi ou les pyxides (voir Fig. 6).

Le faciès fonctionnel des fosses se caractérise donc par une grande proportion de vases destinés à la consommation, et plus précisément à la consommation de boissons, par une représentation respectabile de vases de toutes formes servant à la préparation, et par la rareté des vases de stockage et des vases remplissant d’autres fonctions25. Il est très difficile d’interpréter ce faciès en l’état actuel de la recherche, car nous manquons de points de comparaison fiables. La question principale serait de savoir si ce faciès se rapproche plus de celui d’un habitat ou de celui d’un sanctuaire, dans le but de comprendre les fonctions de la zone du sanctuaire d’Apollon durant la première occupation26. Le faciès semble principalement destiné à des activités de consommation, mais il reste difficile de savoir s’il s’agit de consommation quotidienne ou déjà de banquet rituels.

Pour conclure, il faut souligner l’importance de l’étude des fosses et de leur mobilier céramique. Cette étude permet d’une part une meilleure compréhension de la chronologie du sanctuaire d’Apollon. En effet, les structures du sanctuaire n’avaient encore jamais été datées par une analyse précise du matériel. De plus, les nombreuses fosses du sanctuaire constituent des ensembles clos bien stratifiés, qui permettent une étude plus approfondie de la céramique étrusque et de son évolution tout au long du VIIIème siècle av. J.-C. Enfin, l’étude de la céramique des fosses permet de mettre en évidence des faciès fonctionnels, qui pourront à l’avenir fournir des renseignements importants sur les activités qui avaient lieu dans le sanctuaire à l’époque géométrique.

24 Pour des supports de cuisson similaires, voir Athenian Agora, pl. 11, 211 et pl. 40, 626 ; Lefkandi II, 62, pl. 42 et 79.
26 Voir l’article de Samuel Verdan dans le présent volume, n. 12.
CÉRAMIQUE GÉOMÉTRIQUE ISSUE DE FOSSES DU SANCTUAIRE D'APOLLON À ÉRÉTRIE

<table>
<thead>
<tr>
<th>Catégories</th>
<th>Fosse 197</th>
<th></th>
<th>%</th>
<th>Fosse 221</th>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine peinte</td>
<td>372</td>
<td>71.0</td>
<td></td>
<td>140</td>
<td>80.5</td>
<td></td>
</tr>
<tr>
<td>Grossière</td>
<td>149</td>
<td>28.4</td>
<td></td>
<td>31</td>
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<td></td>
</tr>
<tr>
<td>Autres</td>
<td>3</td>
<td>0.6</td>
<td></td>
<td>3</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>524</td>
<td>100</td>
<td></td>
<td>174</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**Représentation des catégories**

![Chart showing the representation of categories](chart)

Fig. 1.

<table>
<thead>
<tr>
<th>Formes</th>
<th>Fosse 197</th>
<th></th>
<th>%</th>
<th>Fosse 221</th>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assiette</td>
<td>5</td>
<td>1.5</td>
<td></td>
<td>2</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>Lékanis</td>
<td>54</td>
<td>16.6</td>
<td></td>
<td>24</td>
<td>22.9</td>
<td></td>
</tr>
<tr>
<td>Tasse</td>
<td>96</td>
<td>29.5</td>
<td></td>
<td>25</td>
<td>23.8</td>
<td></td>
</tr>
<tr>
<td>Skyphos</td>
<td>114</td>
<td>35.1</td>
<td></td>
<td>35</td>
<td>33.3</td>
<td></td>
</tr>
<tr>
<td>Skyphos-canthare</td>
<td>42</td>
<td>12.9</td>
<td></td>
<td>10</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td>Canthare</td>
<td>13</td>
<td>4.0</td>
<td></td>
<td>8</td>
<td>7.6</td>
<td></td>
</tr>
<tr>
<td>Kalathos</td>
<td>2</td>
<td>0.6</td>
<td></td>
<td>1</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>325</td>
<td>100</td>
<td></td>
<td>165</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**Distribution des petits vases ouverts**

![Chart showing the distribution of small open vases](chart)

Fig. 2.
Fig. 3. 1-10.
Fig. 4. 11-17.
### Distribution des vases fermés

<table>
<thead>
<tr>
<th>Forme</th>
<th>Nombre Fosse 197</th>
<th>% Fosse 197</th>
<th>Nombre Fosse 221</th>
<th>% Fosse 221</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyxis</td>
<td>1</td>
<td>3.7</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Lécythe</td>
<td>1</td>
<td>3.7</td>
<td>1</td>
<td>7.7</td>
</tr>
<tr>
<td>Cruche</td>
<td>12</td>
<td>44.4</td>
<td>9</td>
<td>69.2</td>
</tr>
<tr>
<td>Hydrie</td>
<td>8</td>
<td>29.6</td>
<td>1</td>
<td>7.7</td>
</tr>
<tr>
<td>Amphore</td>
<td>4</td>
<td>14.8</td>
<td>1</td>
<td>7.7</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>100</td>
<td>13</td>
<td>100</td>
</tr>
</tbody>
</table>

#### Répartition fonctionnelle

<table>
<thead>
<tr>
<th>Fonctions</th>
<th>Nombre Fosse 197</th>
<th>% Fosse 197</th>
<th>Nombre Fosse 221</th>
<th>% Fosse 221</th>
</tr>
</thead>
<tbody>
<tr>
<td>Préparation</td>
<td>144</td>
<td>27.5</td>
<td>31</td>
<td>17.8</td>
</tr>
<tr>
<td>Consommation</td>
<td>350</td>
<td>66.8</td>
<td>134</td>
<td>77.0</td>
</tr>
<tr>
<td>Stockage</td>
<td>18</td>
<td>3.4</td>
<td>3</td>
<td>1.7</td>
</tr>
<tr>
<td>Autres</td>
<td>12</td>
<td>2.3</td>
<td>6</td>
<td>3.4</td>
</tr>
<tr>
<td>Total</td>
<td>524</td>
<td>100</td>
<td>174</td>
<td>100</td>
</tr>
</tbody>
</table>

**Fig. 5.**

**Fig. 6.**
L'approche quantitative de la céramique se résume à prendre en compte non seulement les quelques pièces complètes ou montrant un intérêt stylistique mais aussi la pléthore de fragments souvent dédaignés. L'idée est d'obtenir une vision représentative de l'ensemble du mobilier archéologique puis d'analyser ces données tout en prenant en compte les processus post-dépositionnels car elles constituent un témoin privilégié des activités sociales. Dans cette optique, il faut avant tout classifier, créer des typologies, puis une base de données adaptée aux types de données et capable de les exploiter. Toutefois, soulignons qu'une accumulation sans fin de données, mue par l'espoir qu'une masse abondante d'informations aboutira inévitablement à une profusion de réponses, est un écueil redoutable.

Nous présentons les résultats obtenus jusqu'à présent parallèlement à l'historique de nos démarches, les motivations et les problèmes confrontés pour que le travail réalisé serve non seulement à la compréhension du site mais aussi d'exemple expérimental.

PREMIERS ESSAIS: NR ET POIDS

Nous avons mis en œuvre le comptage des fragments (nombre de reste NR) dès les premières campagnes d'étude systématique du mobilier en 1996. Nous avons d'abord compté le nombre de tessons suivant quatre catégories dans chacune des unités stratigraphiques (OM ανασκαφικές ομάδες) : céramique fine forme ouverte, fine fermée, fine non peinte et grossière. À ce stade, le comptage répondait plus à une convention de méthode qu'à une volonté de répondre à des questions précises. Il apparaissait que ces données ne pouvaient apporter que des réponses limitées car elles concernaient de larges catégories. Il nous a semblé qu'une précision supplémentaire lors du comptage permettrait de tirer plus de renseignements. Nous avons alors affiné le comptage du NR en subdivisant ces catégories par la segmentation (bords,
bases et autre). Par la suite nous nous sommes rendus compte que cette prise en compte de la segmentation était difficilement exploitable. Par contre, cette approche a eu l'intérêt du nous faire réaliser à quel point il était important que nos démarches soient motivées et orientées par des problématiques ou questions précises.

Ainsi, la prise en compte du poids a été adopté dans le but d’apporter une perception des proportions du nombre de vases dans les dépôts archéologiques. La méthode choisie a été inspirée par le travail de l’équipe anglaise sur le site de Toumba à Lefkandi, dont les données pouvaient être par la suite comparées.

L’enregistrement du poids introduisait une nouvelle procédure post-fouille et de nombreuses contraintes dans la gestion du matériel. Nous n’avions ni le temps ni les moyens de réaliser le pesage sur chaque type à l’instar du travail fait sur le matériel du remblai de Toumba à Lefkandi. Donc, afin de minimiser le temps consacré par l’équipe à une fastidieuse pesée, nous nous sommes limités à la pesée au seul niveau des catégories : fine fermée, fine ouverte, non peinte et grossière. Les données de ce pesage de même que le comptage des fragments ont été relevés dans un tableau directement sur la fiche terrain (Tableau 1).

<table>
<thead>
<tr>
<th>Χείλη/Levres</th>
<th>Βάσεις/Bases</th>
<th>Άλλα/Autre</th>
<th>Σύνολο/Total</th>
<th>Βάρος/Poids (gr.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Κλειστά Γραπτά, Μελαμβαφή/Ferme</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ανοιχτά Γραπτά, Μελαμβαφή/Ouvert</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Άβαφα/Non peint</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Χονδροειδή/Grossière</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Λοιπά, άγνωστα/ Autre, non identifié</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Σύνολο/ Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tableau 1 : Partie de la fiche terrain concernant le comptage des NR et du Poids.

**INTERPRETATION NR ET POIDS**

Le comptage des fragments s’est fait systématiquement pour l’ensemble des 2643 OM mais seulement 411 OM ont été saisies dans la base de données. Cela représente au total 80077 fragments (Tableau 2).

2. Les distinctions de segmentation n’apparaissent pas dans ce tableau, car ce comptage n’a été effectué que depuis 2001 et de plus la saisie de ces données dans la BDD a été interrompue lorsque nous nous sommes rendu compte du peu de résultats à espérer.
Avant toute interprétation, examinons la nature des données. De nombreux étudiants (de l’université de Volos, de Corfou ou encore d’universités étrangères) ont participé à ce comptage. Tous ont été confrontés à un problème face aux minuscules fragments sans vernis ; ces fragments étaient souvent ignorés avec une tolérance variable suivant l’appréciation de chacun de ce que pouvait être une taille suffisante pour valoir d’être comptabilisé. De plus, certains fragments comptabilisés étaient dans un état de conservation tel qu’il était difficile d’identifier la catégorie à laquelle ils appartaient. Ils étaient alors placés arbitrairement dans l’une ou l’autre des catégories. Cependant, il faut souligner le zèle qu’ont démontré les étudiants lors de ce comptage.

Nous devons garder à l’esprit qu’il s’agit d’un comptage de tessons et donc, il n’est pas explicitement représentatif de la proportion et encore moins du nombre des récipients en terre cuite utilisés ou même abandonnés sur le site. Par contre, dans le cas de données de même nature, il est possible de faire des comparaisons permettant de détecter des variations entre différents contextes archéologiques.

Étant donné l’aspect relatif de ce type de comptage, seuls les résultats flagrants seront retenus. L’évolution de la catégorie fine non peinte aux dépens de la céramique grossière ne fait pas de doute. Tout changement du faciès est tributaire de deux variables principales : la nature de l’activité liée au dépôt et le développement technique et stylistique. Dans ce cas, étant donné la tendance sur la totalité des phases, nous pouvons considérer qu’il est davantage soumis à l’évolution technique et stylistique qu’à la nature des dépôts. Ainsi, nous pouvons conclure que la production de la céramique fine non peinte devient de plus en plus importante entre la deuxième moitié du VIIIème siècle et le Vième av. J.-C. Il est possible que cette production remplace une part de la céramique grossière ou fine sans que l’on puisse le détecter à travers ce comptage. Nous devons par ailleurs envisager que cette production réponde à de nouvelles exigences.

3. Problème évoqué par M. P. Arcelin et al., dans Arcelin & Tuffreau-Libre, Quantification, VII.
Un autre point remarquable est l’abondance de la céramique grossière appartenant aux phases 2 et 3, c’est-à-dire les deux premières phases architecturales pendant lesquelles la fonction d’habitat est prédominante. Nous pouvons donc supposer une relation étroite entre ce type de matériel et l’activité domestique sans pour autant considérer qu’il soit exclusivement destiné à cette activité.

A une autre échelle, nous avons comparé les résultats du comptage réalisé à Oropos avec ceux du matériel d’Asine et du remblai de l’Héron de Toumba à Lefkandi (Fig. 1). Comme la nature des données est sensible à de multiples facteurs parasites, nous prenons soin de relever uniquement les variations significatives. C’est le cas avec l’abondance des formes fermées à Lefkandi face à celle des formes ouvertes à Asine et de la céramique à pâte grossière à Oropos. Ces écarts soulèvent le problème de la nature fonctionnelle du mobilier retrouvé sur les autres sites. Peut-on admettre, comme Richard Catling et Irene Lemos qu’il s’agit d’un assemblage typiquement domestique ? Avant d’aborder le problème, nous devons vérifier que cette différence n’est pas due à une déformation propre à la nature des données. Pour ce faire, nous possédons avec les données sur le poids, un deuxième élément de comparaison entre le matériel d’Oropos et celui du remblai de Lefkandi.

Le diagramme (Fig. 1) expose de manière synoptique ces données. Nous remarquons que le rapport entre NR et Poids est de même nature à Oropos et à Lefkandi, montrant ainsi la cohérence des modes de comptage. Toujours à propos de ce rapport NR/Poids, à Oropos comme à Lefkandi, seuls les vases ouverts ont un pourcentage du Poids moins important que celui du NR. Nous pouvons supposer que ce coefficient de fragmentation élevé est dû à fragilité des vases à boire.

Dans l’ensemble, les proportions entre chacune des catégories sont sensiblement similaires à celles que présente le NR. Elles confirment l’importance de la catégorie des vases fermés à Lefkandi. Quels sont donc les facteurs dont témoigne cette disproportion ? Il peut s’agir de la nature fonctionnelle de l’assemblage céramique. Le contexte archéologique d’Oropos permet plus facilement d’interpréter sa nature fonctionnelle. Ainsi, si des activités artisanales ou cultuelles ont été détectées, il reste évident que l’activité domestique était prépondérante. C’est plus net encore en ce qui concerne les phases 2 et 3 où les traces d’activités artisanales et cultuelles sont moins importantes. Et c’est précisément au sein de ces phases que les formes fermées sont au plus faible pourcentage (6,3%). Peut-on alors encore considérer que l’assemblage du remblai de l’édifice de Lefkandi est typiquement domestique ? Nous pouvons formuler deux hypothèses : soit le mode de vie domestique était radicalement différent, soit le matériel retrouvé dans le remblai ne provient pas d’une activité domestique ou sinon suggère

8. « It is clear from the range of shapes of the PG pottery represented in the fill and from the relative proportions of each shape, as seen in the statistical analysis, that the material derived from a domestic context. The quantities of large closed vessels used for storage and coarse handmade wares associated with food preparation make this abundantly plain ». : Lefkandi II, 91.
9. Le matériel des fouilles d’Oropos a été pris en compte depuis la campagne de 2001, 66 OM du Secteur Sud ont été saisies dans la base de données (43.2kg). Pour Lefkandi le total excepté la céramique inventoriée est de 413kg (Lefkandi II, 147).
un processus sélectif lors du dépôt. En définitive, il apparaît que la nature du remblai est tout aussi problématique que l’édifice qu’il recouvre\textsuperscript{10}, cependant, le deuxième cas me semble plus probable. Irene Lemos et Richard Catling soulignent à raison que la proportion des formes différe sensiblement de celle que l’on trouve dans les tombes (coarse ware/cooking pot/hand made burnished = 5%, ouverts = 37%, fermés = 34%, 9% de pyxis et 15% de formes diverses\textsuperscript{11}). Mais, comme cette seule différence ne peut justifier l’identification de cet assemblage avec une activité domestique, les auteurs nous fournissent la justification attendue en considérant que la quantité importante des formes fermées (dites de stockage) et celle de la céramique à pâte grossière caractérisent un assemblage domestique. Cependant la céramique à pâte grossière est loin d’être aussi importante qu’à Asine ou Oropos, et à l’inverse, le pourcentage des vases fermées est supérieur de 47% à celui d’Oropos et de 39% à celui d’Asine. L’écart géographique ou chronologique ne me semble pas suffisant pour justifier une telle différence.

La quantification présente ici une autre approche des problématiques liées à la nature des contextes, à la fonction des assemblages céramiques et à travers elles celle des espaces. S’il n’est pas encore possible d’obtenir des résultats probants, on comprend que la multiplication des références doit aboutir à la formation de modèles interprétatifs. Les modes de comptage du NR et du poids induisent quelques problèmes pratiques liés à la normalisation des méthodes. Par exemple, les catégories elles-mêmes ne sont pas normalisées ; de plus, il est objectivement impossible de prendre en compte un niveau de précision plus fin que la forme. Il faut encore retenir que la mesure du poids dépend de facteurs comme le taux d’humidité\textsuperscript{12}, et le NR du coefficient de fragmentation. Autant de difficultés nous ont poussés à l’adoption d’une autre technique de comptage.

**NMI ET SYSTEME D’ENREGISTREMENT**

Inspirés par les travaux de l’équipe de recherche suisse sur le secteur du sanctuaire d’Apollon Daphnéphoros à Érétrie\textsuperscript{13}, nous avons commencé un troisième type de comptage permettant d’obtenir des données plus fines, le calcul du nombre minimum d’individu (NMI). Il existe pour cette technique plusieurs variantes tributaires du type de matériel\textsuperscript{14}. En ce qui concerne Oropos, nous avons suivi la méthode adoptée par l’équipe suisse dans le souci de faciliter les études comparatives. Le NMI prend en compte seulement les lèvres après recolage dans chacune des unités stratigraphiques OM. Nous procédons à la pondération avec les panses, anses ou bases uniquement au sein d’ensembles clos. Cependant, même s’ils ne sont

\textsuperscript{10} A ce sujet voir Mazarakis Ainian, *Rulers’ Dwellings*, 48-58.
\textsuperscript{11} Données suivant: le tableau 1 de *Lefkandi III* et les tableaux et 1, 2, 3 de l’appendix A de *Lefkandi I*, 417-420.
\textsuperscript{14} Arcelin & Tuffreau-Libre, *Quantification*, VII-XII.
pas pris en compte dans le NMI, nous avons relevé et enregistré tous les fragments de bases, d’anses ou encore ceux de panse portant une décoration.

Le premier intérêt de ce type de comptage est celui de résoudre les problèmes rencontrés lors de l’évaluation et de l’exploitation du NR et du poids. Entre autres, cette technique présente une relative facilité à mettre en œuvre alliée à une stabilité des statistiques. Son utilisation s’universalise et promet ainsi des possibilités de comparaisons entre équipes de recherche. Le deuxième intérêt est que tout en étant un échantillon représentatif, il réduit sensiblement le nombre de tessons à observer. Il devient donc possible de récolter plus de renseignements pour chacun des individus.

Dans l’objectif de compter la céramique grossière, nous avons relevé 7 critères pour chacun des individus. Ces critères ont été choisis en fonction des questions qui nous sont apparus lors de l’examen du matériel inventorié: 1 morphologie ; 2 couleur de la pâte ; 3 type de cuisson ; 4 mode de façonnage ; 5 traitement de surface ; 6 inclusions ; 7 décoration.

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Nous avons créé des typologies et catégories toujours à partir de l’observation des 737 pièces inventoriées afin de normaliser la saisie.

1. Typologie morphologique

Lorsque l’on emploie le terme de typologie en céramologie il est souvent sous entendu « typologie morphologique ». C’est un fait qu’il s’agit d’une typologie primordiale se basant sur des critères facilement observables et aisément classifiables. Cependant, l’expression complète doit être conservée pour éviter les confusions.

Dans un premier temps, la logique de cette typologie morphologique est de prendre en compte un matériel particulièrement fragmentaire. En effet, il serait vain d’essayer d’identifier tous les fragments de lèvre avec une forme particulière, une lèvre de type Κλ2 peut appartenir soit à un pot soit à une amphore. Pour résoudre ce problème nous avons attribué 7 champs : type embouchure, diamètre embouchure, type base, diamètre base, type anses, mesure maximum de la section de l’anse, dont les principaux types sont présentés dans la Fig. 4.

Ainsi, la forme hydrie n’apparaît pas directement mais sera identifiée si les anses sont décrites. Pour certaines formes moins courantes, nous n’avons pas établi de types étant donné le peu d’exemplaires. Cependant, les individus appartenant à ces formes sont dessinés, comme les loutèria, lèbès etc.

2. Couleur

La couleur est considérée comme un critère important car significatif de la nature de la matière première et/ou de la technique de cuisson. Elle est donc interprétée comme une

15. P. Husi, Quantification et datation en céramologie (Tours 2001). Le nombre minimum d’individus : la technique de quantification la mieux adaptée à la datation des contextes archéologiques à partir de l’exemple de Tours.

variable décisive dans la constitution de groupes et l'identification du lieu de production. Cependant, son observation reste laborieuse et aucune solution entièrement satisfaisante n'a été proposée jusqu'ici. L'emploi de la table des couleurs de Munsell a résolu en partie les problèmes d'objectivité d'observation et de la normalisation, mais de nombreux facteurs parasitent l'observation comme la lumière ambiante ou le taux d'humidité du fragment. L'observation s'avère encore plus délicate pour une céramique dont la couleur de la pâte n'est pas uniforme. Nous avons donc créé des groupes homogènes en répartissant les individus catalogués par similitude sur une valeur moyenne de la couleur de surface. Nous avons obtenu ainsi 6 groupes : deep orange (2.5YR 5/12), vivid orange (2.5YR de 6/16 à 7/20), vivid red, grey (Chroma <= 1), pale (Value > 7 pour tous HUE et Chroma confondus), dark (Value <2,5 pour tous HUE et Chroma confondus)17. Nous avons noté si la surface était brûlée et les différences entre surface interne et externe en remarque.

3. Type de cuisson

Nous avons choisi de suivre une typologie simple ainsi que le propose Orton18 (Fig. 5) plutôt qu'une observation détaillée comme celle de Martineau et Pétrequin19. Cette option s'explique par la difficulté d'observer systématiquement les couleurs à la fois du cœur, des deux tranches et des surfaces interne et externe lorsque les tessons ne présentaient pas de cassure fraîche.

4. Façonnage

Plus encore pour la céramique à pâte grossière, le façonnage n'est pas une chose évidente à observer20. Plusieurs techniques peuvent être cumulées pour façonner un même vase. Un vase d'abord ébauché à la main puis fini au tour sera difficilement détectable21 sauf à l'aide de méthodes laborieuses inappropriées à un large échantillon22. En conséquence, nous nous sommes limités à l'observation de trois cas : lorsque l'utilisation du tour est attestée ; lorsque

17. L'observation a été réalisé dans des conditions constantes d'éclairage (au néon).
au contraire, il est assuré que le montage du vase a été réalisé sans l'aide du tour (Figs. 8, 9) ; et, enfin, les montages aux colombins.

5. Traitement de surface

En ce qui concerne la céramique commune, le traitement de surface le plus connu est le polissage après séchage (Fig. 10). Cette technique se repère facilement à tel point que cette catégorie de la production est presque toujours identifiée et se trouve assez documentée dans les publications\(^8\). En plus de cette caractéristique, nous avons distingué les surfaces brutes, lissées avant séchage (éponge), lissées avant séchage avec un outil dur et apport d'une barbotine (Fig. 11). Notons encore une fois que ces techniques pouvaient être plus ou moins achevées et aussi combinées entre elles. Ainsi, le potier peut simplement passer sa main sur la surface du vase façonné, en ajoutant éventuellement une pâte plus diluée. Dans ce cas, il est difficile d'opter entre lissage et barbotine. L'observation s'est aussi portée sur les différences de techniques entre la surface interne et externe ; cette remarque permet d'identifier s'il s'agit d'une forme ouverte ou fermée lorsque la partie du profil conservée ne le permet pas.

6. Inclusions

La céramique à pâte grossière a cet avantage qu'elle se prête facilement à l'étude pétrographique, c'est même parfois le seul critère pour distinguer différentes productions. Quelques travaux ont déjà exploré ce potentiel\(^9\) pour la céramique grecque et cela reste un des centres d'intérêt du laboratoire Fitch ou encore du « Sphakia valley project ».

Pour décrire l'observation de ces inclusions nous avons créé trois champs. Un premier contient le type d'inclusion caractérisé suivant la table de Peacock\(^1\). Lorsque l'identification est incertaine, nous restons sur une description de la couleur et de la résistance. Dans un deuxième champ, il est noté la taille moyenne des inclusions suivant 7 fourchettes :

- Non visible à l'œil nu, inférieur à 0.5mm, entre 0.5 et 1mm, entre 1 et 2mm, entre 2 et 3mm entre 3 et 4mm, puis plus de 4mm.

Enfin, la densité est notée suivant une table de référence (Fig. 6) se basant sur la figure présentée dans Orton\(^2\) elle-même extraite du travail de Matthew\(^3\).

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23. Lemos, Protagoeometric Aegean, 84.
Il aurait été possible d'affiner sans fin ce système de description en ajoutant, par exemple, le degré de rondeur de ces inclusions. Cependant, il répond entièrement aux objectifs préétablis, simplicité de mise en œuvre sur un important échantillon géré par peu de personnes, et mise en évidence de groupes techniques.

7. Décors

Les individus sont peu nombreux, ils pourront donc être traités analytiquement individuellement sans avoir à faire intervenir de nombreuses conventions difficiles à gérer. Cependant, dans un souci de catalogage et d'harmonisation des données, celles-ci sont décrites par une formule littérale suivant l'ordre logique : motif/technique et lorsque nécessaire la partie du vase, ex « files entrecroisées de points imprimés au peigne sur l’épaule ».

A terme, le croisement de l’ensemble de ces critères doit constituer une typologie de la céramique grossière sur le site de Scala Oropou. Cependant les données des 3244 individus comptabilisés sont encore trop lacunaires pour présenter cette typologie globale dans son intégralité. Nous proposons pour l’instant de présenter distinctement ces caractéristiques en les situant dans leur contexte archéologique.

RAPPORT PRELIMINAIRE

Le comptage des NMI a été réalisé seulement pour la céramique à pâte grossière. Il a commencé en 2004 par les unités stratigraphiques (OM) du secteur central (1000 sur les 1174 OM au total)28. Pour ce premier comptage, seuls la typologie morphologique et les éléments de décoration ont été relevés. Par la suite, le travail s’est effectué pour 200 OM sur les 279 au total du Secteur Sud ainsi que pour les OM provenant de la région de l’oikia archaïque dans le Secteur Ouest (60 sur 103 OM du secteur).

Les données de ce comptage ont ensuite été saisies dans une table de la base de données liée à la table des OM, elle-même liée à une table des phases chronologiques basée sur les relations stratigraphiques. Nous pouvons donc proposer un rapport sur les évolutions chronologiques de ces critères en considérant que les effets de matériel résiduel et d’erreur de localisation stratigraphique sont largement atténués par la masse importante de données. En tout 3244 individus provenant de 871 OM dont 445 sont classés par phase.

Ces OM ont été rassemblées en six horizons stratigraphiques en correspondance avec les phases architecturales. Par commodité nous avons adopté la dernière numérotation publiée par Alexandre Mazarakis Anian29. Les équivalences avec les autres numérotations30, les périodes ainsi que les principales activités sont rapportées dans le Tableau 3.

28. Je remercie Amélie, Céline, Hélène, Judith, Laure et David qui ont participé à ce comptage.
30. Mazarakis Ainian, ’Periboles’, 185-197 ; Mazarakis Ainian, ’Excavations’, 155, fig. 3
MORPHOLOGIE

Nous proposons deux niveaux d'analyse, l'un se rapportant aux formes et l'autre aux types morphologiques. Le premier niveau s'articulant sur la forme est dépendant des caractéristiques fonctionnelles de l'assemblage31 alors que le deuxième est plus sensible au contexte culturel.

Le deuxième graphique (Fig. 2) présente le pourcentage des principales formes pour chaque phase. Nous remarquons une évolution inverse des pots et des lékanes. Le fait de trouver ici une évolution symétrique rend peu probable la possibilité d'un remplacement de ces formes par des objets d'une autre matière ayant la même fonction32. L'assemblage doit donc dépendre directement du type d'activité sur le site. Ainsi, nous pouvons mettre en relation ces courbes avec la caractérisation des activités identifiées à partir des autres données archéologiques. Au passage des phases 2 et 3, essentiellement domestiques aux phases 4 et 5, où de nombreuses traces d'activités artisanales ont été retrouvées, correspond une évolution des formes ouvertes de grand diamètre (Λκ) et de petit diamètre (Δδ) aux dépens des formes fermées. A la phase suivante, où l'activité culturelle est plus prononcée, le même schéma d'évolution se présente, excepté les types Λδ qui deviennent moins nombreux. Nous pouvons donc suggérer qu'une part de ces petites formes fermées était liée à l'activité artisanale. Ce n'est pas le cas pour les Λκ puisque nous les avons retrouvées en plus grande proportion dans les couches de la sixième phase33. Suivant la logique appliquée précédemment pour les Λδ, une part de ce matériel devrait être liée à l'activité cultuelle. Nous remarquons pour les phases suivantes, où les activités artisanales et cultuelles sont moins marquées, une tendance des proportions à rejoindre celles des premières phases.

32. Phénomène courant souligné par J. P. Crielaard, 'Greek Early Iron Age Pottery', dans J. P. Crielaard, V. Stassi & G. J. van Wijngaarden (éds.), The Complex Past of Pottery Production. Circulation and Consumption of Mycenaean and Greek Pottery (Sixteenth to Early Fifth Centuries BC) (Amsterdam 1999), 52-53.
33. Un exemple singulier est la grande jatte ΘΚ/Πχ57 (Fig. 7) retrouvée in situ enterrée à mi-hauteur dans le sol de l'édifice Z. Mazarakis Ainian, 'Périboles', 194.
Les trois autres catégories sont en augmentation constante. Nous avons tendance à relativiser cette augmentation pour les pithoi. Une durée de vie plus grande ainsi que la propulsion des gros fragments à faire surface doit être prise en compte.

Quant à l’évolution des vases fermés à col droit (essentiellement amphores et hydries) et des autres formes, elle témoigne soit du remplacement de certains instruments par des terres-cuites soit d’une complexification des tâches domestiques accompagnée par une spécialisation des ustensiles.

Cette tendance se perçoit aussi au niveau des types. Le diagramme (Fig. 3) montrant le pourcentage des types de la forme la plus fréquente, le pot, fait apparaître la richesse des différents types pour les deux dernières phases.

L’état d’avancement du comptage ne nous permet pas encore de proposer ces mêmes considérations chronologiques pour les autres critères. Seul le deuxième comptage prend en compte ces critères et il concerne essentiellement les deux dernières phases.

Les prémices de cette étude quantitative montrent que celle-ci est une source de renseignements aussi riche qu’une analyse qualitative. Les approches quantitatives offrent l’intérêt supplémentaire d’être peu nombreuses en Grèce, contrairement aux études qualitatives. Cela laisse un vaste champ ouvert pour de futures études. Les résultats seront d’autant plus éloquents que le nombre d’études augmentera, permettant ainsi la multiplication des modèles référents.

Plus encore que pour les sites gallo-romains, la technique du NMI semble la plus appropriée pour la céramique géométrique et particulièrement la commune où les panses sont difficilement identifiables. Les critères de comptage sont plus précis et objectifs. Quant à la phase d’exploitation, le NMI peut apporter les mêmes éléments de comparaison que le NR ou le poids tout en affinant les types. Qui plus est, l’immense avantage de ce système est de prendre en compte physiquement les pièces comptabilisées. Grâce à ce principe, il est possible d’attribuer des attributs aux individus comptabilisés, ces attributs correspondant à chacune des propriétés de la céramique que l’on souhaitera observer.

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35. Lèbès, louterion, lopas, support de cuisson, plat, bassin ainsi que les formes indéterminées.
OROPOS. QUANTIFICATION DE LA CÉRAMIQUE

Fig. 1. % de NR et Poids entre Oropos, Lefkandi et Asine.

Fig. 2. % de NMI des formes à pâte grossière.

Fig. 3. % de NMI des types de pots.
Fig. 4. Types morphologiques du comptage.
Fig. 5. Caractérisation de la tranche.

Fig. 6. Table d'estimation de la taille et densité des inclusions.
Fig. 7. Mortier Ωκ/Πχ57.

Fig. 8. ΩΝ/Πχ39.
Fig. 9. ΩΝ/Πχ39.

Fig. 10. ΩΝ/Πχ39.

Fig. 11. ΩΝ/Πχ333.
Between 1989 and 1992, Prof. Karl Reber excavated the remains of the Classical-Hellenistic house IV, which is situated in the West Quarter of Eretria (B/600). While doing so the excavator came across a Geometric well and a pit, which was dug around the well. Obviously, both were backfilled simultaneously in Attic LG II.

The fill consisted of burned mud bricks, metal fragments (mainly slag), obsidian, animal bones, shells and above all thousands of fine and coarse ware sherds, which can be dated between MG II and LG II. Within this range the vast majority of the ceramics date to LG P.

Among the wheelmade and painted fine ware some fragments of handmade fine ware were found as well. The quality of the clay of these sherds cannot be distinguished from the wheelmade fine ware. The difference between these two kinds of ceramic is exclusively in the method of their production. In comparison with the wheelmade fine ware the quantity of the handmade pottery is very low. Only 0.4% of all ceramic individuals of the well and the pit belong to this category.

* ABBREVIATIONS:

Courbin, Céramique Géométrique = P. Courbin, La céramique géométrique de l'Argolide (Paris 1966).


3. Pottery of the well was subject of the author's Master's thesis: Léderrey, 'Geometrischer Brunnen'.
4. In the following the technical term 'handmade' is used exclusively for fine ware, which was not made with the potter's wheel.
The majority of these unpainted sherds\(^5\) can be allocated to a closed shape such as jugs and jugs with cutaway neck. A fragment of a handmade painted bowl (Inv. 4235-23) and a fragment of a fenestrated stand (Inv. 4193-64) are the exception.

Some handmade fragments show an incised or stamped pattern. Similar to the Geometric coarse ware, the pattern consists of simple geometric motifs such as the simple or hatched zigzag (Fig. 1), multiple rows of dots (Fig. 2), pseudo-tangential double circles (Fig. 3) and hatched triangles (Figs. 4, 5)\(^6\).

Concerning the ornament the above-mentioned incised fenestrated stand (Inv. 4193-64) is of particular interest (Figs. 3, 4). Above all, it is noteworthy that its pattern seems to have a parallel (bowl with incised rim) in Kastanas, Macedonia\(^7\). It is doubtful whether this parallel is a pure coincidence or whether it betrays contacts between northern Greece and Euboea. Despite Hochstetter\(^8\) and Papadopoulos\(^9\) having voiced their opposition to a cultural exchange between the two regions in the Geometric period, the recent Geometric finds from Mende, Torone and other sites of Northern Greece point to a relation between the North and the South\(^10\). However, without performing clay analyses it would be hardly possible to confirm whether the fenestrated stand is an import or not\(^11\). At least the pattern of the fragment points to a possible exchange of ideas between northern Greece and Euboea in the Geometric period\(^12\).

Concerning the colour of the clay, a fragment of a jug (Inv. 4061-1) and an incised neck-fragment of a closed vessel (Fig. 1: Inv. 4061-2) are worth mentioning. In contrast to the other handmade pottery of the Geometric well and the pit, the clay of these sherds is greyish\(^13\). The question of whether these fragments once belonged to individuals of Greek Bucchero, which dates MG II-LG\(^14\), remains an unsolved issue. After all there is the possibility that the greyish colour of the clay was caused by an unsuccessful firing at a lower temperature than required\(^15\).

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6. Concerning the development of the (unpainted) handmade fine ware, Desborough stated that it possibly orientated oneself to the handmade coarse ware: V. R. d'A. Desborough, 'Mycenae 1939-1953, Part V. Four Tombs', *BSA* 49 (1954), 264. In contrast to the unpainted handmade pottery, the painted handmade pottery seems to imitate the pattern of the wheelmade fine ware.
11. The colour of the fenestrated stand's clay (5 YR reddish yellow 6/6 according to Munsell) doesn't exclude the possibility of an import of the North: Hochstetter, *Kastanas*, 35.
13. Inv. 4061-1: 2.5 Y light brownish grey 6/2 (mica); Inv. 4061-2: 2.5 Y light brownish grey 6/2 (mica); it is possible, that these two fragments once belonged to the same vessel.
Due to the lack of clear evidence, the previously discussed ceramics should be allocated to the "household-context". In 1960, Robert Manuel Cook expressed the following opinion considering this statement: "Most Greek pots were made for domestic use, even those which were dedicated to the gods or deposited in graves"\(^{16}\).

Fortunately, two fragments of undecorated handmade pottery show more indications for a clear assignment to another context. Both individuals differ from the other handmade pottery both in their appearance “en miniature” and by the colour of their clay: an aryballos\(^{17}\) (Fig. 6) and a conical lekythos\(^{18}\) (Figs. 7 left, 8). In scientific research, that kind of pottery is called "Argive Monochrome Ware"\(^{19}\). The aryballos as well as the conical lekythos are typical examples from the repertoire of that category\(^{20}\), which can be dated to the second half of the 8th down to the sixth century\(^{21}\).

In comparison with the aryballos\(^{22}\), the conical lekythos\(^{23}\) is well preserved (height: 5.1cm). The small size of the vessel is a further feature of the Argive Monochrome ware\(^{24}\). The colour of the clay of these two pieces points to the likelihood that they are imports from Attica\(^{25}\).

Whereas the identification of the Argive Monochrome vessels caused few problems, the search for their former context is much more demanding. A main factor in this is that the filling of the well probably consists of material from various contexts. Considering the aryballos and the conical lekythos the household-context can in all likelihood be excluded. Indeed such of vessels appear exclusively in sanctuaries\(^{26}\) and graves\(^{27}\): "Vases of the 'Argive Monochrome' type never occur in residential areas, as every other class of handmade ware, but they are found either in graves, usually in children, or in sanctuaries of Hera and Demeter"\(^{28}\).


\(^{17}\) Inv. 4230-68.

\(^{18}\) Inv. 4062-19; it is merely fixed that there is no standardized term for this form of the vessel: “Lekythos-Oinochoe” (Reber, *Handgemachte Keramik*, 97-100); “conical lekythos” (Kourou, ‘Handmade Pottery’, 321); “Oinochoe tronconique” (Eretria III, 33); “flat bottomed oinochoe” (Athenian Agora, 58, N. 234); “Platschkännchen” (W. Müller & F. Oelmann, ‘Die Nekropole der geometrischen Periode’, in *Tiryns* 1 (Athén 1912), 132, 158); Subsequently, this form will be called "conical lekythos".


\(^{22}\) 10 YR yellow 7/6 – reddish yellow 7/6 (little mica).

\(^{23}\) 7.5 YR pink 8/4 – reddish yellow 7/6 (little white inclusions).

\(^{24}\) Kourou, ‘Ateliers Argien Monochrome’, 41.


\(^{26}\) Caskey & Amandry, *op. cit.* n. 19, 202-204.

\(^{27}\) Kübler, *op. cit.* n. 21, 147 (Inv. 854); Desborough, *op. cit.* n. 6, 264; R. S. Young, ‘Graves from the Phaleron Cemetery’, *AJA* 46 (1942), 25, 53; S. Pelekídis, ‘Ἀνασκαφὲς Φαληρίου’, *ADelt* 2 (1916), 20ff, fig. 33, 43; Müller & Oelmann, *op. cit.* n. 18, pl. XV, 9; A. N. Skias, ‘Πανάρχαια ελευσινιακή νεκροπόλις’, *AE* 37 (1898), 102, fig. 25.

\(^{28}\) Kourou, ‘Handmade Pottery’, 320.
Kourou’s statement is confirmed by a find in grave 12 of the cemetery by the West Gate, which is located in the immediate neighbourhood North of our Geometric well. In that grave, a conical lekythos (Fig. 7 right) was put beside the corpse of a child. Doubtless that vessel is likewise imported Argive Monochrome ware, as the lekythos from the well in B/600. Because of the quality of the clay and the pattern of the vessel, the conical lekythos from the West Gate can be attributed to the “Atelier de la roulette éleusinienne”. On the other hand, a handmade aryballos was found in a grave of the Geometric burial ground by the sea. Again, this find can be connected to finds from Athens and Eleusis.

As the above-mentioned examples show, it seems likely that the conical lekythos as well as the aryballos from the Geometric well and the pit in B/600 once belonged to a grave context. This assumption seems to be confirmed by further ceramics which were found in the well and the pit as well, notably several fragments of monumental LG 1 amphorae and kraters. As in Athens during LG I, these vessels in all probability once served as grave markers. Consequently the filling of the well and pit includes objects which were located once in and on Geometric graves (all vessels are dating around LG I). The presumed reason for that curious coincidence might have been as follows: in the West Quarter, the stratigraphy shows clearly that a river, which crossed the region from the north down to the coast, flooded the West Quarter persistently. One of these floods could have torn the grave markers off the graves. At the same time, the flood might have washed away the layer of earth over some graves. In this way, the small and light miniature vessels, like the Argive Monochrome ware, could have been washed out of the graves. An incised LG plate, which is also typical for the grave context, supports this hypothesis. It was found in a thick layer of river-sand near the Geometric well in B/600. Once the water drained away off the West Quarter, the destroyed objects from different contexts were gathered up and thrown into the well and the pit in B/600 (maybe there were some more wells and/or pits which were backfilled in the West Quarter). Obviously, people still wanted to continue using the area. The Geometric cemetery by the West Gate, which was clearly established after the filling of the well and the pit, supports further this assumption.

29. Érètrie guide, 172ff.
30. Eretria III, 33, pl. 15, 66.
31. Ibid., 33.
32. 10 YR very pale brown 8/3 – 8/4.
34. Kourouniotis, ‘Ἀγγεία Ερέτριας’, 11ff., fig. 6.
35. Ibid., 12.
36. Coldstream, GGP, 33ff.
39. Léderrey, Geometrischer Brunnen, 98ff.
The question however, as to what the former geographical location of the discussed Argive Monochrome ware was, cannot be answered yet. A Geometric grave of a child (MG II-LG I)\textsuperscript{42} located just 22m from the Geometric well and the pit in B/600 might contribute towards this direction, by pinpointing the area which ought to be investigated in the future\textsuperscript{43}.


\textsuperscript{43} In that area, the Geometric strata are unexcavated for the most part.
Fig. 1. Inv. 4061-2.

Fig. 2. Inv. 3101-26.

Fig. 3. Inv. 4193-64.

Fig. 4. Inv. 4193-64.

Fig. 5. Inv. 3099-20.

Fig. 6. Aryballos. Inv. 230-68.
Fig. 7. Conical lekythoi. Inv. 4062-19 (left), and from Grave 12 of the necropolis by the West Gate (right).

Fig. 8. Conical lekythos. Inv. 4062-19.
THE FINE POTTERY FROM OROPOS
FROM THE EARLY ORIENTALIZING TO THE ARCHAIC PERIOD.
A FIRST APPROACH

Xenia Charalambidou

«Η ιστορία δεσπόζει διότι μας διδάσκει ότι δεν υπάρχει ιστορία.
Αυτό που μετράει είναι οι παραλλαγές»
(Umberto Eco, The pendulum of Foucault,
Greek translation, Athens 2000, 158).

This paper presents the basic methodological framework used for the study of the ceramic material from Oropos that dates from ca. 710 to the early 5th century BC, and also aims to provide a comparative first approach on the pottery from Oropos and Euboea¹.

The pottery from Oropos from these periods was mainly excavated from the O.S.K. plot (Fig. 1). In order to gain a better understanding of this material it is necessary to outline the general evidence for the buildings from which the pottery was collected, since a further aim, which is hoped to be accomplished with the completion of the wider study, is to associate the pottery finds with the stratified levels of Oropos.

THE ARCHITECTURAL EVIDENCE

The architectural remains in the O.S.K. plot at Oropos that provided the pottery studied here, consist of:
First of all, the last phase of the extensive LG II–Early Orientalizing settlement, found in the Central and West Quarters². The last phase coincides with a change in the character of the

¹ I would like to thank Professors A. Mazarakis Ainian, E. Simantoni-Bournia, N. Kourou, the supervisors of my Ph.D. thesis, for their precious advice on the manuscript, as well as my colleagues for our thought-provoking discussions, in Oropos J.-S. Gros, M. Arjona Pérez, V. Vlachou, in Eretria S. Huber, B. Blandin, P. Simon, A. Kenzelmann Pfyffer, C. Lederrey, S. Verdan, S. Fachard and Th. Theurillat. For the editing of this paper in English I wish to thank Dr S. A. Paspalas. The drawings are by the author, and were drawn with Adobe Illustrator programme by the author and J.-S. Gros, whom I sincerely thank.

² 1. The periods are given with terms of relative chronology: Early Orientalizing: ca. 710–mid 7th century BC, Late Orientalizing: second half of the 7th–early 6th century BC, Archaic: the rest of the 6th century until early 5th century BC.
² 2. A. Mazarakis Ainian, the excavator of the site, has divided the excavated area into three Quarters: the Central, the West and the South.
settlement. At this stage most of the older buildings had been destroyed, few were used, e.g. Building Θ, and some new stone constructions appeared.

In the Central Quarter a lot of pottery has been collected from around these stone structures, dated mainly from the latest 8th-first decades of the 7th century BC. The buildings and structures are surrounded by a pre-existing enclosure that was now repaired with the addition of a monumental entrance. The stone structures have been linked with ritual activities on the basis of the nature of the finds (charcoal material, animal bones and few other objects, such as a small boat made of clay) associated with them. In the same Quarter no architectural remains of the later 7th and early 6th centuries have been found until now; however, the pottery of this period from the destruction layers is plentiful. During the Archaic period, two pyres were dug in the area, and each one was crowned by a tumulus. They are probably associated with the later cemetery that was laid NE of the old settlement, known as the West Cemetery.

In the West Quarter the "monumental" enclosure was probably built in the Late Orientalizing period, using—in part—walls of the late 8th–early 7th century BC. At its south and north end two massive structures were constructed. Some rectangular walls associated with pottery of the Late Orientalizing and Archaic periods have also been found West of the monumental building. The last architectural phase of the West Quarter is represented by a rectangular house and a street on a N-S axis; both date to the Archaic period.

The architectural remains of the South Quarter comprise a street on the E-W axis, that was probably connected with the N-S street of the West Quarter, and rooms which face the south retaining wall of the street. It was probably contemporary with the house and street of the West Quarter. A large quantity of very small pottery fragments of different periods had been used as filling of the street.

THE POTTERY

Our understanding of the pottery of the Early Orientalizing period produced on the coasts of the Euboean Gulf is enriched by the material from Oropos. Ceramic material dated approximately to the second third of the 7th century BC seems to be rare at Oropos until now. It is noteworthy that a similar decrease in material of this period is observed at Eretria. This may imply population decrease, since the general impression the evidence offers differs from that provided by the abundant evidence of the LG II period. However, we should also consider

11. See X. Charalambidou, 'Συμβολή στην τοπογραφία της Ερέτριας των αρχαϊκών χρόνων', in AETHS 1 (2003), 1016, fig. 1.
the possibility that there may be some faults in the chronological sequence of the Euboean pottery during the 7th century, which may have resulted in the misidentification of the pottery of ca. the second third of the 7th century BC. Later, from the last quarter of the 7th century until the end of the Archaic period, the evidence from Oropos and Eretria increases again.

The basic methodological system that has been used for counting the fragmentary archaeological ceramic material from Oropos of these periods is the NMI system (Nombre Minimum d’Individus — in English it could be translated as the Minimum Number of Individuals). According to this system, the minimum number of the vessels is calculated on the basis of the number of retrieved rim fragments plus any completely preserved vessels. The categorization of the fine pottery is based on the following criteria: a) the clay (core, surface, inclusions), b) the morphology (the shapes based mainly on the types of rims), c) the decoration. The counting is still in progress and the results will appear in the forthcoming doctoral thesis.

A. Fabric of the pottery – Pottery workshops

The basic clay groups of the material from Oropos find parallels in the Eretrian corpus. However, especially during the Early Orientalizing period, many vessels from Oropos have buffer clay in comparison with the Eretrian vases. It is difficult to determine whether this slight difference is due to environmental reasons, for instance the torrents that often wear away the surface of the pottery fragments, or if it can be considered a criterion that distinguishes a workshop at Oropos from those at Eretria.

At this early stage of the presentation of the material it is not considered essential to distinguish the clay groups of the Early Orientalizing period from those of the Late Orientalizing – Archaic periods, though there are some slight differences; it is intended that these differences will be discussed in the future.

The clay groups are the following:

A. Pink (of the scale 7.5YR or 5YR) to very light brown clay (of the scale 10YR). In this group vases usually have pink or very light brown clay both at the core and on the surface or pink at the core and very light brown on the surface.

B. This group seems to be close to A, because in some vessels the colour ranges from pink to reddish yellow. The clay is usually reddish yellow (of the scale 7.5YR or 5YR) at the core and on the surface or reddish yellow at the core and pink (of the scale 7.5YR or 5YR) or very light brown (of the scale 10YR) on the surface.

C. Light reddish brown (of the scale 5YR or 2.5YR) at the core and on the surface or light reddish brown at the core and pink (of the scale 7.5YR or 5YR) on the surface.

D. Red (of the scale 2.5YR) at the core and on the surface or red at the core and reddish yellow (of the scale 7.5YR) or very light brown (of the scale 10YR) on the surface. This category appears to be rarer than the others.

12. See indicatively Arcelin & Tuffreau-Libre, Quantification, III-XVII. The method has already been applied on the Geometric Eretrian pottery by S. Verdan, Sanctuaire d’Apollon Daphnéphoros à Érétrie, Système de description et de saisie du mobilier céramique de la période géométrique (Lausanne 2002). See also the contribution of J.-S. Gros in this volume for the application of the system with regard to the hand made pottery of Oropos. I would like to thank sincerely J.-S. Gros, S. Verdan, and the other members of the Swiss team in Eretria for our discussions for the application of the system to the fine pottery from Oropos.
In many cases, mainly due to reducing firing conditions, the colour of the vessel turns grey. The clay does not have any mica. The inclusions are usually white and in some instances dark brown. The slip, which appears more often on the vases of group B, especially those that date until the first decades of the 7th century, is often either very light brown (of the scale 10YR) or pinkish white (7.5YR, 8/2 or 5YR, 8/2).

At Oropos there is evidence of three ceramic kilns and possibly of a fourth one. The older one, probably of the second half of the 8th century, was found in the West Quarter13. The others were constructed in the Central Quarter. The later kilns are associated with the last phase of the extensive settlement on the basis of the observation that they are built in levels that belong to that period. Two of them, which are built close to one another, each have a double firing chamber14. A third one may have existed in the circular Building H. On the floor of the third kiln was found a miniature one-handled cup which resembles the cups of the Attic Phaleron Group15. The evidence for pottery kilns from Eretria is also limited16. The remains of these kilns at Oropos may indicate that some pottery within the Euboean tradition was also produced at that site, at least until the late 8th–early 7th century BC. At Oropos no pottery kilns have as yet been attributed to the Late Orientalizing and into the Archaic periods. The clay of vases of this period at the site, however, continues to resemble that of Eretrian vessels.

B. Shapes

The shapes represented at Oropos, from material which comes mainly from domestic contexts, are basically the following: pyxides, kothons, aryballoi, lekythoi-oinochoai, amphoroid vases, jugs, hydriae, amphorae, lekanides, lekanes, skyphoi, calyx skyphoi and kraters, kotylai, one-handled cups, kalathoid cups, bowl-like cups, kylikes, kraters and louteria. The range of vases excavated in contexts which may be connected with ritual activities, such as the stone constructions of the Central Quarter, include jugs, a tankard, an amphora, lekanides, kotylai, skyphoi, calyx vases, cups etc. Other vessels, scattered around the area, may be connected with this find context, among them the two kraters illustrated on Fig. 5 (1-2).

The creation of a typology of shapes is currently being undertaken, as is a typology of decoration. These typologies aid in the counting of the material from Oropos and are continuously reviewed through the ongoing study of the material. Each type is associated with its archaeological context, so that the evidence for its chronology will be available on completion of the typologies.

In this short essay we consider it useful to present an example of these typological charts along with a short description of the development of the relevant shape. We chose the calyx form, in both its skyphos and krater variant17, from Oropos, which is a long-lived shape (see Fig. 2: the typological plate, and Fig. 3, for characteristic calyx vases of each type). Calyx

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16. See Charalampidou, op. cit. n. 11, 995, 997.
17. The shape is named after Boardman, 'Euboean Pottery', 17, pl. 2c (NM 135) ('calyx krater') and Eretria V, 42-44, Beil. 6 ('Kelchskyphoi'). The criterion for the distinction of calyx kraters and skyphoi is thought by the author to be the diameter of the rim, below ca. 0.18m are considered as skyphoi and above ca. 0.18m as kraters.
vases are also found in regions with Euboean-associated pottery, such as Torone and Sicilian Naxos.

The first phase of this shape is dated to the LG II period (we can already use the term calyx for examples for this stage). The form of the shape at Eretria and Oropos which lasts for the longest duration is the calyx vase with convex or straighter rim (there are also other variations of rim shape). So, in the Early Orientalizing period one may detect two sub-types, which in some cases show slight differences. The first sub-type has a more convex rim (Fig. 2, type la), the second has a straighter rim (Fig. 2, type 1b). The development of the shape towards one with a straighter rim during the 7th century may be detected on the Eretrian calyx vase FK 195.4, dated in the second or third quarter of the 7th century. The rim can be very open and straight during the Late Orientalizing period, as it can be observed by vessels, such as the Eretrian calyx krater NM 135, and a calyx krater from Oropos with double loop decoration on the rim, a motif found in the repertoire of the Eretrian group D (Fig. 2, type lc). This development was not universal, as evidenced from the Late Orientalizing Eretrian calyx skyphos FK 1681.1, which retains the convex rim of type 1a; on the whole the profile of this vase does not look much different from earlier vases. Instead of a low base, in the Late Orientalizing period we often find a conical foot, as in the contemporary Eretrian tankards.

C. Style

Typological charts of the common decorative subjects have also been prepared, in order to calculate the amount of decorated pottery in comparison with the black-painted vessels or other ceramic categories (see Fig. 4: the order of the decorative motifs in the plate is arranged according to the first letter/s of their Greek name). As can be seen in this chart, most motifs find parallels among Euboean pottery.

During the Early Orientalizing period the two kraters from the Central Quarter stand out due to their high quality (Fig. 5: 1-2). They are discussed here briefly.

The first krater was found in scattered pieces, and the fragments can only be restored tentatively. The representations show horses marching in file and the hindquarters of a larger animal. On the second krater two opposed chariots are depicted each drawn by two hors-

18. These vases with linear decoration were presented by Dr S. A. Paspalas, 'A Group of Late Geometric and Subgeometric Pottery from Torone and its wider Aegean Context', in the 25th Anniversary Symposium of the Australian Archaeological Institute at Athens, Athens October 10-12, 2005 (unpublished).


21. Eretria V, 22, 43, Beil. 6, pl. 5.

22. Boardman, 'Euobean Pottery', 17, pl. 2c. I would like to thank the Curator in the Collection of Vases of the National Museum in Athens, Mrs E. Stasinopoulou, for giving me permission to draw the vase.


es, probably in a representation of a battle\textsuperscript{25}. Even though the style of the first krater seems Protoattic, we may note that its clay and slip match the characteristics of the Oropos Group B vessels (5YR, 7/6, slip 10YR, 8/4). As regards its decoration the dotted plant ornaments drawn in the Protoattic manner are also found in the Eretrian Orientalizing workshop\textsuperscript{25}. The vase could therefore be better considered within the context of the Euboean atticizing tradition. The second krater's buffer clay (at the core 10YR, 7/4, on the surface 10YR, 8/4) is also common among the material from Oropos (clay group A). All zones of the vessel have Protoattic motifs. However, the upper zone of the opposed chariots is framed by a distinctive Euboean feature, birds with angular wings, implying that the vase can either be placed again within the Euboean atticizing tradition or that it could be considered as the work of a potter (Attic?), who also took into account the tastes of his Euboean buyers.

The Late Orientalizing vases from Oropos that belong to the Group C style are few in comparison with those which fit in the style of Group D. On them we see the same depiction of animals, birds, florals (e.g. Fig. 6: 1), loop pattern (e.g. Fig. 3: 4), hooks and linear ornaments as on the Eretrian vases.

The style and the chronology of the Early and Late Orientalizing grave amphorae were first discussed by J. Boardman\textsuperscript{27}. The groups of grave amphorae he examined, as it is obvious now, are contemporary with vessels of all sizes, that come from domestic and ritual contexts, and share the same stylistic features with them. Therefore, these styles should no longer be restricted to the grave amphorae alone, but should be regarded as characteristic of the pottery of this period in general.

During the second quarter of the 6th century BC the Late Orientalizing tradition appears to give its place to a black-figure style, but vases decorated with linear motifs are still produced during the Archaic period. Many shapes and decorative themes, especially of the first category (the black-figure vases), are greatly influenced by the products of Attic workshops. Vessels of the second category, numerous in 6th-century Oropos, such as the kotylai with multiple-brush patterns in the handle-zone and groups of parallel lines around the base (e.g. Fig. 6: 2), are found on both sides of the Euboean Gulf, on Euboea and in Boeotia\textsuperscript{28}.

AIM TO BE ACCOMPLISHED

The most important aim of the wider study is to associate the pottery with its contexts, beginning with those from the closed stratified levels. This information could provide valuable criteria for the relative chronology and will be available to any researcher who would wish to judge the results of the study.

\textsuperscript{25} Prakt (1997), pl. 27a.
\textsuperscript{26} J. P. Descoeudres, 'Un aryballe érétrien au musée de Délos', BCH 96 (1972), 281 (Coll. Ch. Bernoulli, Bâle), figs. 12-13; Eretria XIV, vol. II, 41, V121 (E/8-479.72.), pi. 110.
\textsuperscript{27} Boardman, 'Pottery from Eretria', 13-30.
\textsuperscript{28} See for instance, J. Boardman & M. Price, 'The Late Geometric Pottery', in Lefkandi I, 78, n. 108, pl. 59, nos. 344, 347.
Fig. 1. O.S.K. plot at Oropos (Central, West and South Quarters) (drawing by N. Kalliontis & A. Gounaris, A. Mazarakis Ainian, Prakt. (2002), 6–7, fig. 1). The Early Orientalizing period is indicated with green, the Late Orientalizing and Archaic periods with blue.
Fig. 2. Typology of calyx skyphoi and kraters from Oropos.
Fig. 3. Characteristic calyx vases of each of the types shown on fig. 2.
Fig. 4. An abridged typology of decoration from Oropos.
Fig. 5. Oropos. Kraters. Early Orientalizing period.

Fig. 6. Oropos. 1) Krater. Late Orientalizing period. 2) Kotyle. Archaic period.
LATE GEOMETRIC SLIPPED POTTERY.
TECHNOLOGICAL VARIATIONS AND WORKSHOP ATTRIBUTIONS
(EUBOEAN, CYCLADIC AND ATTIC WORKSHOPS)

Eleni Aloupi & Nota Kourou

INTRODUCTORY REMARKS

The most usual practice of Greek potters prior to starting the decoration of a wheelmade and painted vase has always been the so-called "wash" process, i.e. smoothing the surface of the pot with a wet sponge dipped in "diluted" clay. This procedure, while offering a spotless

* In the course of this study many people have been involved in issuing permits, offering samples and other valuable help: Prof. P. Themelis, Dr St. Smith and the Swiss Archaeological School generously offered samples from material in their trust at Eretria; Mrs Olga Kakavogianni offered samples from her excavations at Anavysos and Vravrona; Mrs Anastasia Rammos helped with samples from the excavations at Koropi and Pallene and Prof. A. Mazarakis Ainan with samples from his excavation at Oropos. Samples for an earlier study dealing with LG island wares were provided by Dr F. Zafeiropoulou and Prof. V. Lambrinoudakis. Dr Joan Mertens kindly allowed proper macroscopic inspection of the Cesnola vases in the Metropolitan Museum, New York. Miss Vicky Vlachou prepared the catalogue of the samples, and Miss Ioanna Aslani performed the XRF analysis at the Laboratory for Material Analysis of the Institute of Nuclear Physics, NCSR Demokritos. The non-destructive analytical work was realized in the course of the INCOII EU research project CERAMED and the results were used for the calibration of the non-destructive methodology which was developed by our colleagues Dr Andreas Karydas and Ch. Zarkadas. We extend our warmest thanks to all of them.

ABBREVIATIONS:
Kourou, CVA 8.5 = N. Kourou, CVA Greece 8, Athens 5, The Attic and Atticizing Amphorae of the Protopotamic and Geometric Periods (Athens 2002).

LATE GEOMETRIC SLIPPED POTTERY

ground for treatment, it also creates a thin surface layer of clay\textsuperscript{2} that results in a more or less smooth and even aspect of the vase surface after firing.

The application of a creamy, opaque "slip" on the vase surface prior to firing to form a light-coloured background for the painted decoration is another, less frequent vessel making practice followed by Greek potters. Colour and consistency of the slip, which is made from clay other than that used for the pot, may vary considerably but it always has a compelling whitish hue.

These two distinct treatments of vase surface of wheelmade painted wares, i.e. either with a wash from the same clay as that used for the vase or with a slip from some other different clay, represent two distinct approaches to vase decoration. The use of a simple wash is a necessary practice for any potter aiming at fine results; thus, it has always been the most traditional and recurrent vase treatment of Greek painted pottery made on the wheel. On the other hand, the application of an opaque light coloured slip is a rare and exceptional surface treatment, which can be compared to the art of wall painting, as it offers a more refined background for the decoration. The use of a creamy slip as a base for vase painting is already known from the Neolithic period\textsuperscript{3} and it occurs sporadically throughout the Bronze Age in various workshops in the Aegean areas\textsuperscript{4}, as well as in Cyprus\textsuperscript{5}. In the Mycenaean period slipped wares ("the white styles"), which are basically attested mainly in Euboea and the islands, were possibly developed in an attempt to imitate the calcium rich and hence light-coloured argilve clay.

Slipped wares are far from common in the Geometric period, except for some workshops in Euboea and the Cyclades, notably Naxos\textsuperscript{6}. The same practice is adopted just before the end of the LG period by another Cycladic workshop at Thera\textsuperscript{7}. The main features of the slip used in these island workshops, which are discernible macroscopically, are its opaque aspect and its distinctive whitish colour in various hues from pinkish-white to yellowish. The use of a high quality slip is widely adopted in the early 7th c. by Boeotian workshops and later by the painters of the "Melian" vases.

In between simple wash and thick, creamy slip some workshops followed a middle ground by applying a very thin layer of slip that offered the required whitish background for the painted decoration, without the eye-catching effect created by the opaque variety of slip. This kind

\textsuperscript{2} According to our experience the "wash" is a result of what most traditional potters call "sponging"; during which they smooth the surface of the semi-dry vase by using a sponge dipped in a basin filled with water. Although they start the process with clear water it soon becomes a watery clay slip (referred to as "diluted" clay by several scholars) and the practice is similar to the application of a very thin slip layer.

\textsuperscript{3} For slipped late Neolithic pottery from Kitrini Limni (Ptolemais), cf. E. Aloupi, 'Characterisation of pigments on decorated ceramics from the archaeological excavation of Kitrini Limni Galanis, Kozani Greece', Scientific report submitted to the Director of the Archaeological excavation, prof. M. Photiades (Univ. of Ioannina 2004); for similar pottery from Sesklo and the island of Yura, cf. Aloupi, personal archive.


\textsuperscript{6} Cf. Coldstream, \textit{GGP}, 171, 189; Kourou, 'Naxian Workshops', 110; \textit{ead.}, 2004, op. cit. n. 1, 77.

\textsuperscript{7} Coldstream, \textit{GGP}, 185-186.
of fine and delicate slip, which fades away easily and today is often hardly discernible macroscopically, had been used in Euboea and the Cyclades and to a lesser extent in some Boeotian and Attic workshops.

The use of a slip, whether opaque or not, does not necessarily imply any particular stylistic affinities and relations between workshops. But differences in quality or colour, which are common, suggest the use of different raw materials and varying technical procedures implying the possible existence of distinct ceramic workshops. In this study, therefore, an attempt will be made to clarify issues related to the technology of manufacture of some classes of wheel-made, slipped and painted pottery of the LG period and discuss their significance in identifying pottery workshops. For this reason we have sampled the main classes of LG slipped wares, i.e. Euboean, Cycladic (Naxian and Theran) and Attic (mainly from East Attica). The first two groups (Euboean and Cycladic) represent the starting point of this study, while the Attic wares were added for comparison and for making possible a technological approach to some of the best known LG island pottery workshops closely related to Attic wares, including the famous Cesnola Painter and his workshop.

PROVENANCE PROBLEMS AND TECHNOLOGY OF LG SLIPPED WARES

The so-called Cesnola Painter is considered as a major artistic personality in LG Aegean pottery. The name-piece of his workshop, the large krater in New York, MMA 74.51.965, was given to the Museum by its first director, Luigi Palma di Cesnola, with the information that it was found at Kourion in Cyprus in a "temple", which subsequently proved to be a large tomb. The provenance of this painter and his influence on other contemporary styles have been debated for long and with good reason as vases in a similar style have been excavated at several places in the Aegean, Cyprus and also in the West (Pithekoussai and elsewhere at a number of Etruscan sites in Italy). The Cesnola krater itself was first recognized as Attic and soon afterwards it was linked with other vases and Corinthian Geometric pottery. Much later, it was

8. Cf. e.g. Kourou, CVA 8:5, 14, pl. 1 (PG), 82 pl. 96 (MG), 51 pl. 54 (LG).
9. For this painter cf. recently Moore, CVA 37:5, 81ff. (with previous bibliography).
10. Ibid., pls. 46-49.
11. Ibid., 81.
LATE GEOMETRIC SLIPPED POTTERY

recognized as Naxian on the basis of similar material found on Naxos in the Cyclades\(^{16}\). Later
on, the oenochoe in New York, MMA 74.51.838 and another fragmentary oenochoe in New
York, MMA 74.51.5885, both found together with the large krater at Kourion\(^{17}\), were explained
as the nucleus of this style still considered as Naxian\(^{18}\). In 1971 Buchner and Coldstream work­
ing independently recognised a large number of Euboean elements on the vases of this style
and the workshop "changed address" and was reattributed to Euboea\(^{19}\). A small hydria from
Chalkis in the same style and similar fabric, as recognised by P. Themelis, offered further evi­
dence for Euboea\(^{20}\), while a number of new finds recovered at Eretria and Lefkandi strength­
ened that case\(^{21}\). Much later a number of large kraters in the same style found at Eretria
and attributed to a distinct hand named the Eretria 116 Painter\(^{22}\), suggested the existence of more
than one artisan producing vases in this style in Euboea.

Yet, on grounds of the many non-Euboean elements on the vases of this workshop the
Naxian origin remained a sound candidate and continued to be discussed\(^{23}\), while another
explanation suggested that the Cesnola Painter might have been a Naxian who emigrated to
Euboea\(^{24}\). A number of vases in the Cesnola style found at Naxos and made in a distinctive
local Naxian fabric, indicated the existence of a local workshop producing vases in this style\(^{25}\),
while some Boeotian vases in a similar style\(^{26}\) implied a wider distribution of the Cesnola
Painter's influence in the Aegean. The number of vases in this style found in the West and
made locally widened the extent and boundaries of this painter's and his workshop's influence.
Thus, it was put forward that what up to then had been claimed as the work of the Cesnola
Painter and his workshop "should now be seen not as a workshop's or a painter's production,
but simply as a Style, a kind of LG partial koine shared by Euboea and Naxos that had also an
impact in some Boeotian workshops"\(^{27}\).

In spite of the numerous archaeological and art historical discussions of LG slipped wares
and in particular of the most representative class among them, i.e. the vases attributed to the
Cesnola Painter and his workshop, scientific research and technological investigation of the
vases in this style have been extremely limited.

The clay of the Cesnola krater from Kourion in New York, MMA 74. 51. 965 and the
enochoe MMA 74.51.838 from the same assemblage, and in the same style and fabric\(^{28}\), were
analysed by the Oxford Laboratory and tested against Euboean Pendant Semicircle Skyphoi,

17. Moore, CVA 37:5, pl. 50.
21. Cf. L. Kahil, 'Contribution à l'étude de l'Eretrie géométrique', in ΣΤΗΛΗ. Τόμος εις μνήμην Ν. Μ.
Kontoleonοτος (Athens 1980), pl. 232; ead., 'Eretrie à l'époque géométrique', ASAtene 59 (1981), 165-171; Boardman
'The Censola Group'.
22. Gisler, 'Cesnola'.
27. Kourou, op. cit. n. 12, 175.
28. Cf. above notes 8 and 15.
but the results were not very decisive\textsuperscript{29}. Later, however, it was claimed that "analysis appears to have decided the matter for Euboea"\textsuperscript{30}, while a third vase from the same find spot at Kourion, the fragmentary oinochoe in New York MMA 74.51.5885, was also analysed and proved to match the other two vases from Kourion\textsuperscript{31}.

Other attempts to scientific investigation of the slipped class of LG vases focused on Cycladic LG pottery and primarily Naxian. Several local Cycladic workshops were identified by mineralogical analysis including a number of Naxian workshops producing slipped or unslipped wares\textsuperscript{32}.

Another project based on trace element analysis using NAA (Neutron Activation Analysis) technique and having as control groups Naxian MG pottery was also able to safely identify several local Naxian LG workshops\textsuperscript{33}. In these studies local Cycladic clays were examined in great detail and local "workshop" identities of Cycladic wares were well defined. Yet, sound comparisons between Naxian and Euboan LG pottery in similar styles or an assessment of the Naxian Cesnola group against Euboean wares using the same style were not carried out. A step further towards that direction was achieved later with another study that concentrated on the technology of Cycladic pottery\textsuperscript{34}.

The study of the technology of LG Cycladic wares offered valuable information for a number of issues related to vase making ranging from the raw materials used, the stages of production to firing temperatures. It also proved useful for provenance problems because the surface of the vase offered an additional physicochemical control, beyond the usual trace element analysis of the clay. Moreover, whereas the study of the clay of the vase (hence: clay body) may at best throw some light on the use of local clay sources, test and analysis of the surface treatment (i.e. of paint or slip) is more likely to reflect specific workshop practices.

For this reason the present study taking the results of earlier research as a starting point has undertaken the investigation of LG slipped wares by a technological approach in which Cycladic and more specifically Naxian slips are compared against Euboean and Attic. It is therefore necessary to present briefly the results of the previous technological study of Cycladic wares\textsuperscript{35}, which forms the background to the present study.

The focus of that study was on Naxian and Theran LG slipped wares, but it also included a small number of Euboan sherds.

\textsuperscript{29} J. Boardman & F. Schweitzer, 'Clay Analysis of Archaic Greek Pottery', BSA 68 (1973), 267-283.
\textsuperscript{31} Cf. Moore, CVA 37:5, 82.
\textsuperscript{34} Aloupi, Φύση και Μικρομορφολογία.
\textsuperscript{35} Aloupi, Φύση και Μικρομορφολογία.
Naxian LG slipped pottery

Naxian LG slipped wares present variations in the colour of the slip\(^36\), which signify distinct treatment of the vase surface implying separate artisans or workshops. Naxian LG slipped wares appear in a variety of styles, such as the Bb, the Ba, the Cesnola and various Bird styles\(^37\), each one treated with a distinct kind of slip varying in colour from pinkish cream to white or yellowish. The technology of manufacture of LG Naxian slipped ceramics can be described as follows:

a. The clays used for the manufacturing of the Naxian vases, including those in the Cesnola style, are of the same general type i.e. micaceous illitic clays with moderate CaO content. These clays upon firing produce a brick clay colour.

b. Most of the Naxian sherds (i.e. 73\%) examined were fired at temperatures higher than 850°C. Firing at temperatures that exceed 850°C is very important for the sintering and vitrification of the calcareous slip with simultaneous formation of calcium-alumino-silicate phases, which subsequently, especially at higher temperatures (over 950-1000°C) produce pale-yellowish colours and provide a quite good adherence to the clay body (Figs. 1a, 1b). The firing temperature of the Naxian Cesnola style sherds, however, is below the above temperature range.

c. The chemical composition of the dark glosses and the homogenous microstructure which they exhibit in the SEM (Scanning Electron Microscope), especially those of the Naxian Cesnola style sherds point to the successful application of the “iron reduction technique”. The paint used for the dark decoration, or the dark gloss that covers the interior surface of the open vases, has been produced by treating raw illitic clays, rich in iron oxides, with low CaO (Figs. 2a, 2b).

d. The firing process consisted of three stages with different atmospheric conditions: oxidising, reducing, oxidising (ORO firing). The first stage under oxidising conditions was a long-lasting one, while the subsequent reducing stage which was necessary for the production of the dark, intended as black (though frequently coming out as brown) colour of the painted decoration was rather mild i.e. short in time and at lower temperature. This is verified by the glassy micromorphology of the paint layer in the SEM which is free of “bloating” pores\(^38\) (Figs. 2a, 2b). A final oxidising stage during cooling allowed the reoxidation of both the vase walls (clay body) and the slip layer. An intentional reduction during firing (i.e. closing the vent holes of the kiln) as described above, although in agreement with firing practices of later times (i.e. Archaic and Classical), undoubtedly in this much earlier period it implies a degree of sophistication for LG Naxian pottery.

e. There is a variety of slips on local Naxian production. The pale coloured slips of all Naxian pots in Bb styles, were produced from suspensions of natural calcareous clays probably locally found as indicated by the presence of very fine mica inclusions. The slips of Naxian Bird style vases do not differentiate from the other local styles, but the pinkish slip of the local Cesnola style pottery is distinct. The slip used on Naxian Cesnola style vases is characterised

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36. Αλουπή, Φύση και Μικρομορφολογία, 152.
37. Cf. Κουτσού, ‘Naxian workshops’.
38. Αλουπή, Φύση και Μικρομορφολογία, 109.
by lower amounts of CaO and MgO relative to the yellow, white and grey slip in the rest of the samples. It is also characterised by higher K/Si and lower Ca/Fe ratios which can be clearly seen in the scatter diagram of Fig. 3. Moreover, the slip in the Naxian Cesnola style vases exhibits a slightly different microstructure under the SEM (see the differences in the micromorphology of polished section specimens in Figs. 4a, 4b); although still fine in texture like the rest of the samples, the layer of the Naxian Cesnola style slip contains more aplastic inclusions (i.e. mica, feldspars, quartz, which are relevant to the higher K/Si ratios in these samples). Finally, Naxian slips include a variety in grey colour, which is directly related to incomplete reoxidation of the slip during cooling or to a subsequent exposure to open fire.

The LG Theran sherds

The Theran sherds studied were all from the Sellada cemetery and were consistent in their clay, slip and technology. Their slip had a pale white (i.e. creamy) to yellowish colour and the analysis and micromorphology of the clay body, slip and dark decoration offers a series of features that allow us to refer to a rather provincial workshop. The application of the iron reduction technique is not similarly successful; the painted decoration is mostly dull as opposed to the shiny Naxian ones and the colour is rather accidental (red, brown or black) as a result of a firing in traditional stone built kilns; the pale slip is rather coarse (i.e. less cleaned or treated) when compared with the fine grained Naxian slips.

Euboean sherds from Eretria

The small number of Euboean sherds previously analysed had been excavated at Eretria. They belonged to distinct stylistic groups, but only a very small number of slipped wares were included. For this reason their analysis concentrated also on paints used for the surface decoration. They were proven to have been produced of raw materials similar to those used for Naxian LG wares, i.e. of calcareous clays for the pale coloured slips and of iron-rich clays for the dark paint used for the decoration. The clay used for the vase formation (i.e. for what can be described as clay body), was free of mica and fired to a very characteristic buff orange colour. However, both clays (i.e. of the clay body and of the pale slip, were free of mica inclusions. The firing practice, though similar to that of the orthodox Naxian wares, such as the Bb styles, it may probably imply lower temperatures comparable to those of the Naxian Cesnola style vases.

The Cesnola krater from Kourion in New York

Further to the technological study of Euboean sherds, special attention was given to the best known and most representative example of LG slipped wares considered as Euboean,

i.e. to the Cesnola krater in New York. The clay and fabric of the vase were studied macroscopically. It was clear that the orange-red clay is particularly fine in texture and free of mica inclusions, in contrast to all known kinds of Naxian MG and LG pottery, which is distinctive by the large amount of mica contained in the clay. On the other hand, the pinkish-creamy white slip of the Cesnola krater in New York was closely comparable to Naxian slips used for vases in the Cesnola style, but it was also similar to some Euboean slips used on LG vases in various styles. Therefore, although the absence of mica in the clay of the Cesnola krater seems to directly imply a Euboean origin of the the vase, it is clear that a more detailed study of its technological characteristics of the clay and slip would better clarify issues of technology and workshop.

NON-DESTRUCTIVE XRF ANALYSIS OF EUBOEAN, NAXIAN AND ATTIC POTTERY

A systematic technological comparison of Euboean, Naxian and Attic wares was undertaken in the present study in order to reach at an overall picture of the LG slipped wares. The study takes up every aspect of the technology involved, i.e. the clay body, the slip, the painted decoration and the firing process. It is based on the use of non-destructive techniques that allowed us the analysis of a large number of well documented ceramic sherds in a relatively short time. For this study a portable X-Ray fluorescence system with a non-radioactive X-ray source was employed. The quantification of the data made use of both the major, minor and trace elements in clays. We analysed a total of 100 samples of slipped LG pottery from Eretria, Merenta, Anavyssos, Koropi, Pallene, Oropos and some selected samples from the previously analysed group of Cycladic sherds from Naxos and Thera. In the assessment of analyses the results of the previous technological investigation of Cycladic wares were taken into account.

Description of the sherds analysed

The Euboean sherds studied (cf. Catalogue 1) come from Eretria from the Swiss excavations at the area of the temple of Apollo Daphnephoros and from Themelis’ rescue excavations in the residential and burial areas. They offer a good range of vase surface treatment of LG Euboean wares. Most of them are slipped with an opaque slip including some sherds with a pinkish slip of the Cesnola style. Among them, there are some published sherds attributed

40. Cf. supra n. 10.
41. A conventional systematic analytical comparison would require both a large and representative number of well defined sherds, to be sacrificed in order to perform a series of destructive analyses i.e. thin section petrographic analysis; trace element analysis with NAA, ICP or destructive XRF; powder XRD; Analytical SEM (SEM/EDXA) and laboratory experiments. These requirements cannot be simultaneously satisfied due to, amongst other reasons, the well-founded reluctance of the Archaeological Service to allow the destruction of a large number of valuable sherds. The alternative approach adopted here was to rely exclusively on the use of non-destructive techniques in which case it is possible: (a) to have access to a large number of well documented ceramic sherds; (b) to perform the analyses in a relatively short time (in the order of 20 samples in a working day); (c) to have access to valuable Museum objects
42. The non-destructive analytical work was realized in the course of the INCOII EU research project CERAMED ICA3-CT-2002-10018, 2003-2005.
to a painter closely following the Cesnola Painter and named by Gisler "The Eretria V 116 Painter". Of them nos. 1, 3, 12, 13 (Fig. 5) come from the large krater V116; nos. 2 and 9 (Fig. 6) belong to the krater V54; nos. 6, 7, 10, 14 and 19 (Fig. 7) are from the krater V21. Some smaller sherds in the same fabric (nos. 4, 5, 8, 11, 15, 16, 17, 18) are from vases mostly in the same style (Fig. 8). There is a number of sherds in various distinct styles of vases treated with a wash (nos. 27-28, 31, which is a LG skyphos with diluted chevrons (Fig. 9). Nos. 29-30 (Fig. 10) belong to the Euboean bichrome ware, i.e. with use of added white for the decoration, while nos. 20-26 have a thin slip (Fig. 11).

The Naxian sherds studied (cf. Catalogue 2, Fig. 12) come from Kontoleon's excavations in the area of Grotta and Apolomata and offer a wide range of slips. Of them only six are shown here; a larger group of Naxian LG sherds including slipped and unlipped wares have been presented in previous studies, in which provenance was checked by INAA and their technology was analysed in detail. The group of Naxian sherds already studied in previous publications also included some fragments in the local Naxian Cesnola style.

The Attic sherds studied (cf. Catalogues 3 and 4) come from rescue excavations at five sites in Attica: Koropi, Merenta, Pallene, Anavyssos and Oropos. They offer a variety of surface treatment of Attic pottery from the PG to the Early Protoattic period. The early pieces are all treated with a wash; cf. the PG sherd no. 4, the EG sherds nos. 5-7 and the MG II sherds nos. 8, 9 and 32 (Fig. 13). The LG sherds include two from the workshop of the Athens 897 Painter: no. 2 with wash and no. 15 with a thin slip (Fig. 14). The other LG Attic sherds cover the range of surface treatment completely; nos. 3, 10 and 11 have a wash (Fig. 15), no. 12 has a thin slip, while nos. 13 and 14 have a thin, cream slip (Fig. 15). Of the Early Protoattic vases sampled no. 1 has a thin slip (Fig. 17).

Among the Attic sherds tested are also included ten LG sherds from Oropos (cf. Catalogue 4), which was included because of its vicinity and particular relations with Eretria. Three of them are treated with a wash (nos. 1, 4 and 9) (Fig. 18) and the rest with a light, thin slip (nos. 2, 3, 5, 6, 7, 8 and 10) (Fig. 19).

**Discussion of the Analytical results**

The technological study of the samples described above included analysis of the dark black or dark brown paint and the slip used for the decoration of the vases. The study of LG pottery exhibits an inherent difficulty to the analyst due to the line density of the painted decoration on some sherds, which does not leave easily a clear area with a diameter of the order of 5-8mm in order to analyse the surface slip alone. For the same reason it is rather difficult to isolate and analyse the black paint as it usually occurs in very thin lines. However, our earlier work had firmly established the use of iron rich illitic clay suspension for the black paint of the deco-

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43. Cf. Gisler, 'Cesnola'.
44. Cf. ibid., 15-20 figs. 1-2 and 4.
45. Cf. ibid., 60 fig. 11.
46. Cf. ibid., 79 fig. 13.
47. Cf. Grimanis et al., op. cit. n. 33, 3; Αλουπή, Φύση και Μικρομορφολογία, 152-177.
48. For our attribution, cf. Kourou, CVA 8:5, pl. 63.
49. For our attribution, cf. ibid., pl. 64.
ration in conjunction with the iron reduction technique. We thus also know that all sherds analysed here, as referred to previously, have been subjected to roughly the same firing process involving final temperatures in the range of 800-1000°C under oxidising conditions during the rise and fall of the firing cycle and reducing conditions at the maximum temperature plateau.

In the scatter diagram of Fig. 20, we have chosen to present the analytical results for the slip in terms of two ratios K/Si and Ca/Fe one of mineralogical and the other of chemical significance respectively. The K/Si ratio expresses the illitic and micaceous component of the clay slip. For similar firing conditions the dominant factor for the colour of the slip is the ratio of Ca/Fe. For calcareous clays with a CaO content >6%, a high Ca/Fe ratio leads to cream and yellow colours while a low Ca/Fe shifts the colour towards pinkish shades. It is interesting to note that the results coincide with those obtained in the past (Fig. 3), using SEM/EDX, a "destructive" technique, involving removal of a minute sample.

The results from the analysis of the slip show that the East Attic wares concentrate between 0.5-1.0 with a mean of Ca/Fe ratio at 0.75; the Eretrian between 1-1.5 (with a mean at 1.25); whereas Cycladic (Naxos and Thera) span the whole range from 0.8-2. The pinkish cream Naxian slips of the Cesuola style present lower values, i.e. 0.6-1.2. It is not surprising, therefore, that the clay surface of Attic LG wares with the lower Ca/Fe ratio is more pinkish than Eretrian or Naxian, but similar to the Naxian Cesnola style.

It is worth noting that the case of Eretria for which we have an unbiased sample including several styles (Bird, Cesnola and others) the slip material is not chemically differentiated. This suggests that slip similarity amongst wares does not necessarily imply related or identical artisans or workshops; its significance concerns exclusively the wider local production.

The case of Naxian wares though is rather different because they appear to show some correlation between slip varieties and artistic styles. The technological similarities observed in the firing process, chemistry and microstructure of the clay body and of the black gloss point to the use of the same raw materials and treatment processes and equivalent technological capacities of the potters. But this uniformity in the use of materials is absent on slips; the application of the Cesnola style in Naxian workshops coincides with the use of a distinct calcareous slip with lower Ca/Fe ratio (0.6-1.2) that points to the existence of an identifiable product line. These observations based on the technological examination of the archaeological material reinforce the hypothesis that the Cesnola style was followed by certain Naxian workshops or even a distinct one, while other contemporary workshops or potters produced vases by following more traditional local styles. Some of them have a pale, yellowish hue; others are in a more compelling yellow colour, while those on the vases of the local Cesnola style have a pinkish colour, similar to that known from Euboea. From our previous study we know that the ratio Ca/Fe in raw calcareous Naxian clay sources, which develop a pale colour with firing, spans the full range from 0.5 to 2. However, all these clays under the SEM present even fine inclusions of mica, which is also the case for the slip of the Cesnola style Naxian sherds. This allows the conclusion that Naxian workshops choose different local clays for their slip, as they choose their distinct styles; the alternative hypothesis which would involve the import


of small quantities of Eretrian or even Eastern Attica clays to produce the appropriate slips to emulate the Eretrian and Eastern Attica styles cannot be sustained by the analytical data presented here.

CONCLUSIONS

What results from the simple and non-destructive technological approach used in this study of slipped LG wares seems to be a firm basis for resolving issues of provenance and workshop attribution.

In this study Euboean wares from Eretria belonging to different stylistic groups were found to have identical technological characteristics. This result suggests a common area of potter’s workshops in Eretria using the same raw materials and the same technology, but following distinct decorative styles.

The Naxian wares studied were representative of the various LG pottery groups of the island. They displayed diversity of styles, but also of raw materials and technology. Taking into account the fact that during that period Naxos consisted of more than one small settlement around the acropolis (modern Kastro)\textsuperscript{52}, a number of pottery workshops in each settlement is highly anticipated. The existence of more than one pottery production centers can easily explain not only the wide multiplicity of local styles, but also the diversity in their technology, too.

The issues related to the provenance of the Cesnola Painter, his workshop and style seem to find some sound answers. The painters identified by Gisler as active in LG Eretria, i.e. the Eretria V 116 Painter, the Eretria V 54 Painter and the Eretria V 21 Painter, who follow the Cesnola Painter’s style closely, are apparently working in the same Potter’s Quarter as every other potter of the settlement. It is not surprising, therefore, that they use the same materials and techniques. One could go even further and suggest that the slip similarity attested macroscopically between the New York vases by the Cesnola Master himself and the vases by his companions at Eretria studied here, indicate the Euboean origin of the Cesnola Master. In addition, the practice of using a very similar slip on local Naxian vases in the Cesnola Style, which at the same time is chemically distinct from the slips used by other local workshops, rather suggests that the technology of the Cesnola slip was exported and distributed along with the style. This is also probably true for most vases in the Cesnola Style made on colonial ground in the West\textsuperscript{53} since, under macroscopic examination, they present the same kind of slip in terms of texture and colour.

\textsuperscript{52} Cf. Kourou, NNN, 138-139; Filaniotou, op. cit. n. 50.

\textsuperscript{53} Cf. e.g. Martelli, op. cit. n. 13, 66 no. 3; G. Bailo Modesti & P. Gastaldi, \textit{Prima di Pithecusa. I più antichi materiali greci del golfo di Salerno}, Catalogo della mostra 29 aprile 1999, Pontecagnano Faiano, Museo Nazionale dell’Agro Picentino (Napoli 1999), pl. 5,3 T.3892.
<table>
<thead>
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<th>No.</th>
<th>DESCRIPTION</th>
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| ER. 1 | Krater fragment.  
Max. pres. H.: 0.072; max. pres. W.: 0.031; wall thick: 0.007m.  
Clay burned and turned to very dark greyish (10YR 3/2) with few white, light brown and black inclusions; slip burned and turned to pale yellow (5Y 7/3-7/4); very dark grey burned paint (5YR 3/1), turned to very dark greyish brown (10YR 3/2).  
Date: LG.  
| ER. 2 | Krater fragment.  
Max. pres. H.: 0.049; max. pres. W.: 0.053; wall thick.: 0.010m.  
Reddish yellow clay (5YR 6/6) with small quantity of silvery mica, few white and dark inclusions; very pale brown slip (10YR 8/4); black paint (5YR 2.5/1), misfired to yellowish red (5YR 4/6).  
Date: LG.  
| ER. 3 | Krater fragment.  
Max. pres. H.: 0.023; max. pres. W.: 0.072; wall thick.: 0.010m.  
Reddish yellow clay (5YR 6/6) with small quantity of silvery mica, few white and dark inclusions; very pale brown slip (10YR 8/4); dark reddish brown paint (5YR 3/3).  
Date: LG.  
By the Eretria V 116 Painter, Cesnola style, cf. Gisler, 'Cesnola', fig. 6b pl. 7b. |
| ER. 4 | Krater fragment.  
Max. pres. H.: 0.023; max. pres. W.: 0.009; wall thick.: 0.006m.  
Red clay (10R 5/8) with few white and dark inclusions; very pale brown slip (10YR 8/4); dusky red paint (10R 3/3).  
Date: LG – Cesnola style. |
| ER. 5 | Krater fragment.  
Max. pres. H.: 0.015; max. pres. W.: 0.025; wall thick: 0.005m.  
Red clay (10R 5/8) with few white and dark inclusions; very pale brown slip (10YR 8/4); dusky red paint (10R 3/4).  
Date: LG – Cesnola style. |
| ER. 6 | Krater fragment.  
Max. pres. H.: 0.050; max. pres. W.: 0.040; wall thick.: 0.004m.  
Red clay (10R 5/8) with few white and dark inclusions; very pale brown slip (10YR 8/4); reddish black paint (10R 2.5/1) misfired to dark red (10R 3/6).  
Date: LG  
| ER. 7 | Handle fragment.  
Max. pres. H.: 0.043; max. pres. W.: 0.045; wall thick.: 0.010m.  
Red clay (10R 5/8) with few white and dark inclusions; very pale brown slip (10YR 8/4); reddish black paint (10R 2.5/1) misfired to dark red (10R 3/6).  
Date: LG.  
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<th>DESCRIPTION</th>
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8a. Max. pres. H.: 0.026; max. pres. W.: 0.040; wall thick.: 0.005m. Reddish yellow clay (5YR 7/6) with few white and black inclusions; pink slip (7.5YR 8/4); dark reddish brown paint (5YR 3/2), misfired to red (2.5YR 4/6).  
8b. Max. pres. H.: 0.034; max. pres. W.: 0.028; wall thick.: 0.008m. Reddish yellow clay (5YR 7/6) with few white and black inclusions; pink slip (7.5YR 8/4); dark reddish brown paint (5YR 3/2), misfired to red (2.5YR 4/6). Date: LG – Cesnola style. |
<p>| ER. 9 | Lip fragment of a krater. Provenance: Eretria, area of the Apollo temple. Eretria Museum V 54. Max. pres. H.: 0.030; max. pres. W.: 0.054; wall thick.: 0.004m. Light red clay (2.5YR 6/8) with small quantity of silvery mica, few white and dark inclusions; very pale brown to yellow slip (10YR 8/4-8/6); dark reddish brown paint (2.5YR 2.5/4) misfired to red (2.5YR 4/8). Date: LG. By the Eretria V 116 Painter, Cesnola Style, cf. Gisler, 'Cesnola', fig. 11. |
| ER. 10 | Krater fragment. Provenance: Eretria, area of the Apollo temple. Eretria Museum V 21. Max. pres. H.: 0.050; max. pres. W.: 0.060; wall thick.: 0.007m. Joined from two sherds; paint peeled off in places; few minor chips. Reddish yellow clay (5YR 6/8) with small quantity of silvery mica and few white and dark inclusions; very pale brown to yellow slip (10YR 8/3); black paint (5YR 2.5/1) misfired to yellowish red (5YR 4/6). Date: LG. By the Eretria V 116 Painter, Cesnola Style, cf. Gisler, 'Cesnola', pl. 13a. |
| ER. 11 | Lip fragment of a krater. Provenance: Eretria, area of the temple of Apollo. Eretria Museum. Max. pres. H.: 0.025; max. pres. W.: 0.022; wall thick.: 0.009m. Paint flaking in places; few minor chips. Light red clay (2.5YR 6/6) with small quantity of silvery mica and few white and dark inclusions; pink slip (7.5YR 8/4); dark reddish brown paint (5YR 3/2) misfired to yellowish red (5YR 4/6). Date: LG - Cesnola Style. |
| ER. 12 | Krater fragment. Provenance: Eretria, area of the temple of Apollo. Eretria Museum V 116. Max. pres. H.: 0.020; max. pres. W.: 0.036; wall thick.: 0.007m. Paint flaking in places; few minor chips. Reddish yellow clay (5YR 6/6) with small quantity of silvery mica and few white and dark inclusions; very pale brown slip (10YR 8/4); dark reddish brown paint (5YR 3/3). Date: LG. By the Eretria V 116 Painter, Cesnola Style, cf. Gisler, 'Cesnola', fig. 2. |
| ER. 13 | Krater fragment. Provenance: Eretria, area of the temple of Apollo. Eretria Museum V 116. Max. pres. H.: 0.037; max. pres. W.: 0.036; wall thick.: 0.007m. Reddish yellow clay (5YR 6/6) with small quantity of silvery mica and few white and dark inclusions; pale brown slip (2.5Y 8/4); dark reddish brown paint (5YR 3/3). Date: LG. By the Eretria V 116 Painter, Cesnola Style. |</p>
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<th>No.</th>
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| ER. 14 | Krater fragment.  
Max. pres. H.: 0.051; max. pres. W.: 0.085; wall thick.: 0.006m.  
Reddish yellow clay (5YR 6/6) with small quantity of silvery mica and few white inclusions; very pale brown slip (10YR 8/3); dusky red paint (10R 3/2) misfired to dark reddish brown (2.5YR 3/4).  
Date: LG.  
| ER. 15 | Krater fragment.  
Max. pres. H.: 0.067; max. pres. W.: 0.064; wall thick.: 0.005m.  
Reddish yellow clay (5YR 6/8) with small quantity of silvery mica and few white and black inclusions; pale yellow slip (2.5Y 8/3); black paint (7.5YR 2.5/1) misfired to dark reddish brown (5YR 3/3).  
Date: LG.  
By the Eretria V 116 Painter, Cesnola Style, cf. Gisler, 'Cesnola', fig. 2. |
| ER. 16 | Krater fragment (lip and shoulder).  
Max. pres. H.: 0.036; max. pres. W.: 0.073; wall thick.: 0.006m.  
Reddish yellow clay (5YR 6/6) with small quantity of silvery mica and few white and dark inclusions; pale yellow slip (2.5Y 8/3); black paint (7.5YR 2.5/1) misfired to very dark greyish brown (10YR 3/2).  
Date: LG. |
| ER. 17 | Lip fragment of a krater.  
Max. pres. H.: 0.022; max. pres. W.: 0.056; wall thick.: 0.006m.  
Reddish yellow clay (5YR 6/6) with small quantity of silvery mica and few white and dark inclusions; very pale brown slip (10YR 8/3); black paint (7.5YR 2.5/1) misfired to strong brown (7.5YR 4/6).  
Date: LG. |
| ER. 18 | Krater fragment.  
Max. pres. H.: 0.032; max. pres. W.: 0.070; wall thick.: 0.005m.  
Light red clay (2.5YR 6/6) with small quantity of silvery mica and few white and black inclusions; pale yellow slip (2.5Y 8/3); black paint (7.5YR 2.5/1) misfired to dark reddish brown (5YR 3/4).  
Date: LG. |
| ER. 19 | Lip fragment of a krater.  
Max. pres. H.: 0.022; max. pres. W.: 0.043; wall thick.: 0.004m.  
Reddish yellow clay (5YR 6/8) with small quantity of silvery mica and few inclusions; very pale brown slip (10YR 8/3); dark reddish brown paint (5YR 3/2).  
Date: LG.  
| ER. 20 | Lip fragment of an amphora.  
Max. pres. H.: 0.036; max. pres. W.: 0.060; wall thick.: 0.007m.  
Burned clay turned to reddish yellow (5YR 6/6) with small quantity of silvery mica and few white and black inclusions; pale yellow burned slip (2.5Y 8/3); black paint (7.5YR 2.5/1) misfired to very dark greyish brown (10YR 3/2).  
Date: LG. |
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| ER. 21 | Amphora fragment.  
Max. pres. H.: 0.050; max. pres. W.: 0.080; wall thick.: 0.009m.  
Light red clay (2.5YR 6/8) with small quantity of silvery mica and few white, brown and black inclusions; Pink slip (7.5YR 8/4); black paint (5YR 2.5/1) misfired to dark reddish brown (2.5YR 3/4).  
Date: LG. |
| ER. 22 | Krater fragment.  
Max. pres. H.: 0.035; max. pres. W.: 0.045; wall thick.: 0.005m.  
Reddish yellow clay (5YR 7/6) with few white inclusions; very pale brown slip (10YR 8/3); black paint (7.5YR 2.5/1).  
Date: LG. |
| ER. 23 | Lip fragment of a skyphos.  
Max. pres. H.: 0.021; max. pres. W.: 0.013; wall thick.: 0.004m.  
Red clay (2.5YR 5/8) with small quantity of silvery mica and few white inclusions; very pale brown slip (10YR 8/3); dusky red paint (10R 3/2) misfired to dark red (10R 3/6).  
Date: LG. |
| ER. 24 | Krater fragment.  
Max. pres. H.: 0.025; max. pres. W.: 0.038; wall thick.: 0.007m.  
Red clay (2.5YR 4/8) with small quantity of silvery mica and few white inclusions; pink slip (7.5YR 8/4); dusky red paint (2.5YR 3/2) misfired to red (2.5YR 4/8) in places.  
Date: LG. |
| ER. 25 | Krater fragment.  
Max. pres. H.: 0.065; max. pres. W.: 0.045; wall thick.: 0.006m.  
Red clay (2.5YR 5/6) with small quantity of silvery mica and few white inclusions; pink slip (7.5YR 8/4); dusky red paint (2.5YR 3/2) misfired to red (2.5YR 4/8) in places.  
Date: LG. |
| ER. 26 | Krater fragment.  
Max. pres. H.: 0.039; max. pres. W.: 0.050; wall thick.: 0.004m.  
Light red clay (2.5YR 6/8) with few inclusions; very pale brown slip (10YR 8/4); very dusky red paint (2.5YR 2.5/2) misfired to red (2.5YR 4/8) in places.  
Date: LG. |
| ER. 27 | Amphora fragment.  
Max. pres. H.: 0.050; max. pres. W.: 0.030; wall thick.: 0.004m.  
Reddish yellow clay (5YR 7/8) with small quantity of silvery mica and few black inclusions; Pink wash (7.5YR 8/4); black paint (5YR 2.5/1) misfired to red (2.5YR 4/6) in places.  
Date: LG. |
| ER. 28 | Lip fragment of a skyphos.  
Max. pres. H.: 0.021; max. pres. W.: 0.032; wall thick.: 0.004m.  
Red clay (2.5YR 5/8) with small quantity of silvery mica and few white inclusions; pink slip (7.5YR 8/4); red paint (10R 4/8).  
Date: LG. |
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| ER. 29 | Skyphos fragment.  
Max. pres. H.: 0.038; max. pres. W.: 0.029; wall thick.: 0.003m.  
Red clay (2.5YR 5/8) with small quantity of silvery mica; pink wash (7.5YR 8/4) and white slip (5YR 8/1); very dusky red paint (2.5YR 2.5/2) misfired to red (2.5YR 4/4) in places.  
Date: LG.  
Bichrome ware. |
| ER. 30 | Krater fragment.  
Max. pres. H.: 0.076; max. pres. W.: 0.060; wall thick.: 0.011m.  
Red clay (10R 5/6) with small quantity of silvery mica and few white, brown and black inclusions; pink wash (7.5YR 8/4) and white slip (5YR 8/1); black paint (7.5YR 2.5/1) misfired to red (2.5YR 5/8).  
Date: LG.  
Bichrome Ware. |
| ER. 31 | Skyphos fragment (lip and shoulder).  
Max. pres. H.: 0.033; max. pres. W.: 0.050; wall thick.: 0.003m.  
Reddish yellow clay (7.5YR 6/6); reddish yellow wash (7.5YR 8/6); dark brown paint (7.5YR 3/2).  
Date: LG. |
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| NAX. 1 | Skyphos fragment.  
Provenance: Naxos, Grotta. Athens, University Museum.  
Max. pres. H.: 0.045 max. pres. W.: 0.025; wall thick.: 0.003m.  
Light reddish brown clay (5YR 6/4) with small quantity of silvery mica, few black and white inclusions; very pale brown slip (10YR 8/4); black paint (5YR 2.5/1) misfired to dark reddish brown (5YR 5/8).  
Date: LG. |
| NAX. 2 | Skyphos fragment.  
Provenance: Naxos, Grotta B. 1722. Athens, University Museum.  
Max. pres. H.: 0.031 max. pres. W.: 0.02; wall thick.: 0.0035m.  
Red clay (2.5YR 5/8) with small quantity of silvery mica and few dark and white inclusions; very pale brown slip (10YR 8/2); black paint (7.5YR 2.5/1) misfired to dark reddish brown (2.5YR 3/4).  
Date: LG. |
| NAX. 3 | Lip and shoulder fragment of a skyphos.  
Provenance: Naxos, Grotta. Athens, University Museum.  
Max. pres. H.: 0.034 max. pres. W.: 0.044; wall thick: 0.003m.  
Reddish yellow clay (5YR 7/8) with quantity of golden mica and few dark and white inclusions; very pale brown slip (10YR 8/4); black paint (5YR 2/5.1) misfired to yellowish red (5YR 5/8).  
Date: LG. |
| NAX. 4 | Fragment of a closed vessel.  
Provenance: Naxos, Grotta. Athens, University Museum.  
Max. pres. H.: 0.035 max. pres. W.: 0.04; wall thick: 0.005m.  
Reddish yellow clay (5YR 6/8) with quantity of golden mica and few dark inclusions; pale yellow slip (2.5Y 8/4); black paint (5YR 2.5/1) misfired to dark reddish brown (5YR 3/3).  
Date: LG. |
| NAX. 5 | Amphora fragment.  
Provenance: Naxos, Grotta. Athens, University Museum.  
Max. pres. H.: 0.06 max. pres. W.: 0.05; wall thick.: 0.0011m.  
Yellowish red clay (5YR 5/8) with small quantity of golden mica and few black and white inclusions; pale yellow slip (2.5Y 8/3); black paint (5YR 2.5/1) misfired to dark reddish brown (5YR 3/2).  
Date: LG. |
| NAX. 6 | Skyphos fragment.  
Provenance: Naxos, Grotta B. 1730. Athens, University Museum.  
Max. pres. H.: 0.04 max. pres. W.: 0.055; wall thick.: 0.003m.  
Yellowish red clay (5YR 5/8) with small quantity of golden mica and few dark and white inclusions; pale yellow slip (2.5Y 8/3); black paint (5YR 2.5/1) misfired to dark reddish brown (5YR 3/2).  
Date: LG. |
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<th>DESCRIPTION</th>
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</table>
| ATT. 1 | Two fragments of a stemmed cup.  
1a. Max. pres. H.: 0.018; max. pres. W.: 0.018; wall thick.: 0.004m.  
Joined from 2 sherds; surface slightly worn.  
Attic clay, burned and turned to grey (2.5YR N2.5) with small quantity of silvery mica and few black inclusions; thin white slip, burned and turned to grey (5Y 6/1); paint turned to dark grey (5Y 4/1). Interior black glazed (2.5YR N2.5).  
1b. Max. pres. H.: 0.016; max. pres. W.: 0.024; wall thick.: 0.004m.  
Attic clay, light red (2.5YR 6/6) with small quantity of silvery mica and few black inclusions; thin white slip, burned and turned to very pale brown (10YR 7/3); paint turned to red (2.5YR 5/6).  
Date: LG. |
| ATT. 2 | Lip and shoulder fragment of a kotyle.  
Max. pres. H.: 0.036; max. pres. W.: 0.048; wall thick.: 0.004m.  
Joined from 3 sherds; surface slightly worn in places; few minor chips.  
Light red clay (2.5YR 6/8) with small quantity of silvery mica and few black and white inclusions; thin pink wash (7.5YR 8/4); red paint (10R 4/8).  
Date: LG.  
By the Painter of Athens 897, cf. CVA Greece 8, Athens 5, pl. 65, 2. |
| ATT. 3 | Two body fragments of an oinochoe.  
3a. Max. pres. H.: 0.036; max. pres. W.: 0.027; wall thick.: 0.004m.  
Reddish yellow clay (7.5YR 7/6), with small quantity of silvery mica and few black inclusions; thin reddish yellow wash (7.5YR 7/6); black paint (5YR 2.5/1).  
3b. Max. pres. H.: 0.038; max. pres. W.: 0.032; wall thick.: 0.004m.  
Surface badly preserved; paint flaking in places.  
Reddish yellow clay (7.5YR 7/6) with small quantity of silvery mica and few black inclusions; thin reddish yellow wash (7.5YR 7/6); black paint (5YR 2.5/1).  
Date: LG. |
| ATT. 4 | Belly fragment of an amphora.  
Max. pres. H.: 0.11; max. pres. W.: 0.06; wall thick.: 0.007m.  
Paint flaking in places; few minor chips.  
Reddish yellow clay (5Y 7/6) with small quantity of silvery mica and few white and brown inclusions; thin reddish yellow wash (7.5YR 7/6); black paint (7.5YR 2.5/1) misfired to dark reddish brown (2.5YR 3/4) in places.  
Date: PG. |
| ATT. 5 | Body fragment of an amphora.  
Max. pres. H.: 0.072; max. pres. W.: 0.049; wall thick.: 0.003m.  
Surface worn all over.  
Reddish yellow clay (5YR 7/8) with small quantity of silvery mica, few black and white inclusions; thin pinkish wash; dusky red paint (10R 3/3).  
Date: EG (?). |
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| ATT. 6 | Body fragment of a closed vessel.  
Max. pres. H.: 0.055; max. pres. W.: 0.047; wall thick.: 0.005m.  
Joined from 2 sherds; badly preserved; paint mostly peeled off.  
Reddish yellow clay (5YR 7/6) with small quantity of silvery mica and few brown inclusions; thin pink wash (7.5YR 8/4); very dusky red paint (2.5YR 2.5/2).  
Date: EG (?). |
| ATT. 7 | Body fragment of a closed vessel.  
Max. pres. H.: 0.040; max. pres. W.: 0.027; wall thick.: 0.004m.  
Reddish yellow clay (5YR 6/6) with small quantity of silvery mica and few black inclusions; thin pink wash (7.5YR 8/4); very dusky red paint (2.5YR 2.5/2) misfired to red (2.5YR 5/8) in places.  
Date: EG (?). |
| ATT. 8 | Body fragment of a krater.  
Max. pres. H.: 0.040; max. pres. W.: 0.061; wall thick.: 0.006m.  
Reddish yellow clay (5YR 6/8) with small quantity of silvery mica and few black inclusions; pink wash (7.5YR 8/4); reddish black paint (10R 2.5/1) misfired to red (2.5YR 4/8); interior glazed (10R 2.5/1).  
Date: MG. |
| ATT. 9 | Lip and shoulder fragment of a large krater.  
Max. pres. H.: 0.044; max. pres. W.: 0.061; wall thick.: 0.004m.  
Joined from 2 sherds.  
Reddish yellow clay (5YR 6/6) with small quantity of silvery mica and few black inclusions; dark red paint (10R 3/6).  
Date: MG. |
| ATT. 10 | Body fragment of a pyxis.  
Max. pres. H.: 0.030; max. pres. W.: 0.060; wall thick.: 0.006m.  
Reddish yellow clay (5YR 6/6) with small quantity of silvery mica and few black inclusions; thin pink wash (7.5YR 8/4); black paint (7.5YR 2.5/1) misfired to red (2.5YR 5/8).  
Date: LG. |
| ATT. 11 | Belly fragment of an amphora.  
Max. pres. H.: 0.055; max. pres. W.: 0.066; wall thick.: 0.004m.  
Surface completely worn in two places.  
Reddish-yellow clay (5YR 6/6) with small quantity of silvery mica and few black inclusions; thin pinkish wash; black paint (7.5YR 2.5/1).  
Date: EGII/MGI. |
| ATT. 12 | Lip and neck fragment of a tankard.  
Provenance: Anavyssos, Chatziantoniou plot, Geometric tomb I. Vravron Museum.  
Max. pres. H.: 0.055; max. pres. W.: 0.047; wall thick.: 0.005m.  
Joined from 3 sherds.  
Reddish yellow clay (7.5YR 7/6) with small quantity of silvery mica and few brown inclusions; very pale brown slip (2.5Y 8/3); black paint (7.5YR 2.5/1).  
Date: LG. |
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<tr>
<td>ATT. 13</td>
<td>Lip fragment of a tankard.</td>
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<tr>
<td></td>
<td>Provenance: Anavyssos, Chatziantoniou plot, Geometric tomb VIII. Vravron Museum.</td>
</tr>
<tr>
<td></td>
<td>Max. pres. H.: 0.048; max. pres. W.: 0.057; wall thick.: 0.006m.</td>
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<tr>
<td></td>
<td>Max. pres. H.: 0.052; max. pres. W.: 0.065; wall thick.: 0.012m.</td>
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<tr>
<td></td>
<td>Reddish yellow clay (7.5YR 7/8) with small quantity of silvery mica and few black and reddish inclusions; pink slip (7.5YR 7/4); dark reddish brown paint (2.5YR 3/4).</td>
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<tr>
<td></td>
<td>Max. pres. H.: 0.055; pres. chord: 0.010; wall thick.: 0.004m.</td>
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<tr>
<td></td>
<td>Reddish yellow clay (7.5YR 7/6) with small quantity of mica and few white and brown inclusions; pink slip (7.5YR 8/4); dusky red paint (2.5YR 3/2).</td>
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<td>Date: LG.</td>
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<tr>
<td></td>
<td>Fine red clay (10R 5/8) with small quantity of silvery mica and few minor white inclusions; pink wash (7.5YR 8/3); black paint (5YR 2.5/1) misfired to red (2.5YR 4/8) in places. Interior black glazed.</td>
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</tbody>
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### Catalogue 4. Attic LG sherds from Oropos.

<table>
<thead>
<tr>
<th>No.</th>
<th>DESCRIPTION</th>
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</table>
| OR. 1 | Body fragment of a small closed vessel.  
Max. pres. H.: 0.027; max. pres. W.: 0.019; wall thick.: 0.0035m.  
Reddish yellow clay (5YR 6/8) with few white inclusions; reddish yellow wash (7.5YR 8/6); reddish black paint (10R 2.5/1) misfired to red (10R 4/8) in places.  
Date: LG. |
| OR. 2 | Body fragment of a skyphos.  
Max. pres. H.: 0.038; max. pres. W.: 0.048; wall thick.: 0.004m.  
Joined from 2 sherds; paint flaking in places; few minor chips.  
Brown clay (7.5YR 5/4) with few inclusions; pink slip (7.5YR 7/4); black paint (5YR 2.5/1) misfired to reddish brown (5YR 4/3) in places. Interior black glaze.  
Date: LG. |
| OR. 3 | Body fragment of a krater.  
Max. pres. H.: 0.057; max. pres. W.: 0.033; wall thick.: 0.009m.  
Reddish yellow clay (7.5YR 7/8) with small quantity of silvery mica and few black inclusions; reddish yellow slip (7.5YR 7/6); black paint (5YR 2.5/1) misfired to red (5YR 5/8). Interior black glaze misfired in places to dark reddish brown (5YR 3/4).  
Date: LG. |
| OR. 4 | Lip and shoulder fragment of a skyphos.  
Max. pres. H.: 0.026; max. pres. W.: 0.041; wall thick.: 0.004m.  
Light yellowish brown clay (10YR 6/4) with small quantity of silvery mica and few dark brown inclusions; very pale brown wash (10YR 7/4); very dark grey paint (10YR 3/1) misfired to dark brown (10YR 3/3) in places.  
Date: LG. |
| OR. 5 | Lip and shoulder fragment of a skyphos.  
Max. pres. H.: 0.019; max. pres. W.: 0.040; wall thick.: 0.004m.  
Paint flaking in places; few minor chips.  
Light red to reddish yellow clay (2.5YR 6/8 to 5YR 7/6) with small quantity of silvery mica; pinkish white slip (7.5YR 8/2); black paint (2.5YR 2.5/1) misfired to red (2.5YR 4/8) in places. Interior glazed.  
Date: LG. |
| OR. 6 | Lower body fragment of a skyphos.  
Max. pres. H.: 0.039; max. pres. W.: 0.027; wall thick.: 0.0035m.  
Yellowish red clay (5YR 5/6) with small quantity of silvery mica and few black inclusions; pink slip (7.5YR 8/4); black paint (5YR 2.5/1) misfired to yellowish red (5YR 6/8). Interior glazed.  
Date: LG. |
| OR. 7 | Neck fragment of a tankard.  
Max. pres. H.: 0.036; max. pres. W.: 0.032; wall thick.: 0.004m.  
Red clay (2.5YR 5/8) with small quantity of silvery mica and few white inclusions; very pale brown slip (10YR 8/4); dark reddish brown paint (2.5YR 3/4).  
Date: LG. |
<table>
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| **OR. 8** | Lip and shoulder fragment of a skyphos.  
Max. pres. H.: 0.022; max. pres. W.: 0.035; wall thick.: 0.003m.  
Reddish yellow clay (7.5YR 7/6-6/6) with small quantity of silvery mica and few white and brown inclusions; pink slip (7.5YR 8/4-7/4); black paint (2.5YR N2.5) misfired to yellowish red (5YR 5/8) in places.  
Date: LG. |
| **OR. 9** | Lip fragment of a calyx skyphos.  
Max. pres. H.: 0.042; max. pres. W.: 0.045; wall thick.: 0.004m.  
Reddish yellow clay (5YR 6/8) with small quantity of silvery mica and few white inclusions; pink wash (7.5YR 7/4); black paint (10YR 2.5/1) misfired to red (10YR 5/8) in places.  
Date: LG. |
| **OR. 10** | Body fragment of a skyphos.  
Max. pres. H.: 0.039; max. pres. W.: 0.051; wall thick.: 0.004m.  
Reddish yellow clay (5YR 7/8) with small quantity of silvery mica and few inclusions; very pale brown slip (10YR 8/4); black paint (10YR 2.5/1) misfired to red (2.5YsR 5/8) in places. Interior glazed.  
Date: LG. |
Fig. 1a. Freshly fractured section of a Naxian LG sherd; pale calcareous slip on the clay body; the interface is marked with the dot line (SE-SEM image, 500x).

Fig. 1b. The pale slip layer exhibits the characteristic micromorphology of calcareous clays when fired at temperatures 850-1050°C; Naxian LG sherd (SE-SEM image, 2000x).

Fig. 2a. Dark painted decoration on the pale slip; Naxian LG sherd; the paint layer with a thickness of approx. 12μm is glassy and uniform with clear-cut fracture edges and free of bloating pores. This micromorphology is characteristic of the sherds that have undergone an ORO firing cycle below 900±25°C (maximum temperature); (SE-SEM image, 2000x).

Fig. 2b. Dark painted decoration on the pale slip; Naxian LG sherd; the paint layer with a thickness of approx. 20μm, has been deformed due to higher max temperature (ORO firing, 950-980°C, SE-SEM image, 1000x).
Fig. 3. Scatter diagram showing the K/Si vs Ca/Fe ratios for the pale colour slips of Naxian LG ware analysed with the SEM-EDX technique (based on data by Aloupi 1993, table 6.7, 158-159).

Fig. 4a. Micromorphology of a yellow coloured Naxian LG slip: fine texture with few small aplastic inclusions, i.e. below 10μm (polished section, BE-SEM image, 1000x).

Fig. 4b. Micromorphology of the pinkish-cream Naxian LG slip following the Cesnola style; the slip layer contains more inclusions, i.e. mica, feldspars, quartz; the uniform layer on top corresponds to the dark painted decoration (polished section, BE-SEM image, 1000x).
Fig. 5. Euboean LG sherds from Eretria with a creamy slip (nos. 1, 3, 12, and 13). From crater V 116 by the Eretria V 116 Painter.

Fig. 6. Euboean LG sherds from Eretria with a creamy slip (nos. 2 and 9). From crater V 54 by the Eretria V 116 Painter.
Fig. 7. Euboean LG sherds from Eretria with a creamy slip (nos. 6, 7, 10, 14 and 19). From crater V 21 by the Eretria V 116 Painter.

Fig. 8. Euboean LG sherds from Eretria with a creamy slip (nos. 4, 5, 8, 11, 15, 16, 17 and 18). Cesnola workshop.
Fig. 9. Euboean LG sherds from Eretria with a wash (nos. 27, 28 and 31).

Fig. 10. Euboean LG sherds from Eretria in bichrome style (nos. 29 and 30).
Fig. 11. Euboean LG sherds with a thin slip (nos. 20-26).

Fig. 12. Naxian LG slipped sherds analysed in the present study by nd-XRF technique. The analysed spot areas are marked with a and b.
Fig. 13. Attic PG, EG and MG sherds with a wash (nos. 4, 5, 7, 8, 9 and 32).

Fig. 14. Attic LG sherds with a wash (no. 2) and with a thin slip (no. 15) by the Athens 897 Painter (nos. 2 and 15).
Fig. 15. Attic LG sherds with a wash (nos. 3, 10 and 11).

Fig. 16. Attic LG sherds with a thin slip (nos. 12, 13 and 14).

Fig. 17. Proto-Attic sherd (no. 1a and 1b).
Fig. 18. LG sherds from Oropos with a wash (nos. 1, 4 and 9).

Fig. 19. Attic LG sherds with a thin slip (nos. 2, 3, 5, 6, 7, and 8).
Fig. 20. Analysis of the pale colour slips of Attic, Euboean, Naxian and Theran LG ware by nd-XRF technique. Scatter diagram showing the K/Si vs Ca/Fe ratios and frequency distributions for the Ca/Fe ratio; the Ca/Fe value affects the colour of the slip under similar firing conditions.
More than seventy clay figurines along with four clay boat models have been unearthed at
the O.S.K. plot at Skala Oropou, where the remains of a LG and Archaic settlement have been
discovered. The existing coroplastic material is not without interest but unfortunately the ma­
jority of these terracottas are partly preserved: only two animal figurines and two boat models
were either complete or almost complete. As a result, in some cases the classification, not to
mention the very identification of the form of the figurines represented by our fragments,
becomes a really troublesome task. Suffice to say, for example, that some twenty pieces are to
be recognized as legs, but there is no way to tell if they actually belonged to horse, bovine or
human representations. We are also faced with yet another perplexing difficulty arising from
the fragmentary state of our pieces: sometimes, while trying to establish a precise chronology,
the comparison of the morphological and decorative features of the damaged Oropos terracot­
tas with those of other datable groups from the neighboring regions is of little help. A careful
examination of the pottery found in the same layer (or context) with the terracottas becomes
therefore absolutely necessary.

It should be emphasized that our study of the coroplastic material from Oropos is still at
an early stage. In this paper we will simply present a first, brief commentary of these figurines
and boat models, while pointing out some of their characteristics. Establishing a final typol­
ogy and setting an absolute chronology for each artefact —as far as this is feasible— will be
discussed in detail in a forthcoming publication.

Firstly, some general observations are in order concerning different methods and materi­
als employed for manufacturing and decorating the figurines. Among the unearthed examples, handmade terracottas are by far the most common. The exceptions are ΩΔ/Πε 2 and ΩΝ/Πε 6, two women figurines shaped (at least partly) by moulding — dating probably from the second half of the 6th century BC. So far, not a single wheelmade terracotta has been found during the excavation. The clay used for the coroplastic production varies in colour ranging from brown to orange or reddish with a handful of grey-green clay terracottas. The texture is fairly fine. Small amounts of mica have been observed only in one instance (ΩΚ/Πε 25). Most of the terracottas seem to be decorated before firing by applying mat engobe directly on the clay surface. At any rate, we can still recognize a few pieces (i.e. ΩΔ/Πε 2) painted with a slip of white or cream glaze before firing, and then decorated with colour lines brushed over the undercoat. As we will see, striping decoration — namely black or red lines applied either directly on the clay or over the white and cream engobe — is a common feature in animal figurines and is to be found on two human examples as well. All of the boat models and a small number of animal figurines attest to the extensive use of colour (black and/or red engobe).

A good number of the figurines can be recognized as animals. Clearly, terracotta horses are more numerous than any other form. As far as we can say — given the fragmentary state of the material — none of them seems to belong to a chariot-group: no remains of plastic attributes that could link our horses with other animals or chariot pieces are evident. We believe that each horse should be seen as an independent artefact. Nevertheless, we can assume that a few animals had a horseman attached to their backs, as it will be shown.

The shape, proportions and build of the terracotta horses are quite varied. For example, the horses ΩΚ/Πε 11 (Fig. 1) and ΩΚ/Πε 25 give the impression of stoutness, whereas ΩΚ/Πε 16 and ΩΝ/Πε 3 are rather slender. The dimensions of the figurines are equally varied. The height of the long-legged horse ΩΚ/Πε 27 must have originally been more than 14.8cm. The height of its croups is 9.2cm. This last measurement in the case of the small horse ΩΚ/Πε 3 is only 3.9cm.

Many terracotta horses from the Skala Oropou EIA settlement possess a beak-like head, shaped by pinching the edge with two fingers (ΩΚ/Πε 5, ΩΚ/ΓΙε 24, ΩΔ/Πε 23). This feature can also be observed in an example from Orchomenos. Other horses, like ΩΚ/Πε 10 (Fig. 3), had a conical or cylindrical muzzle. ΩΚ/Πε 22 and ΩΚ/Πε 27 could also have shared a similar feature — despite the fact that their muzzles are actually missing, the cross-section of the remaining part where they were broken off is round. It is worth noting that different forms of horse heads cannot be always considered as an indicator of superior or inferior craftsmanship: for instance, ΩΚ/Πε 10 is a sloppy piece of work with a conical muzzle. Neither ears nor eyes are indicated in any of the preserved horse heads. The neck cross-section is elliptic, ovoid or triangular. Almost all of the examples present a neck that protrudes from the body in a diagonal straight line. On the other hand, in cases like figure ΩΚ/Πε 24 and

2. For the importance of the horse in Geometric art, see J. L. Zimmermann, Les chevaux de bronze dans l'art géométrique grec (Geneve 1989), 1-5, 319ff.
3. The original height of the figurine cannot be established with certainty since a fragment is missing from the neck.
4. ADel 26 (1971), Chron., 223 (ἱππος 6), pl. 196a, horse γ.
5. See Mazarakis Ainian, 'Oropos (1985-87, 1996), 69-72 and fig. 13a – we are dealing with a horse figurine, not a bird figurine. See Mazarakis Ainian, 'Excavations', 158, n. 33.
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ΩΔ/Πε 23, the neck forms a wide open, pronounced curve⁶. As far as we can tell, the figurine ΩΚ/Πε 15 is the only one exhibiting a slight left turn of the neck. As we will see below, the handsomely decorated terracotta horse ΩΚ/Πε 15 was crafted with special care, since a little stick was inserted along the neckline, inside the clay in order to reinforce it⁷.

The horses' backs are shaped either as straight lines (ΩΚ/Πε 1, ΩΚ/Πε 11, ΩΚ/Πε 14 – Fig. 4) or convex curves (ΩΚ/Πε 6 (Fig. 5), ΩΚ/Πε 16, ΩΚ/Πε 27...). Tails have round cross sections and protrude from the croups following a slightly upward direction which then turns downwards. A common feature among nearly all the horse figurines is that this appendage was not directly attached to the hind legs of the animals, but dropped down some millimetres apart from them. This can explain why so many tails were broken off. The small horse ΩΚ/Πε 3 remains the sole example with a tail preserved throughout its length, as it was directly affixed to the hindquarters. The legs of the terracotta horses are with no exception one-piece, and their endings are rounded.

Most of the horse figurines preserve glaze decoration — only in a few examples (ΩΚ/Πε 11, ΩΔ/Πε 4) is paint completely absent, either because it weathered, or because it was simply never applied. The black mat painted horse ΩΚ/Πε 16 is unique in exhibiting extensive use of a single colour. This slender figurine was recovered from one of the deepest strata of the Central Quarter. The stratum corresponds to the first or second phase of occupation as established by A. Mazarakis Ainian for this sector (i.e. ca. the middle of the 8th century BC)⁸. Since the head is missing, any comparison with monochrome LG horses from other sites in Greece may be risky. Nonetheless, our ΩΚ/Πε 16 shares many features with roughly contemporary black terracotta horses from the Heraion of Samos⁹, the sanctuary at Isthmia¹⁰, Eretria¹¹ etc.

The majority of the horses found at Oropos are decorated by applying red or black stripes. The direction of the bands depends on the part of the body. They are diagonal on the heads and necks, vertical and/or diagonal on the barrels (occasionally, the belly is left unpainted) and horizontal on the legs. A combination of wavy bands, dots and diagonal and vertical lines covers the well-crafted horse ΩΚ/Πε 15. It should be kept in mind that horse figurines bearing striped decoration have been recovered from many different strata, ranging from the earliest phases of the Central Quarter to the latest occupation layers of the South Quarter. We can assume, therefore, that at Oropos aesthetic trends pertaining to horse figurine decoration did not radically change from the middle of the 8th century down to the 6th century BC.

A number of LG and Archaic sites and necropolis in Boeotia¹², Attica¹³ and the

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6. The example from Orchomenos shares this characteristic.
7. Probably the head of this terracotta was shaped with special care. Unfortunately, it is not preserved.
8. Mazarakis Ainian, 'Périboles', 185-187. The stratum where the figurine was found predates Wall 64. Tentatively this wall has been identified with the remains of an apsidal building – Building Δ.
10. D. Mitten & C. Morgan, 'The Figurines', in C. Morgan, Isthmia VIII: the Late Bronze Age Settlement and Early Iron Age Sanctuary (Princeton 1999), 172, no. F27, pl. 73. The figurine dates to ca. 700 BC.
11. ADelt 31 (1976), Chron., 133-134, pl. 103a.
13. At the Athenian Agora, R. S. Young, Late Geometric Graves and a Seventh Century Well in the Agora, Hesperia Suppl. 2 (1939), 138 (B83), fig. 94; 193 (C181), fig. 143.
Peloponese\textsuperscript{14} have yielded terracotta horses with striping decoration. Bearing in mind that the Oropos pottery has close affinities with the Euboean production and that the potters who made the vessels are to be identified with the makers of the figurines, our attention should also be drawn to the contemporary coroplastic material from the neighboring island. At the present stage of our research we have not yet completed a detailed comparison between the Euboean and the Oropoian artefacts. Nonetheless, some artefacts from the island displaying common elements with our horses can be cited. At Eretria some partly preserved terracotta horses with linear decoration were retrieved from an apothetes — associated pottery dated to the late 8th or early 7th century BC\textsuperscript{15}. Ms. I. Queloz, the scholar studying the terracottas from the Heroon of Eretria, has kindly informed me that many of the horse figurines unearthed are decorated with lines on their bodies\textsuperscript{16}. Yet another striped horse fragment from the so-called Sacrificial Area, North to the Sanctuary of Apollo Daphnephoros, fairly resembles some of the Skala Oropou EIA examples\textsuperscript{17}.

We have seen that paint decoration may be a common technique among the terracotta horses from Oropos. The same does not apply for decoration by incision. Only the aforementioned horse ΩΔ/Πε 15 demonstrates some shallow cuts at the backside of its neck rendering the details of the mane. Addition of plastic elements is also attested in a unique occasion: in ΩΔ/Πε 4 a rider is affixed to the horse's neck and barrel. The jockey is schematically fashioned as a legless figure with nothing but sketchy hands. The artefact was unearthed from the interior of the pastas type Archaic house at the West Quarter, in a layer dated to the middle of the 6th century BC. The fragmentary state of preservation hinders any definite identification with terracottas from other Greek sites. We may, however, acknowledge morphological similarities with J. S. Østergaard's group D of Archaic Boeotian terracotta horses\textsuperscript{18}. A figure on horseback from the North Slope of the Athenian Acropolis could also be a parallel\textsuperscript{19}.

Other animal figurines have also been found during the excavation. ΩΚ/Πε 8 is a red mat painted tetrapod (Fig. 6). Unfortunately, head and part of the tail are missing. The barrel is cylindrical and elongated, whereas the one-piece legs are conical and slender. Several features on this artefact may indicate that we are not dealing with yet another terracotta horse. For instance: the neck cross-section is not elliptic, ovoid or triangular, but round — consequently we can assume that this animal did not possess a mane. Furthermore, the rectangular cross-section tail protrudes from the croups following an upward direction and then apparently turns forward. We have already demonstrated that horse tails were fashioned in a different way. The haunches of ΩΚ/Πε 8 exhibit a shallow impression. Tentatively, this terracotta might be identified as a bull figurine — originally, there could have been a handle starting at the neck.

\textsuperscript{14} At the sanctuary of Athena Alea at Têgêa (C. Dugas, 'Le Sanctuaire d'Alêa Athêna à Têgêe avant le IVème siècle', \textit{BCH} 45 (1921), 426); at the sanctuary of Apollo Maleatas at Epidaurus (E. Peppa-Papaioannou, \textit{Πηλίνα ειδώλια από το τερέ του Άπολλωνα Μαλεάτα Επιδαυρίας}, Ph.D. thesis (Athens, 1985), 61, no. A260, pl. 65) etc.  
\textsuperscript{15} Prakt (1981), 148, pl. 110a.  
\textsuperscript{16} I thank Ms. I. Queloz for this information.  
\textsuperscript{17} Eretria XIV, vol. II, 48, no. O9, pl. 113.  
\textsuperscript{18} See Østergaard 'Horses and Horsemen', 125-129; \textit{id.}, 'Archaic Boeotian Terracotta Horses and Horseman', in J. Bintliff (ed.), \textit{Recent Developments in the History and Archaeology of Central Greece. Proceedings of the 6th International Boeotian Conference}, BAR Int. Series 666 (Oxford 1997), 161-182. Unfortunately glaze is not preserved in ΩΔ/Πε 4 so we are unable to establish whether the piece bore also the "black on brown" decoration that characterizes J. S. Østergaard's group D. See also Ure, 'Rhitsona', 62, no. 145.96 and 97, pl. XV.  
\textsuperscript{19} Morgan, 'Acropolis', 196-197, fig. 5a, ascribes the figurine to the Geometric period.
and finishing at the rear. Another hypothesis is also plausible: a rider —now lost— was affixed to the animal’s croups. If so, ΩΚ/Πε 8 would have been quite similar to the well known types of LH III bull figurines bearing anabates on their backs. Our piece was found in the Central Quarter, in a stratum dating to the second or the third phase of occupation of this sector (i.e. the second half of the 8th century BC).

Two almost entirely preserved animal figurines, ΩΔ/Πε 24 and ΩΔ/Πε 25, are to be included among the Oropos EIA settlement’s finest finds. They were found lying side by side and in close proximity to a circular hearth. The high quality of their craftsmanship and the fact that they were recovered from one of the upper layers of the West Quarter indicates a date around the second half of the 6th century BC. ΩΔ/Πε 25 (Fig. 7) is readily recognizable as a dog. It is 3.4cm. high. The head, ears and nozzle are carefully fashioned. The back is shaped as a convex curve, whereas the tail is fashioned not unlike the horse tails —the end of this appendage is missing, as is the case in almost all of the horses. The piece bears black striping decoration. So far, I have not been able to trace any exact parallel.

The second remarkable figurine, ΩΔ/Πε 24 (Fig. 8), could be identified as a cat, a pig, or even as a bovid. The piece, 3.4cm high, has a flat forequarter. The head does not extend upwards in contrast to the extensive triangular ears. The small round cross-section nose should be considered as one of the most noteworthy features in this animal’s physiognomy. Eyes and muzzle-holes were formed by impression. The short tail is straight, forming actually a continuation of the back’s line. The body and legs are decorated with black stripes, the face is painted all in red.

A few human figurines have been recovered from the upper strata of the West Quarter. The earliest, a cross-like figurine (ΩΔ/Πε 21, Fig. 9), may be dated on the basis of stratigraphical observations to the forth or fifth phase of occupation —that is the first half of the 7th century BC. Although the artefact is partly preserved —the lower body and the arms are lost—, it is obvious that we are dealing with a highly schematic piece of work: the head is nothing more but a prolongation of the long conical neck. The figure bears black horizontal lines on the torso, while vertical stripes are discernible on its neck and head. We can trace some morphological similarities of our fragment with two figurines from the Rhitsona LG and Archaic necropolis.

Two terracotta fragments unearthed in this same quarter, ΩΔ/Πε 17 and ΩΔ/Πε 27, can be tentatively identified as parts of two board-idols’ trunks. ΩΔ/Πε 17 (7cm. long, 3.6cm. wide) is of a pale clay; only one of its flat surfaces is decorated with black vertical lines. The piece appeared inside the monumental enclosure extending on the north side of the West Quarter. We can assume that it dates to the 6th architectural phase of occupation of this quarter (second half of the 7th century BC). The figurine ΩΔ/Πε 27 (6cm. long, 3.4cm. wide) is somewhat
thicker than ΩΔ/Πε 17. A vertical band and a dot can be seen on one of its sides; horizontal lines decorate the other side. Fragments of a late 6th century BC skyphos were found in the same layer with the figurine.

Because of its similarity to a columnar idol’s feet, a terracotta fragment, 3.6 cm high, should probably be included amongst the human figurines from the West Quarter. Its diameter is 3.3 cm at the base, decreasing gradually to 2 cm at the body. No trace of glaze is preserved. The artefact, with the inventory number ΩΔ/Πε 26, was lying on the same stratum as ΩΔ/Πε 27 and very close to it. We may assume, therefore, that they are roughly contemporary.

Additionally, the upper part of a female figurine (ΩΔ/Πε 2) was unearthed into the pastas type Archaic house: the head, neck, and one of the shoulders can be distinguished. Undoubtedly, a mould has been used for the shaping of this piece. The flat rear indicates that the figure was seated. A scalloped stephane rises directly from the woman’s forehead. Hair is not rendered. The face is much damaged —the nose is lost— but remains of the white undercoat are still visible. The poor state of preservation prevents the identification of the figurine’s type. However, a group of seated figurines bearing a somewhat similar stephane is noted by prof. M. Szabó. He maintains that the type first appeared in Attica around the second quarter of the 6th century BC. A developed form is found at Boeotia: F. R. Grace draw attention to the white coat covering the faces of these figurines.

So far, no human figurines have been found in the Central Quarter, but the excavations in the neighbouring South Quarter yielded 4 examples. Two partly preserved male figures, ΩΝ/Πε 1 and ΩΝ/Πε 2, were unearthed approximately at the same depth during the digging of a trench across the so-called Archaic Street. Figurine ΩΝ/Πε 2 (3.7 cm high) could be a horseman or a chariot driver, since he seems to wear a helmet and has arms projecting forwards (Fig. 10). The lower part of the body is missing. Its most peculiar feature is the protruding nose. ΩΝ/Πε 2 belongs to a human type already classified by F. Winter. Examples of this group have been encountered at Athens and Eleusis, while others are presently in the possession of the Badischen Landesmuseum at Karlsruhe and the Museum of Fine Arts at Houston.

30. W. Schirrmann, Katalog der antiken Terrakotten im badischen Landesmuseum Karlsruhe (Göteborg 1989), 46, no. 100, pl. 21 (for an early version of this type, see no. 99, pl. 21).
31. H. Hoffmann, Ten Centuries that shaped the West. Greek and Roman Art in Texas Collections (Mainz 1970), 249-250. Also see Østergaard, 'Horses and Horsemen', 121-125, fig. 14.
The badly damaged figurine ΩΝ/Πε 1 is more stylized. It is a crude standing figure, 4.7cm high, with a pointed head and a pair of arms (now broken) that grow directly from the chest. The legs are missing.

Two more human figurines have been brought to light in the South Quarter upper layers. The figurines may be dated to the late 6th century or early 5th century BC in accordance to the related pottery. The cross-like human figurine ΩΝ/Πε 7 was unearthed within room Γ — one of a series of rectangular spaces located South of the Archaic Street. As with ΩΔ/Πε 21, the craftsman who fashioned this figurine (5.4cm high) rendered the human body so schematically that neck and head are represented by a single prong. The eyes, shaped by impression and the small hump on the figure's back are the most distinctive features. Once more, we are confronted with a figurine whose base is missing. Black diagonal stripes cover the entire preserved part of the artefact.

The last example of a female terracotta head (ΩΝ/Πε 6) was discovered in one of the numerous thin layers detected at the Archaic Street. It is mould-made. Heavy abrasion and chipping has largely extinguished all morphological characteristics.

We turn now to the clay boat models found at the Skala Oropou O.S.K. plot. To begin with, it should be noted that the presence of such artefacts among this coastal site's archaeological material is anything but surprising. The excavations in both the Central and West Quarters have yielded several finds (a bronze fishhook, numerous lead net-weights, a large amount of sea shells...) attesting to the close association of the Oropos Geometric and Archaic population with maritime activities.

The largest boat model recovered up till now, ΩΚ/Πε 19, is 12cm long and 7.2cm high. It was found in the Central Quarter, on top of the so-called “cenotaph” — a stone structure dated to the late eighth or the early 7th century BC. A big portion of the hull, the entire stern and the bottom of the sternpost are preserved. The external surface of the vessel is red painted; the interior has a darker colour. A diagonal band on the base of the sternpost is discernible; therefore we can assume that the rest of this piece would have been originally decorated with a linear pattern.

ΩΚ/Πε 31, another damaged boat model, was found in the area just west of the Central Quarter's rectangular peribolos. Because of the vast amount of sherds retrieved here, Mazarakis Ainian has suggested that the spot was used as a dump where (broken?) objects were thrown off. The ship's preserved length is 6.8cm. The hull is easily recognisable — a low guardrail has been carefully shaped on the gunwale. On the other hand, we are unable to determine if the single preserved extremity should be identified as the stern or the stem. The boat model is entirely covered with black glaze.

Two additional boat models, one inside the other, were found in the West Quarter along with the dog and cat (?) figurines. They should also be dated to the second half of the 6th cen-

32. A similar fragmentary item was found in Eretria, at the Sacrificial Area North of the Daphnephoreion. Nonetheless it is bigger than the Oropos example and dates to the Geometric period. See Eretria XIV, vol. II, 48, no. O13, pl. 114.
34. This dating is deduced on the basis of the pottery retrieved from the surface of the structure and the stratigraphical sequence. For the boat model, see Mazarakis Ainian, 'Oropos (1985-87, 1996)', 105-106, and pl. 36β.
Figurines and boat models from the early Iron Age settlement at Oropos

tury BC. The larger example, ΩΔ/Πε 24 (Figs. 11, 13 right), is almost complete but for a small part of the hull. The artefact is 12cm long and 4.2cm high. It is quite similar to the boat from the "cenotaph", the main difference being that it is homogeneously painted with red engobe. At the stern, a helm-fin is represented. The second, smaller model, ΩΔ/Πε 25 (Figs. 12, 13 left), is intact. A beaked ram protrudes forwards from the stem, where an upright sternpost has also been fashioned. The hull is shallow. The sternpost curves forward. The resemblance of this model with several ship representations from Archaic pottery is astonishing: the vessel on which the god Dionysos sails on the well known attic cup signed by Exekias35 comes easily to mind. The naturalism of these two last boat models is manifest not only in their shape but also in their decoration. Yet, in the Iliad and the Odyssey one repeatedly comes across references both to the μιλτοπάρται and μέλαινες νῆες36.

Several Archaic Greek settlements, like Athens37 and Corinth38, have yielded boat model fragments39. It should be noted that V. Petrakos published in 1974 a boat model found somewhere near the Amphiareion, assigning it to the Geometric period40. Since this was a chance find we can not establish the exact relation of the Petrakos’ boat to our examples.

Among the coroplastic material from Skala Oropou we also include a cylindrical artefact found in the West Quarter, within the pastas type Archaic house (Fig. 14). The item, 2.1cm high, is merely a long narrow strip of clay rolled in a spiral: the maximum diameter is 5.3cm. Paint, if it ever existed, is now lost. The object resembles a small fragment found in Eretria, at the Sacrificial Area North of the Daphnephoreion. It is dated to the Archaic period41. The possible identification with a snake is truly tempting, but it remains unsatisfactory given that our artefact does not show any traces of a head. Two alternative identifications are equally possible. Perhaps we are faced with a ritual cake, some kind of πόπανα. A miniature clay λίκνον found in Acrocorinth contains a very similar example (late 6th to early 5th century BC)42. The identification with a clay weight, like the one found at the Potters’ Quarter in Corinth, is another possibility43.

Let us now discuss the function of the figurines and boat models found at Oropos. Should we assume that they were votive/burial offerings? Or, would it be better to interpret them simply as small toys? In some cases the morphological and decorative features of the figurines can be revealing as to their use. The two mould-made female terracottas should be regarded

36. Il. 2.637; 5.550; 5.700; 8.528 and Od. 9.125. In Od. 11.124 and 23.271 we hear of “φοινικοπάρηιαι νῆες” See Herodotus 3, 58.
37. Morgan, Acropolis, 196-197, fig. 5h.
39. See also P. F. Johnston, Ship and Boat Models in Ancient Greece (Maryland 1985), 45-74. The monograph contains an analytical catalogue with the existing material up to the date of its publication.
43. Newhall Stillwell, op. cit. n. 38, 241 (no. 58), pl. 53, XXXVII 58. This object is a disk with concentric rings.

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as cult or funeral objects, because of their shape and the fact that similar artefacts have been found largely in sanctuaries and graves elsewhere in Greece. Yet, we can not be sure that such identification is also applicable for the earlier human and animal figurines — let alone the boat models. Nothing in their form or appearance seems to confirm this interpretation beyond any reasonable doubt. Such being the case, the analysis of the context in which the figurines and boat models appeared becomes a decisive factor in our effort to establish their function.

We have seen that the terracottas were brought to light all over the excavated area. They were found both inside and outside the buildings, even beyond the limits of the periboloi. Time and again they appeared amongst common sherds. Consequently, it would be incongruent to suggest that the whole corpus of coroplastic objects consists of sacred artefacts. What we can be sure about, however, is that they were not intended as funeral gifts to infant burials. So far, no figurine or boat model has been discovered inside a child's tomb: as V. Vlachou points out, grave goods in Oropos were confined mainly to vases. Nonetheless, a few terracotta pieces were actually found in association with pyres, metal objects and architectural structures tentatively identified as cult areas. In these instances we can assume that they served some religious purpose. Following this line of thought, the horse ΩΚ/Πε 10 should be interpreted as an offering since it was unearthed inside the building ΣΤ — a probable shrine. The boat model ΩΚ/Πε 19 might then be regarded as a gift to a “hero”; we have seen that the ship was found abutting a stone construction identified as a “cenotaph”. The same can be said for the four fragmentary animal figurines discovered in the vicinity. Nonetheless, this kind of conclusions should be drawn with great care. Sometimes we run the risk of entering in a vicious circle, especially because the character of several architectural structures of the Oropos complex remains evasive for the time being. The presence of a handful of figurines near a stone hearth could mislead us to believe that we are dealing with a cult area and hence to consider these same figurines as offerings. We must be mindful enough to avoid such circular and misleading argumentation.

On the other hand, concentrations of coroplastic material in a particular spot and stratum should not be considered as conclusive evidence attesting to its sacred character. In fact, the area that yielded the largest accumulation of terracotta artefacts (six figurines and a boat model) is the dump just west of the Central Quarter’s rectangular peribolos. The group from the West Quarter, consisting of the two boat models and the two animal figurines, was also found in a context where no sacred features could be recognized. In this particular case we are tempted to believe that the four terracottas were actually toys. Mazarakis Ainian has pointed out that according to a later testimony (Aristophanes, Clouds 879), boat models were used as children toys. This interpretation, if right, should lead us to a further conclusion: two items, so similar in form and fabric (the boat model from the “cenotaph” and that from the West Quarter), could be used for quite different purposes.

Hopefully, as our study of the Oropos material progresses, we will be able to draw more safe and concrete conclusions.

44. See Vlachou’s contribution to this volume.
45. Mazarakis Ainian, ‘Excavations’, 158.
46. Prakt (2002), 11.
Fig. 1. ΩΚ/Πε 11.

Fig. 2. ΩΚ/Πε 23.

Fig. 3. ΩΚ/Πε 10.

Fig. 4. ΩΚ/Πε 14.

Fig. 5. ΩΚ/Πε 6.

Fig. 6. ΩΚ/Πε 8.
Fig. 7. ΩΔ/Πε 25.

Fig. 8. ΩΔ/Πε 24.

Fig. 9. ΩΔ/Πε 21.

Fig. 10. ΩΝ/Πε 2.

Fig. 11. ΩΔ/Πε 24.

Fig. 12. ΩΔ/Πε 25.
Fig. 13. ΩΔ/Πε 25 (left), ΩΔ/Πε 24 (right).

Fig. 14. ΩΔ/Πε 1.
EARLY IRON AGE GRAFFITI FROM THE SANCTUARY OF APOLLO AT ERETRIA

Thierry Theurillat

The origins of the Greek alphabet have long been debated. Beyond the long-lasting consensus that the Phoenicians are to be credited for the transmission of the Semitic alphabet to the Greeks, several questions remain unanswered. Where and when exactly was the alphabet transmitted and adapted, and for what purpose? Answers may diverge greatly provided they are grounded on linguistic or archaeological evidence. Recent discoveries, such as the graffito of Osteria dell'Osa or the rich corpus of early Greek inscriptions from Pithekoussai, Kalapodi and Kommos have contributed to replace this phenomenon in the larger framework of the constitution of the Greek poleis in the 8th c. BC.

Pithekoussai in particular, a site where Semitic and Greek people lived for a time side by side, has provided some thirty graffiti dated from the 8th and early 7th c. BC, the largest corpus of early inscriptions known to this date. It may have offered all the conditions necessary for the transmission of the alphabet to have taken place there. Surprisingly, the great number of inscriptions found in this emporion is in sharp contrast with their relative scarcity in the metropoleis of Euboea, such as Chalkis, Lefkandi and Eretria, where only a handful of early inscriptions were known until a few years ago. Recent excavations in the sanctuary of Apollo Daphnephoros in Eretria have triggered an exhaustive reappraisal of the material found dur-

* The present study is the outcome of a collaborative research project including Anne Kenzelmann Pfyffer, Samuel Verdan and myself. All mistakes in this paper are mine.

ABBREVIATION:

1. We use the term "Phoenicians" in a broad sense, including all the people from the Syro-Palestinian coast.
ing 40 years of Swiss excavations. On this occasion, 66 graffiti on pottery from the Geometric period were discovered, of which 27 are written in alphabetic script (Table 1).

In this paper, I will not concentrate on philological questions, a number of which I do not feel qualified to assess. Besides, the main interest of these inscriptions stems from their great number and their well-established context, much more than from their intrinsic value, for most of them are very fragmentary. My aim is to examine how the EIA inscriptions from the sanctuary of Apollo Daphnephoros can contribute to clarify the origin of the Greek alphabet. Two different phases should be distinguished: first, the very moment of transmission, when one or several Greeks were taught the Semitic alphabet by at least one Semitic speaker and adapted it to fit Greek language. Second, the diffusion of this “proto-alphabet” to different regions of Greece and its growing use in the second half of the 8th c. BC. Whereas the latter stage is illustrated by several inscriptions, the former is essentially grounded in linguistics. The corpus of inscriptions from the sanctuary of Apollo does not change this status, for most of them use an already mature Euboean script with its typical epichoric features (the so-called “red-chi”, the Chalcidian lambda, the five strokes mu and multiple strokes sigma). There are no traces of experimentation in the letter-forms, as we might have expected from the “creation” of the added letters or the vowels, for instance. What we see in the Sanctuary is therefore the early use and diffusion of the practice of writing, but not the very moment of its transmission. There is, however, one inscription which does not fit the picture: it is probably the earliest of all and is written in Semitic letters on a Greek drinking cup. Depending on the way it is read and interpreted, it could attest to an early stage of transmission of the alphabet.

I. THE TRANSMISSION OF THE ALPHABET

This recently discovered Semitic graffito (66, Fig. 2) is a new piece of evidence that attests the connections between Euboea and the Eastern Mediterranean in the EIA. On the one hand, Euboean Geometric pottery has long been known to come from numerous sites in the Levant, such as Al Mina, Tyre, Tarsos and Cyprus. On the other hand, the excavations in the sanctuary of Apollo and in a sacrificial area nearby have brought to light numerous oriental imports, among which two 9th c. BC bronze blinkers from North-Syria dedicated to Hazael are worth mentioning here. But the early date of the graffito in question, its meaning as well

5. ZPE 2005. 23 graffiti consist in marks whereas 16 remain indeterminate. We will here focus on the alphabetical inscriptions, but it is important to note that the marks on pottery clearly play an important role if we want to get a better understanding of the context of the diffusion of writing.


8. The number in brackets refers to the catalogue in ZPE 2005. See also the summarising table at the end of this paper.

9. Eretria XIV.

as the fact that it was written on Greek pottery, most probably of Euboean fabric, could have a broader significance.

Before discussing the inscription itself, it is necessary to clarify the chronology of the vase that bears it and of the context where it was discovered11.

Morphology and decoration of the vase

The graffito is incised on a small black-glazed drinking cup with decorated panel (diameter 14cm). It is not easy to specify whether the vase is a cup or a skyphos, since no handles have been preserved. Nevertheless, the large black-glazed space occupied by the inscription appears more typical of a cup than a skyphos, since in the latter case the handles would have been attached much closer to the decorated panel. The morphology of the vase —globular wall and a short everted rim— can be dated from the MG period.

The decoration of the vase allows for a more refined chronology. The restricted panel decorated in the centre with a large monochrome zone appears in the EG period (Coldstream, GGP, 12 and pls. 1o, 2c, 2e) and is frequent in MG I (Coldstream, GGP, 20 and pl. 3e). This decorative pattern is used on several cups —or kyathos— from a necropolis in Naxos12, of which the no. 46 with vertical lines closing the panel is the closest parallel to our vase. All these cups are dated from MG I. Although here the central motif in the panel has unfortunately not been preserved, it is likely to have been decorated with parallel zigzags, as attested in some skyphoi discovered in the sanctuary of Apollo. Moreover, the fact that the multiple brush technique, thought to appear in MG II (Coldstream, GGP, 24), was not used on this vase stands as further evidence for a MG I date.

Context of discovery

The vase was discovered in a trench located North-West of building 17. It comes from a layer anterior to this LG I building, but unfortunately very few information is available on its exact archaeological context. Although the material from the trench shows a few intrusions, likely to have occurred at the time of excavation, most of the pottery associated with the inscribed cup can securely be dated from MG II, and even earlier for certain pieces: semi-pendent circles plates and skyphos, as well as several fragments of kraters very similar to those found in a SPG II burial excavated within the sanctuary of Apollo13. It is not impossible that the vase belonged originally to a context earlier that the first phase of construction in the sanctuary of Apollo (dated from MG II).

11. The following description of the vase and its context of discovery is based on a personal communication by S. Verdan, who is preparing the final publication of the Early Iron Age structures and material of the sanctuary of Apollo Daphnehoros. I thank him for his comments.
13. Blandin, 'Tombe'.
Inscription

The graffito is made of four letters coarsely written from right to left in Semitic script. The last three letters are clear: a pe followed by a lamed and a shin. The first letter on the right is problematic: a kaf seems the more likely reading, although its long tail and two strokes are unusually tilted. It is possible that the inscription continued to the left, but the kaf on the right can hardly have been preceded by another letter. Therefore it must be the beginning of a word: KPLS [.

The morphology of the letters confirms a chronology between the 9th and 8th c. BC: the shin preserves its earliest shape which subsists until late in the 8th c. BC (Karatepe) whereas the kaf shows a developed form that appears in the 9th c. BC (Tell Halaf, Kilamuwa). The pe and lamed's shape is not significant in this matter.

The interpretation of the graffito is problematic, for there is apparently no word or name in Semitic beginning with KPLS. It might be tempting to compare it with an Aramaic graffito written on a Greek amphora reused in a LG I enchytrism from Pithekoussai (Fig. 3). According to Garbini, it reads KPLN (kpl meaning ‘double’ and the suffix –n indicating its Aramaic nature), but this reading is questionable as the author himself acknowledges.

Our Semitic inscription remains therefore unintelligible insofar as one considers that what is written is Semitic. A series of 8th and 7th c. BC inscriptions from Cilicia shows, however, that Semitic script was used to transcribe Anatolian or Luwian names, such as Labas (LBŚ), Nanas (NNŚ) or Pihalapas (PHLPŚ). Parallel cases could also be attested in Cyprus.

These examples are interesting in that they can offer alternative explanations of the KPLŚ graffito. First of all, the possibility exists that the inscription was made by a Cilician travelling by Eretria who wrote his name on a locally made cup. This could imply that the transmission of the Semitic alphabet occurred as much by sea as by land through Anatolia, a hypothesis that is reinforced by the new C14 dates of the excavations at Gordion according to which the earliest Phrygian inscriptions should now be dated from the beginning of the

14. In the following lines, we are much indebted to André Lemaire, François Bron and Christoph Uehlinger for their discussion of this Semitic inscription; all inaccuracies are ours. For a general background, see M. G. Amadazi-Guzo, 'Dati epigrafici e colonizzazione fenicia', Kokalos 39-40 I.1 (1993-1994), 221-234; for another perspective, N. Kourou, 'Inscribed Imports, Visitors and Pilgrims at the Archaic Sanctuaries of Camiros', in ΧΑΡΙΣ ΧΑΙΠΕ, Μελέτες στη μνήμη της Χάρης Κάντζια, Β' (Athens 2004), 11-30, esp. 17-18.
15. Note that a gimel might be another reading for this letter.
16. Only a lamed, whose position is often high, could fit in the tiny space left by the pottery breakage. A lamed in first position is usually interpreted on such inscriptions as a property mark followed by the name of the owner.
8th c. BC. If confirmed, these discoveries would question the exact relationships between the Phrygian and the Greek alphabets²⁰.

But then, does the bilingual culture of Cilicia and Cyprus in EIA offer a model that could apply to the Greek world? In other words, is it possible for a Greek to have written his name with Semitic letters? For instances, Κατίλλος (LGPN 3b: 225) or the word κατηλλος (the dealer)? If such is the case here, it would imply that at the time the cup was inscribed, the Euboean alphabet did not yet exist.

Caution is in order when building upon any of the above hypotheses. Whatever the languages this graffito transcribes, the fact remains that, sometimes by the end of the 9th – beginning 8th c. BC, someone, probably in Eretria, inscribed a drinking cup with Semitic letters, the very same practice that was to develop two or three generations later with graffiti in Greek (see below). It gives evidence of the diffusion from the 9th c. BC of the Semitic alphabet into Indo-European cultures, that will soon lead to its adaptation to transcribe Greek, Phrygian or Etruscan languages. In this context, Euboea and Eretria in particular seem to have played a crucial part.

II. THE DIFFUSION OF THE ALPHABET

As we have already pointed out, all the Geometric inscriptions from the sanctuary of Apollo show an already mature script with the typically epichoric features of the Euboean alphabet. They confirm the early use and diffusion of the Greek alphabet within the Euboean sphere, as already known from the graffiti from Pithekoussai. Although most of the graffiti from the sanctuary are very fragmentary, they are nonetheless informative to help specify the chronology and context of this practice.

Chronology

The chronology of most of the inscriptions is based on the stratigraphy of the sanctuary, rather than on stylistic grounds. There are two main phases in the development of the sanctuary: the earlier phase dates from the first half of the 8th century (MG II), while the later phase dates from the second half of the 8th century (LG I and II).

Only two alphabetical inscriptions belong to the first phase, the earliest one being the previously discussed Semitic graffito. The other is the oldest Greek inscription of our corpus: it is written on the internal wall of an amphora fragment, hence after the pottery breakage (ostrakon). The three letters preserved are superficially incised by an unskilled or careless hand (64, Fig. 4). The inscription was not meant to remain visible on a vase, and maybe the roughly sketched letters where just incised as an exercise. Its meaning remains unclear²¹.

The stratigraphy of the second phase allows for a finer chronology to be made. Only one


²¹ A possible reading is Θόη, i.e. an hypothetical votive inscription for θεώι (ZPE 2005, 75, no. 65).
graffito comes from a LG I context (an unintelligible graffito on a spindle whorl, 65, Fig. 5), whereas 14 alphabetic inscriptions are securely dated from LG II\(^2\). However, it must be noted that 10 of them come from pits and fill layers and were therefore not in their primary context. One or two decades might have passed before the floor of the sanctuary was cleaned out and votive material deposited in pits. Nevertheless, we can observe that whereas the earliest inscriptions were very few and heterogeneous —Semitic and Greek graffiti inscribed on a cup, an ostrakon and a spindle whorl—, the later inscriptions are numerous and homogeneous. Indeed, the exponential increase in writing during the second half of the 8th c. BC concerns almost exclusively a single category of objects: vases related to the service and consumption of wine. At a yet undefined pace, writing becomes more prominent within the sanctuary of Apollo in the context of pre-existing practices\(^2\).

**Archaeological context**

A majority of the graffiti comes from pits (Fig. 1). This might appear relevant at first sight, but when confronted to all the material, it is not statistically significant, since most of the pottery was found in pits. However, in certain cases, the spatial concentration of inscriptions might have resulted from specific practices of deposition\(^2\). This being said, graffiti were discovered in all kinds of archaeological contexts: within and outside the buildings as well as in dump and floor layers.

More significantly, all the inscriptions are distributed within the sanctuary of Apollo. None has been found in the sacrificial area north of the sanctuary, a place of cult thought to be devoted to Artemis where a large number of oriental imports from the 8th and 7th were found\(^2\). More broadly in Eretria itself, very few 8th century inscriptions are known: only four that we know of\(^2\). This is partly a result from the state of research, since only few Geometric assemblages from excavations in Eretria have been thoroughly and exhaustively studied yet. But it is significant that most of the large corpuses of early inscriptions come from religious contexts, such as Kalapodi, Kommos and Mount Hymettos\(^2\). Pithekoussai offers, however, a contrasting example, since a great number of the graffiti comes from burials\(^2\).

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\(^2\) Ten alphabetical graffiti come from disturbed contexts and are dated according to the pottery style only.  
\(^2\) Less than 1% of all the Geometric pottery discovered in the sanctuary of Apollo was inscribed, which is a fairly small amount.  
\(^2\) For instance, pit 190 yielded 7 graffiti, all of them marks on monochrome drinking cups, which represent 5% of the whole material found in the pit, and 15% of all the monochrome cups.  
\(^2\) ZPE 2005, 80-1.  
\(^2\) From the necropolis come 21 graffiti; 17 were discovered on the Acropolis and nearby (Monte Vico, where a temple might have stood); 8 come from a domestic context (Mazzola). Depositional factors should not be underestimated: the more the pottery is fragmented, the more the graffiti are hard to spot. The chances are therefore that more graffiti can be identified in those contexts where vases are best preserved, typically pits and burials.
Category and form of objects inscribed

All but one inscription from the sanctuary are written on ceramic, mostly local pottery, the exception being the bronze blinkers dedicated to Hazael. This is likely to be partly the result of depositional and conservation factors, pottery being the commonest and most enduring material found in excavation. But not all kinds of pottery are inscribed and some recipients might have been specifically chosen to be inscribed for good reason.

Indeed, more than two thirds of the graffiti are inscribed on drinking cups, mostly monochrome, a figure that is found in similar proportion in the sanctuaries of Kalapodi and Mount Hymettos. These vases probably belonged to individuals as opposed to more “communal” vases such as kraters, large coarse ware or jugs (43, 62, 44-46, Fig. 6), which in our context were probably the possession of the sanctuary and appeared to have been less frequently inscribed.

The second best represented category of pottery inscribed is the amphorae. Inscriptions on amphorae are usually thought as commercial, although we often lack proof to assert this at such an early period.

Category of inscriptions

The majority of graffiti being too fragmentary to secure a well-founded interpretation of their content, we will limit our discussion to three intelligible graffiti which are characteristic of the kind of inscriptions that have been found in Geometric Greece.

1. The first one, although very fragmentary, can securely be interpreted as an abecedarian written before firing on the rim of a monochrome drinking cup (3, Fig. 7). Only three letters subsist: from right to left, the letters xi, omicron and a very faint pi. The single presence of the closed form of the xi is enough to attest to this interpretation. In fact, this window-like letter is not at all a xi, although it occupies its place in the abecedarian. It is a “dead letter” inherited from the Semitic alphabet which was never used by Euboeans to transcribe the sound “ks”, for which they had the X letter-form (with or without the addition of a sigma). This letter is the closed form of the Semitic samek that was until now known only in the 7th century abecedaries from Etruria (Fig. 8). The fact that the Etruscans adopted the Euboean script stands as a firm evidence of the role the Euboeans took in the early colonisation of the Italic peninsula, for it seems unlikely that such a “good” could have been transported by others than themselves.

2. Property marks are probably the most common among early inscriptions. They usually consist of the name of the owner in genitive with or without the verb ε(ι)μι. A single graffito in our corpus belongs without any doubt to this category, but five more are quite likely to be surnames (6, 8, 10, 44 and 45). It is a dipinto painted on the wall of a monochrome drinking cup (1, Fig. 9). Although the letters a very faint, we can read from right to left ἦχαδεομι, “I belong to -Ichades”. There is space on the right hand side, before the handle, for some two or three letters to precede. The name is obviously a patronymic, but at this early date, patronymics are usually formed with a iota or iota-alpha. According to the theory of abbreviated wrt-

ing\textsuperscript{30}, it would not have been necessary to write an \textit{iota} before the alpha since the sound \textquotedblleft i\textquotedblright \ was already present in the preceding letter \textit{chi}. The name inscribed would then have ended with \textit{-χιάδες}. As a hypothesis, we propose to reconstruct the name as *\textit{Χαλκιάδης}, i.e. the “man from Chalkis”.

3. The category of votive inscriptions, well represented in Kalapodi and Mount Hymettos, is securely attested by a single inscription from the sanctuary (5, Fig. 10). It reads from left to right \textit{χιεπε}, which makes it clear that the vase was consecrated. It might have been a votive offering or a mark indicating that the vase belonged to the sanctuary. It is, with the architectural remains of the \textit{Hekatonpedon} and the altar, the clearest evidence of the existence of a place of cult in the second half of the 8th c. BC.

A last graffito inscribed on at least two lines (4) is worth mentioning for it is reminiscent of the graffiti verses of the kind one finds on the Nestor cup.

As it is clear from this quick review, the early practice of writing in the sanctuary of Apollo is not devoted to a single but to various purposes: owner marks, votive inscriptions, verses, abecedaries, commercial signs, and so on. Such a conclusion could be extended to the whole Greek world in the 8th c. BC.

**CONCLUSION**

The corpus of Geometric inscriptions from Eretria, far from sparking off any groundbreaking revolution, does in fact confirm what we know about the use of alphabet in EIA Greece. In particular, the presence of a Semitic graffito inscribed on a Greek drinking cup suggests that at the beginning of the 8th c. BC or even slightly earlier some Eretrians were familiar with writing, which does not imply that they knew themselves how to write. Nevertheless, it shows that early interests between Greeks and Orientals were not only commercial but also cultural. Points of contacts between both worlds, such as Pithekoussai, Kommos and Eretria, appear to have been an ideal environment for the alphabet to spread\textsuperscript{31}. Within this cultural sphere, places of cult or specific ritual practices such as communal meals may have contributed to the diffusion of writing, a phenomenon which does not occur in Eretria before the second half of the 8th c. BC. The reasons behind this, however, remain unclear: although eventually most of the LG material found within the sanctuary was probably consecrated, the primary reasons that motivated the inscription on vases are not necessarily unique. It eludes any tentative to single out an original motive behind the adoption of the alphabet and its diffusion in EIA Greece.

\textsuperscript{30} R. Wachter, 'Abbreviated Writing', \textit{Kadmos} 30 (1991), 49-80.

\textsuperscript{31} S. Sherratt, 'Visible Writing: Questions of Script and Identity in Early Iron Age Greece and Cyprus', \textit{OJA} 22.3 (2003), 225-242, esp. 233.
<table>
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<tr>
<th>No.</th>
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<td>&lt;</td>
<td>cup</td>
<td>pit 211</td>
<td>LG II</td>
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**Legend**

- **cup**: cup, skyphos or kantharos
- **jug**: jug or hydria
- **kr**: krater
- **am**: amphora
- **lebes**: coarse ware lebes
- **ostr**: ostracon
- **sw**: spindle whorl

**Table 1.** Synopsis of the EIA alphabetical graffiti from the sanctuary of Apollo Daphnephoros at Eretria. The number on the left refers to the catalogue number in *ZPE 2005.*
Fig. 1. Plan of the sanctuary of Apollo with location of the alphabetical graffiti.
Fig. 2. Semitic inscription on a monochrome drinking cup: KPLS (66).

Fig. 3. Semitic inscription from Pithekoussai: KPI.N.

Fig. 4. Greek inscription on an ostrakon: |θοι| (64).
Fig. 5. Greek inscription on a spindle whorl: δαμανα (65).

Fig. 6. Owner mark (?) on a jug: λεβετος [εμ] (44).
Fig. 7. Greek abecedarian on a monochrome drinking cup: Ηοη (3).

Fig. 8. Etruscan abecedarian from Marsigliana (early 7th c. BC).

Fig. 9. Owner mark on a monochrome drinking cup: Χαδεομ (1).
Fig. 10. Votive inscription on a monochrome drinking cup: |hepe| (5).
ERETRIA: METALWORKING IN THE SANCTUARY OF APOLLO DAPHNENPHOROS DURING THE GEOMETRIC PERIOD

Samuel Verdan

INTRODUCTION

The existence of bronze working in the sanctuary of Apollo Daphnephoros at Eretria was recognized over 20 years ago during the excavation of the edifice known as the “atelier de bronzier”, which was studied and published by Sandrine Huber. This element was rapidly integrated into reflections about the link between sanctuaries and metalworking in EIA Greece.

New discoveries which came to light during a series of excavations over the period from 1998 to 2003 have kindled our interest in this field. Analyses of the material (started by Walter

* I would like to thank W. Fasnacht who has so generously shared his knowledge with me, J. Ogden for his fascinating suggestions, C. Risberg for her advice about this text, and S. Huber who allowed me to reconsider material belonging to her. This study was made possible thanks more particularly to the Stavros S. Niarchos Foundation which funds research on the sanctuary of Apollo at Eretria and also to grants I have received from the Fondation Théodore Lagonico and the Société Académique Vaudoise. This article was translated by R. Besson.

All pictures by S. Verdan; drawings by S. Verdan, T. Theurillat and L. Roduit.

ABBREVIATIONS:

ERETRIA: METALWORKING IN THE SANCTUARY OF APOLLO DAPHNEPHOROS

Fasnacht in 2003) as well as re-examination of earlier findings have meant that we now have a much clearer picture of metalworking in the area of the sanctuary of Apollo.

Our aim here is not to provide an exhaustive or definitive presentation of these discoveries nor a detailed analysis from a technological point of view. In the following pages we simply seek to give a general overview of the remains linked with metalworking and propose some interpretative “leads” which we shall explore in depth in the final publication on the Geometric remains of the Sanctuary of Apollo.

THE SANCTUARY OF APOLLO

Before going on to present the material, it is necessary to give some information about the area of the sanctuary of Apollo during the Geometric period as it appears to us today, as a result of our excavations over the past few years.

The original plan, which had not changed a great deal since the excavations of C. Bérard (1970-1973) and A. Alther-Charon (1978-1980), has now gained new features: one apsidal building (Ed 150, see Fig. 1) close to the famous apsidal building known as the “Daphnephoreion” (Ed 1), a long wall representing a clear limit to the South-West of the area (M 75), and several pits (Fo 190, 197, 211, 221).

Furthermore, thanks to more precise knowledge of the stratigraphy of the area, finds can be sorted into phases. Two main phases can be distinguished:

In the first phase, starting during the MG II (800-750) and continuing up to the very beginning of the LG, we have a group of small constructions (Ed 1, 5, 9, 150) occupying walled-off areas.

In the second phase, continuing up to the end of the LG, a large edifice was built (Ed 2); certain of the small, earlier constructions disappeared while others were renovated or re-constructed; the South-West limit of the sanctuary area remains unchanged whereas the boundary was extended by about 20 metres to the North-East (with the wall M 19).

A third, very brief phase can be situated at the end of the Geometric period: the area around the monumental edifice Ed 2 was completely clear because all the other constructions (walls, edifices) had been filled in. Until its destruction, Edifice 2 therefore stood alone for a certain time.

5. The study of the remains and material which has been brought to light at the site of the sanctuary of Apollo Daphnephoros by the Swiss School of Archaeology in Greece is underway at present. This will be documented in a publication in the Eretria collection.


7. All the structures mentioned feature in the plan (Fig. 1). Numbers used tally with the final numbering of the structures at the sanctuary of Apollo Daphnephoros (Eretria XIV, vol. II, 73-74 and pl. 3).

8. I would point out that these phases are still very schematic and remain provisional. It is still difficult to attribute certain unclearly stratified structures to precise phases; moreover, the dating of phases has to be sharpened on the basis of further detailed study of the pottery finds.

9. Ed 2 was probably victim of a fire. The date of destruction is very hard to ascertain because its floor level has only been excavated over a limited area and the demolition layer was extensively disturbed by the construction of Archaic temples.
When interpreting our findings, one of the main difficulties and one which has long been discussed is to determine what the sanctuary area was used for during the Geometric period. Although there can be little doubt about the religious function of the monumental building Ed 2, the first buildings are quite a different matter and could have been dwellings, as A. Mazarakis Ainian suggested. I shall not go into this issue here, but it must be borne in mind for the following presentation. This is a complex question and should be considered from as many angles as possible. Remains linked with metalworking are of course also part of the reply.

**THE MATERIAL.**

Let us now briefly review the material related to metal working found during excavations of the sanctuary. To very varying degrees, there is evidence of work with at least three metals: bronze (or copper-based alloy), iron and gold.

**Bronze**

Remains linked with bronze work are the most abundant. Together with foundry waste, frequent droplets, spills and slag, fragments of crucibles and tuyeres have been found.

According to the fragments collected, the crucibles are all the same type: basic shape and quite small (at most 20cm in diameter and about 15cm in height, which would appear to be the size imposed by technical constraints). This type of crucible resembles those found at the same period elsewhere in Europe and the Near East. Two interesting fragments are particularly worth mentioning among our findings: the first reveals the existence of a pouring spout, the other is part of a foot.

Tuyeres, the clay ends of bellow nozzles, are also small in size: the outer diameter is approx. 5cm at the end inside the crucible and approx. 10cm at the outside end.

On the basis of our findings, the production process can be reconstructed as follows: the crucibles were used to melt the metal before casting. The source of heat was not external (although the pieces were certainly deposited on a bed of embers), but internal: the metal was covered by hot charcoals fanned by air from the top with the tuyeres.

We unfortunately lack clearly recognizable moulds as evidence of the casting process but this is not surprising because, on the one hand, moulds are broken to remove the cast...
metal object and, on the other, they are not necessarily fired at high temperatures and the clay they are made of decomposes easily.

To sum up, therefore, our evidence is essentially of bronze melting and casting in the sanctuary; moreover, one could also assume that smithing also took place, the subsequent stage of production, but this has not left tangible traces.

Iron

Some scattered slag has been found as evidence of ironwork (certain quite large pieces). We shall only learn more about these through metallurgical analysis. By way of a hypothesis, we think that this is mainly smithing slag. In a workshop environment, iron smithing is always a necessity even if only for tool maintenance. But, whatever the case may be, iron working appears to have been a subsidiary activity at the sanctuary.

Gold

Evidence of gold work in the sanctuary is rare, but all the more interesting. In all we have four different pieces with traces of the precious metal, two coarse potsherds, several fragments of another vase in coarse ware, and finally fragments of a brazier or cooking stand. In all cases these are pieces of coarse ware that bear a layer of vitrified matter with microscopic, embedded globules of gold. First, it may be pointed out that at least one of these objects, the brazier, was not specifically produced for gold work, as is the case for bronze, but was an item of handmade pottery originally for use as kitchen crockery, and was recuperated for the needs of the goldsmith. This might also be true for the other pieces. Two of them, however, were made from coarse clay slightly different from what is generally found at Eretria for the Geometric period; traces of burnishing are also visible on their external surface which is unusual as well. It is not impossible therefore that these objects were directly manufactured for gold work and that they may even have been imported.

For the time being, it is difficult to determine exactly what these pieces were used for. The presence of gold globules indicates that metal was melted in them. However, they are not true crucibles. It is important to emphasize that a close parallel can be drawn between these pieces and those found in the gold refinery workshop discovered near Sardis and recently published by A. Ramage and P. Craddock. They could therefore also have been used in the gold refining process. The hypothesis still has to be confirmed by tests, but if it turns out to be right, we...
SAMUEL VERDAN

would have proof of refining prior to Sardis, for which the main period of activity is placed in the second quarter of the 6th century BC.

THE FEATURES

The number of features to be linked with metalworking is limited, compared with the material I have just reviewed.

In the edifice known as the "atelier de bronzier" (Ed 17), which I mentioned in the introduction, a small pit was discovered containing fragments of burnt clay and slag (St 136). On the basis of these remains, Sandrine Huber reconstructed a smelting furnace, but this interpretation has had to be reappraised, according to W. Fasnacht. Apart from the fact that, on account of the harmful fumes emitted, work like this cannot be carried out in a closed construction, it was observed that neither the pit nor the fragments of clay could be associated with a smelting furnace. In fact, the clay fragments come from a crucible with a pouring spout (Fig. 3), and the pit was used for positioning either the crucible itself or the foundry mould (casting pit).

A very rudimentary hearth (rubefied clay slab), for which the presence of a large spill provides evidence of bronze foundry, is situated outside the walls in the area covered over by alluvium (Fy 229). The location of this hearth will be discussed further on. Of course, some of the other forty-odd hearths identified in the sanctuary area might provide a link with metallurgy but this is impossible to prove.

The most unusual feature is a U-shaped hearth situated in front of the entrance to edifice Ed 5 (Fy 257, Fig. 7). Shape-wise the feature resembles a cooking stand, but was erected on the bare ground with fresh clay. Its interior presented traces of intense heat and it was full of ashes. Several fires had been lit next to the hearth; the ensemble appears to be enclosed by a mud brick structure. Unfortunately, the space available did not allow thorough excavation of these installations. However, it would appear to be a complex workplace the likes of which have not been observed elsewhere in the area and with which we have not as yet found comparisons. It is therefore difficult to know exactly how the hearth was used. Until now, no trace of metal has


20. Several authors have already suggested the presence of goldsmiths' workshops at Eretria, especially for producing diadems: D. Obly, Griechische Goldbleche des 8. Jahrhunderts v. Chr. (Berlin 1953), 101-118; Eretria III, 42-44; Coldstream, GG, 198. Moreover, a gold hoard discovered in the North of Eretria by Petros Themelis has been attributed to a goldsmith, but this interpretation has to be reconsidered, partly because it is difficult to imagine so much gold massed in the possession of one goldsmith, however rich he may have been. It has been recently suggested that the hoard's ingots might testify to the existence of a pre-monetary currency: J. H. Kroll, 'Observations on Monetary Instruments in Pre-Coinage Greece', in M. S. Balmuth (ed.), Hacksilber to Coinage, New Insights into the Monetary History of the Near East and Greece, Numismatic Studies 24 (New York 2001), 77-78; G. Le Rider & S. Verdun, 'La trouvaille d'Eretria: réserve d'un orfèvre ou dépôt monétaire ?', AntK 45 (2002), 133-152. In this connection, we should also mention the 'chruseia' that Strabon (V, 4, 9) speaks of with reference to the Euboean Pithekoussai, term commented in S. C. Bakhuizen, Chalcis-in-Euboea. Iron and Chalcidians Abroad (Leiden 1976), 85, and in D. Ridgway, Les premiers Grecs d'Occident. Laube de la Grande Grèce (Paris 1992), 21-22.

21. Huber, 'Activité métallurgique', 175-179 and fig. 5.
been detected in it but, bearing in mind the care with which it was built, it was probably not a domestic structure. It could very well have been used to rest a crucible and tuyeres on, and might be linked with gold work, considering that the two major pieces with the gold globules were found in a pit very close by. Among other things, this would explain why the metal left no trace — every speck of it had been very painstakingly recuperated because it was so valuable. Finally, we should emphasize the close spatial link between this hearth and edifice Ed 5. It was located directly in line with the building and was indeed perhaps sheltered by the latter’s porch.

CHRONOLOGY

The presence of metalworking, at any rate bronze work, has been established since the first phase of occupation of the site, in the MG II. For bronze, most of the material that has come to light has in fact been from this first phase (60%).

Iron work, on the other hand, is better attested for in phase II (80%) and so far evidence of gold work has only been situated in phase II (and III). However, the number of elements at our disposal is too limited to enable us to judge if this “silence” for iron and gold in phase I actually corresponds to reality or is just a question of where research happens to have been carried out.

SPATIAL DISTRIBUTION

Regarding the spread of material across the site (Fig. 1), we should draw our attention to the fact that, compared to earlier excavations, an increase in the number of finds has been observed during recent excavations (in the zone located to the west of the edifice Ed 150). Our distribution plan therefore depends on how zealously different diggers have kept the most insignificant pieces of metal or burnt clay fragments. With this in mind, it is however possible to make the following remarks:

First of all, the findings are not concentrated in one place. Bronze work is therefore not related to a single construction as might have been previously thought with the discovery of Ed 17. On the contrary, evidence of it has been found in several distinct areas (separated by walls) in or around the sanctuary. Clearly the presence of material does not necessarily indicate the position of metallurgical activity because waste material may have been dumped at a distance or randomly moved away during re-assignment of the space (clearing, backfilling, etc). We should therefore chiefly consider features in place and concentrations of material.

A large amount of material, more particularly fragments of tuyeres and crucibles, is concentrated outside the main area, to the Southwest of the long border wall and more to the North (see Fig. 1). This might be debris thrown out from inside but the presence of at least one feature in place (Fy 229) tends to indicate the contrary. In this location all the elements are reunited: a hearth, fragments of crucibles, of tuyeres, slag and droplets. Moreover, evidence of this type of material is present for each phase. It can thus be said that we are indeed dealing with an authentic work area. Particularly interesting is the position chosen: outside the occupied area,
on a spot regularly covered over by alluvium. This means that metalworking structures were set up periodically, on a temporary basis.

Although a certain amount of material was found outside the main occupation area, we should however emphasize the presence of remains, and particularly structures in place, inside this area.

Two edifices (Ed 17 and Ed 5) are concerned with metalworking, attested by the presence of structures. This might also be the case for edifice Ed 9: just in front of the building, a layer of coal, a fragment of tuyere, a piece of slag and some droplets were found. On the other hand, however, we do not have such a clear set of clues for edifices Ed 1, Ed 2 and Ed 150.

INTERPRETATION OF DATA

It is clear that the multiplication of findings related to metalworking and the fact that they are accurately situated chronologically and spatially, casts new light on the function of the sanctuary area during the Geometric period.

First of all, the importance of early evidence of metalworking should be stressed as it gives added emphasis to the significance of the area right from the beginning of its occupation.

Next, the regularity of metallurgical activities throughout the Geometric period should be highlighted. This is one of the elements which indicate the continuous nature of events taking place at the sanctuary in the 8th century. By the way, even if one supports Mazarakis' theory that ruler's dwellings later became a sanctuary, it is difficult to define, on the basis of material, a particular point in time when the break between the two states took place.

Spatial distribution of the remains of metalworking indicates moreover that the spaces can be pluri-functional. For example, I do not believe that we have a true workshop. In edifice 17 repeated metallurgical activities should have left more evidence than was in fact found. Besides, the building yielded a fair amount of pieces of fine decorated pottery. The same can be said about edifice 5 in front of which several pits were situated containing the finest LG pottery of the sanctuary (more particularly the large kraters decorated in the Cesnola Painter's style). These buildings, connected with metalworking features, also had other functions (dwellings, banqueting halls?). Obviously the question arises of the relationship, from the spatial organization point of view, between the different types of activities (crafts in relation to religious, domestic activity etc.). Two remarks are in order here:

- First of all, we can see that the buildings concerned are peripheral to what I consider as

22. If one considers that structure Fy 257 was well and truly linked with metalworking.
23. See supra n. 11.
24. Construction of the monumental edifice (Ed 2 on Fig. 1) was certainly a decisive stage of evolution, but it does not appear to have brought about any radical changes in the use of material.
25. Gisler, 'Cesnola'.
26. The same question mark hangs over other sanctuaries such as Olympia or Isthmia. A very interesting case during the Geometric period is the sanctuary of Athena Alea at Tegea, where a metalworking area was situated right in front of the entrance of a cult edifice: G. C. Nordquist, 'Evidence for Metalworking in Late Geometric Tegea', in Gillis et al., Trade and Production, 204; id., 'Evidence for Pre-Classical Cult Activity beneath the Temple of Athena Alea at Tegea', in R. Hagg (ed.), Peloponnesian Sanctuaries and Cults, Proceedings of the Ninth International Symposium at the Swedish Institute at Athens, 1994 (Stockholm 2002), 157-158.
the main sanctuary area, i.e. the area between edifices Ed 1, 2, 150, and the altar St 12. It may well have been that metalworking, even if it was carried out inside the sanctuary, was kept at a distance from the focus of worship. This suggestion should be tempered all the same by the observation that, of the three above-mentioned edifices, only Ed 150 has been adequately and thoroughly excavated inside, and that the areas opened out on to by the edifices have not been cleared. Who knows what went on there?

- The second remark concerns the periodicity of metallurgical activities. If we consider, as certain evidence leads us to believe, that this activity was not a permanent feature but was organized around specific occasions (festivities, construction or renovation work etc.), this means that they did not necessarily interfere with other activities but, on the contrary, could follow on one after another. The work could be carried out anywhere, unobtrusively, and any equipment involved could be dismantled afterwards.

WHAT KIND OF PRODUCTION?

There is still a major grey area to fill up: it is very difficult to determine what was produced in this area. As yet, we lack the missing link in the production process between raw metal and the finished product — a semi-finished product which could provide clear information on the objects manufactured (although we cannot exclude that a meticulous examination of scrap metal might provide some answers to this question). Of course, when we think of metal working in a sanctuary we immediately think of the production of votive offerings. This is a plausible solution in our case but it is not as simple as that. In the area of the sanctuary of Apollo which I have been describing here, metal offerings (and offerings in general, apart from pottery) are rare. Naturally, one must bear in mind the discoveries from a sacrificial area situated to the North of the sanctuary (see Fig. 1) which were recently published by Sandrine Huber. Dating from the LG and Early Archaic, a variety of metal objects (in bronze, iron and gold) have been found that could have been produced in situ. May we point out, however, that these do not represent the majority of non-ceramic small finds by any means. Moreover, a significant proportion of offerings, metal and otherwise, were imported. Apart from the gold leaves possibly, there is no one series of objects which unequivocally attests local production.

This is how the situation stands for the LG. If we consider the MG, the picture is even more contrasted: neither the sacrificial area zone nor the sanctuary zone have revealed any clearly recognizable offerings whereas evidence of metalworking (bronze at any rate) is best for this very period. Is this a question of luck and where excavations happen to be carried out?

What is certain though is that we cannot establish for the time being the link between

27. The presence of Archaic remains or disturbances caused by their construction have rendered excavation of these areas impossible.
28. More particularly, several fragments of sheet bronze have been found, which still have to be studied.
29. *Eretria XIV.*
31. In the MG period, the sacrificial area as such, with its circular altar, does not exist even though ceramics and possibly a wall bear witness to an installation (*ibid.*, vol. I, 28-31).
metal working and the production of offerings. Perhaps we should consider other solutions like those proposed by Sandrine Huber for edifice 17: could this be work relating to the construction or maintenance of buildings? Perhaps it would be better not to focus too closely on the sanctuary of Apollo and to broaden our viewpoint to consider the problem on an Eretrian scale.

One main picture is emerging from the study of metallurgy in Greek sanctuaries during the Geometric period: they functioned, at least the major ones, as economic centres and meeting points for craftsmen, as well as meeting places for competing elites. In certain respects, this could well be the case for the sanctuary of Apollo at Eretria. Admittedly it does not have a pan-Hellenic dimension, even if it does attract votive offerings from far afield; it is above all a major centre for the Eretrian community, with the marked presence of the local rulers. They might have had objects manufactured here, perhaps by travelling craftsmen (since we have seen that metalworking was not a permanent but a periodical feature). Once these objects were crafted under the double patronage of the nobility and the divinity, nothing indicates that they all had to remain in the sanctuary and could not circulate among the elite, which would explain why we have not located articles in situ corresponding to the metalwork waste.

To reinforce this hypothesis, we should aim, on the one hand, at clarifying the type of objects produced in the sanctuary and, on the other, considering material found elsewhere in Eretria.

For the time being, however, no comparable material to that found in the sanctuary of Apollo is available anywhere, but Geometric material from other excavations should be reconsidered. It is particularly important to mention the remains linked with bronze work which came to light in a well and a pit excavated below Edifice IV in the West Quarter, an area which till now was thought to be reserved for cemeteries. These discoveries reveal a different technology from the one evidenced in the sanctuary (see below annex by W. Fasnacht). The odds are that a scrupulous re-examination of the Geometric material from different excavations carried out up to now in Eretria would reveal new elements. This might enable us to broaden the scale of the study of metalworking to the whole site.

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32. Huber, 'Activité métallurgique', 180. For other proposals concerning the link between sanctuary and metalworking, see inter alia Risberg, 'Metal Working'; id., 'Production'; S. B. Westover, Smelting and Sacrifice: Comparative Analysis of Greek and Near Eastern Cult Sites from the Late Bronze Age through the Classical Periods, in S. M. M. Young et al. (eds.), Metals in Antiquity, BAR Int. series 792 (Oxford 1999), 86-90.

33. See Risberg, 'Metal Working', 190-191 and id., 'Production', 674-675. Note that these considerations are based essentially on Olympia which provides the best example of the phenomenon.

34. This presence can be deduced notably from the opulence of the ceramics found on the spot.

35. On the well and the pit as well as their broader context, see C. Léderrey's contribution to this volume.
APPENDIX

SANCTUARY OF APOLLO AND WEST QUARTER: DO TWO DIFFERENT METALLURGY TECHNOLOGIES MEAN TWO DIFFERENT TRADITIONS?

Walter Fasnacht

The metallurgical material from the Geometric well and pit in the West Quarter resembles the one from the temple of Apollo, but only at first sight. The finds include again a large span of metallurgical residues, from the small bronze casting droplet to the complete bun-shaped iron slag from a smithing hearth. Remarkably different from the find material of the temple of Apollo, however, is the total absence of casting crucibles. Within the clay material classified as furnace wall, some minute fragments could belong to crucibles, but identifiable larger crucible fragments are completely missing.

Additional to the crucible casting production of smaller bronze objects, a casting technology for larger objects is to be postulated here, which is based on casting furnaces. Many fragments of furnace wall were found, with slag coating and metal corrosion on the inside. As a working hypothesis, even the type of furnace can be defined: the furnace consists of a clay cylinder of approx. 30 cm of outside diameter, a thin clay bottom standing on earth, a lower wall thickness of approx. 6 cm and an upper wall thickness of approx. 3 cm. The original height is not preserved, but by comparison to other finds is likely to be below 40 cm. Artificial air was brought in laterally through a tuyere in the furnace wall and not from above as with the crucible casting technique. The tuyeres are tilted downwards in an angle of ca. 30 degrees.

According to the traces of bronze on the inside of the furnace, the liquid metal must have reached a height of 7-8 cm. With an inside diameter of 20-25 cm, a casting cake of approx. 3200-4500 cc, i.e. 3.2-4.5 litres of volume, or, at the specific weight of copper of 8.9 and tin of 7.4, a load of around 30 kg of bronze metal could be melted in one go. This agrees surprisingly with the weight of the Bronze Age oxhide ingots known from the copper smelting technology in the Eastern Mediterranean, notably Cyprus. It shows once more that metal production and metalworking in antiquity was limited by the human interaction, the parameters of raw material and energy, in particular in the quantity resulting from an individual production step. It was simply not possible to get more than 40 kg of copper into a fully liquid state, neither in the smelting nor in the melting process.

A complete furnace comparable to the proposed one from Eretria was found in Enkomi on Cyprus. This furnace is called "the Enkomi Crucible" in the older literature and dates from the LBA.

37. J. D. Muhly et al., 'Cyprus, Crete and Sardinia: Copper Oxhide Ingots and the Bronze Age Metals Trade', RDAC (1988), 218-298.
38. Tylecote, op. cit n. 36, 91-92.
In analogy to the limit of around 40kg in furnaces, the melting technique in crucibles did not permit anywhere, neither in central Europe nor in the Near East, to melt a volume of more than approx. half a litre of metal, which corresponds to 3-4kg of copper or bronze. The crucible with this amount of liquid bronze was lifted from the fire and the metal cast into the prepared mobile mould. The metal poured out of open crucibles of up to 25cm in diameters is well known in the Mediterranean area and dates back to Chalcolithic times 39.

The casting technology with a casting furnace, on the other hand, is based on letting the liquid metal flow out of an immobile furnace installation into an immobile casting pit. A casting channel had to be built from the furnace to the mould, and the furnace had a prefabricated hole for the flowing out of the metal. This hole was clogged with a clay plug, which was struck back from the outside immediately before the casting. Among the metallurgical finds of Eretria two of these clay plugs were found so far.

Most of the prehistoric copper and bronze objects fall into the category of the crucible casting: Tools and weapons weigh less than 3kg. Why suddenly the need of a bronze melting technique for 30kg and more? Were large objects being cast in Eretria and is there archaeological proof for it?

As candidates for the furnace casting technology, the bronze cauldrons are to be considered first and foremost. Finds of entire cauldrons are abundant, material analyses of those, the casting waste and the metal adhering to furnace fragments would have been carried out to support this hypothesis. The advanced state of archaeological research of bronze cauldrons in the Aegean would allow immediate comparisons.

The Geometric phase in Eretria is not the phase of the transition from the Bronze to the Iron Age, but the bronze and iron objects are numerous and early within regional sites of comparison. A more detailed investigation of the metallurgical finds of the entire site would therefore be of interest beyond the settlement of Eretria. Only with a detailed overview of Aegean bronze technology in the first half of the first millennium BC could an answer be given to questions of different traditions and their roots in a specific place like Eretria.

Fig. 1. Sanctuary of Apollo Daphnephoros at Eretria: Geometric phases.
Fig. 2. Crucible.

Fig. 3. Crucible: pouring spout and foot.
Fig. 4. Tuyere.

Fig. 5. Sherds bearing gold globules.
Fig. 6. Close-up of a gold globule (globule size c. 200mm).

Fig. 7. Feature St257 in situ (1) and after removal (2).
FORGING IDENTITY IN EARLY IRON AGE GREECE: 
IMPLICATIONS OF THE METALWORKING 
EVIDENCE FROM OROPOS'

Roger C. P. Doonan & Alexander Mazarakis Ainian

INTRODUCTION

The study of iron metallurgy in the Aegean has tended to centre on the inception of this 
"new" technology at the end of the Bronze Age. For V. Gordon Childe iron metallurgy was the 
cause of social tensions in Hittite Anatolia which culminated in iron-bearing groups taking 
the new technology to Greece, Italy, and the rest of Europe1. In undermining the power of the 
extisting Bronze Age palace system, Childe saw iron both as a democratising force and as an 
index of social evolution with concomitant changes in agriculture, industry and warfare. Since 
Childe more nuanced understandings of the uptake of iron have been proposed. Waldbaum2 
was amongst the first to draw attention to the extended period over which iron is noted in the 
archaeological record prior to the Iron Age; this has been reviewed and extended recently by 
Haarer3. Snodgrass has developed a three phase scheme to order our understanding of the

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“Demokritos” in Athens offered invaluable support in the form of analytical support and subsequent discussion of 
data. Drs I. Whitbread and E. Kiriatzi of the Fitch laboratory offered logistical support and assistance with sample 
preparation, whilst Dr Caroline Jackson and Dr P. M. Day have helped with proof reading and the development 
of ideas. Chris Walkley helped in the assessment and cataloguing of the metalworking assemblage. The work was 
undertaken with the heip of funding from The School of Conservation Sciences, Bournemouth University and 
INSTAP.

ABBREVIATIONS:
Morris, Archaeology: I. Morris, Archaeology as Cultural History: Words and Things in Iron Age Greece (Oxford 
2000).

2. J. Waldbaum, 'First Archaeological Appearance of Iron and the Transition to the Iron Age', in T. A. 
1980), 69-98
3. P. Haarer, 'Problematising the Transition from Bronze to Iron', in A. Shorthand (ed.), The Social Context 
increasing visibility of iron in the archaeological record. Snodgrass' scheme has been widely acknowledged and suggests that the use of iron changes from Stage One, where it is rare and used for decoration, to Stage Two, where iron is used as a "working metal" for weapons and tools but bronze dominates for practical implements, and finally to Stage Three, where iron is the main working metal, without completely replacing bronze.

Snodgrass identifies Cyprus as the first region to enter into Stage Three around 1100 BC, with Mainland Greece following by about 1050 B.C. Whilst Crete is seen to be backward by about fifty years, parts of western Greece are seen to not truly enter this stage for almost three centuries. Snodgrass' functional development model of iron metallurgy emphasises the extended emergence of iron and stands in contrast to Childe's more revolutionary model not only in terms of rapidity but also in terms of motive; for Snodgrass iron is very much a symptom of social change rather than a cause. Studies of the inception of iron metallurgy have tended to prioritise explanations that seek to address access to knowledge, technology and resources.

Morris has highlighted the way scholars, explaining the role of iron following the collapse of the palatial system, have equated evidence from the archaeological record with the envisaged circulation of metals — his so-called "circulation model". By noting that deposition is an agent-centred act Morris draws attention to the fact that relative proportions of metal goods from funerary deposits need not map directly onto the relative availability of metals. Sensibly, Morris proposes that rather than use depositional contexts to hypothesise about the everyday use of metals, it makes more sense to talk about depositional acts and how these intentional acts would have been used to create and maintain power relations.

Whilst Morris argues that his account of depositional practice is situated within a funerary framework, he accepts that there is a need to move from deposition to the daily use of artefacts. To a large extent he achieves this in presenting an image of Iron Age society which centres on a prestige economy, where the circulation of iron is monopolised by elites. For Morris these local elites would hold uncertain control over villages in a sparsely populated landscape. Implicit in this image is the idea of production being controlled by elites presumably through the control of resources and skilled individuals. Seen from this perspective the study of funerary contexts is not best suited in understanding how power relations associated with production were articulated. It is of course understandable though since virtually all iron objects derive form funerary contexts. In short, Morris' model could be supplemented if we could link his ideas to the study of production contexts. Without some understanding of these contexts, the understanding of how power and identity was negotiated through the production of these artefacts is severely restricted. The challenge though is not simple, production contexts have proved to be illusive subjects of study; they are often destroyed in subsequent

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6. Morris, 'Circulation.'
7. Ibid., 506.
8. Ibid., 503.
construction phases and even when encountered by archaeologists they are difficult to identify and excavate appropriately.

The discovery of metalworking evidence at Oropos can therefore be seen to represent a unique opportunity to illuminate the contexts of production in the EIA of Greece. The synthesis offered in this paper is not an attempt to characterise the role of metal production in the Aegean broadly but rather to understand the specific cultural dynamics in play at EIA Oropos and how these relate to other processes acted out at a regional level. In achieving this we hope to demonstrate two things: first, that through appropriate excavation strategies in tandem with now easily available field instruments complex analyses of single contexts are not only possible, but crucial for an understanding of practice and agency in Iron Age studies; and second, that whilst technology studies have been broadly characterised by an emphasis on technical detail, studies which recognise craft production as a fully social practice offer an accessible and important window through which to observe the fine grained dynamics associated with shifting power relations at the end of the 8th century.

CRAFTING METALS AT IRON AGE OROPOS

Iron Age Oropos lies several metres below the modern town of Skala Oropou, close to the Attica-Boeotia border. Numerous excavations have led to a detailed understanding of Late Classical to Early Christian Oropos but until the excavations of Dragona at the OTE and O.S.K. sites little was understood of the EIA at Oropos. Whereas the OTE site has provided evidence of human occupation from as early as the late 10th century, the O.S.K. site has found, amongst other things, evidence for craft production in the 8th and 7th centuries BC.

Initial excavations at Oropos O.S.K., under the direction of the late Aliki Dragona, recovered a significant assemblage of metalworking debris. When Alexander Mazarakis Ainian resumed excavations in 1996 under the auspices of the Archaeological Society at Athens, the continued discovery of metalworking debris stimulated an ongoing study of these finds. Since the preliminary assessment of metalworking finds suggested that original contexts of production remained a programme of soil characterisation was initiated. Contrary to the usual timing of post-excavation analyses these combined analyses took place alongside ongoing excavation. This meant that soil studies could be combined with the finds analyses which allowed the contexts of production to be further understood.

10. See Mazarakis Ainian in this volume ("Bibliography").
13. ibid. and supra n. 10.
THE MATERIAL EVIDENCE

Oropos O.S.K. is divided into quarters, the Central Quarter, the Western Quarter and the South Quarter. The focus for this study is the Central Quarter (Fig. 1), where the evidence for metalworking activities is concentrated.

Within the Central Quarter a total of ten structures have been identified, representing six distinct building phases. Eight (A, B-Γ, Δ, E, ΣΤ, I, IA, and IB) are associated with metalworking debris, demonstrating the extensive and prominent role of metallurgy within this complex. The deposition of slag both in and around structures means that it is not possible to infer the location of metalworking activities from slag distribution alone. The wide-distribution of slag and metalworking debris most likely results from periodic cleaning regimes; this resulted in the displacement of debris, from its production context. Fig. 2 shows the wide distribution of metalworking debris, whilst Fig. 3 shows the proportion of metalworking debris found within and outside of structures.

In order to locate the context of production a campaign of soil sampling in conjunction with geophysics (magnetic susceptibility) was undertaken: this aimed to identify concentrations of hammerscale which were associated with primary production contexts (see results below).

Metalworking debris included fragments of vitrified hearth lining, furnace material and ingot fragments, but by far the most common find was slag. Slag was examined so as to identify characteristic types such as casting dross and smithing hearth bottoms. Although metallurgical debris such as slag does not lend itself to dating in the same way as pottery its study can indicate the nature of the technical process responsible for its formation. Usually it is possible to identify whether the assemblage is the result of ferrous or non-ferrous metallurgy and whether it is from primary (smelting) or secondary (artefact) production, although there are important exceptions to this.

The Oropos assemblage can be divided into the following four distinct slag types:

**Type One:** The most diagnostic form of slag; known as "smithing hearth bottoms". These slag finds are characterized by their plano-convex form and are diagnostic of iron smithing (Fig. 4).

**Type Two:** Plate slag. This type of slag is thin —normally 0.5cm-2cm in thickness—, and shows little or no evidence of porosity. Unlike Type One slags, these are not diagnostic of a process and hence are referred to as "non-diagnostic slags" (Fig. 5).

**Type Three:** Vesicular nodular slag. This slag type is extremely porous and is found in smallish broken lumps. The size of this slag varies from 1cm-5cm diameter and has frequent silica inclusions (Fig. 6).

15. Mazarakis Ainan, 'Excavations'; id., 'Periboles'; id., 'Contribution'.
Type Four: Dense nodular slag. This slag is similar to type three in size range and form, but shows little or no evidence of porosity (Fig. 7).

Without the use of microstructural analysis it is not possible, with the exception of Type One, to assign the slag types to specific technical practices. Therefore, to elucidate the technical origin, a campaign of microstructural analysis was initiated. Microstructural analysis of slags allows inclusions, such as ore fragments, metal prills, and fuel fragments within the slag to be identified, whilst also allowing textural detail to be recorded. Such analyses are capable of determining whether a slag is derived from primary production such as the smelting of ores, or from secondary working such as that associated with artefact production. For the Oropos assemblage, microstructural analysis confirmed that the majority of slags were derived from iron smithing although in some instances the presence of copper inclusions was also noted. The inclusion of copper in the slag (e.g. Fig. 8) indicates that whilst iron smithing was the predominant craft practice, copper casting/working was, on occasion, conducted in the hearth at the same time as the iron smithing slag was molten. In addition to copper inclusions in the slag, sample seven (Fig. 9) was identified as a corroded fragment of iron metal which had been repeatedly folded during forging. Within the folded iron structure discrete inclusions of copper were noted (Fig. 10) which provided independent confirmation that copper was worked at Oropos. There is further evidence for copper metallurgy in the form of five ingot fragments (Fig. 11) which presumably would have been melted and cast either as finished artefact or as blanks ready for further working. EDAX analyses of these ingot fragments (Table 1) show appreciable levels of zinc and high levels of iron (1.4-5.1wt % av 2.6%).

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Table 1. Table of EDX analyses for copper ingot fragments (wt%).

Such levels suggest that these copper fragments have not been properly refined or repeatedly remelted suggesting that they are not the result of consolidating recycled copper-alloy artefacts. More likely they are the product of either primary smelting, presumably conducted elsewhere, or an initial crude refining, since the elevated iron concentrations would be expected to decrease with remelting in an oxidising environment: it is usual for copper artefacts for this period to contain in the region of 0.1% iron18. Together this evidence strongly suggests that copper casting or working was conducted both at the same time and in the same location as iron smithing although to date no evidence for ceramic crucibles or moulds has been forthcoming from Oropos. The presence of freshly smelted copper shows

that copper was being produced in the 8th century and the inhabitants of Oropos were effective in negotiating access to it: recycling objects from tombs or cult deposits was not the dominant strategy for securing access to copper.

In addition to slags and ingot fragments the assemblage also included many fragments of craftwork-related ceramic. There were numerous fragments of vitrified hearth lining and pit 80, which contained a burial, also produced evidence for a ceramic tuyère. Deposits of unfired clay were also recorded and are possibly to be associated with the maintenance of furnace structures and other metallurgical peripherals.

**LOCATING THE CONTEXT OF PRODUCTION**

Since metalworking debris is widely distributed across the site it is not possible to uncritically equate contexts with slag concentrations with contexts of production. Analysis of the distribution of slag types across the site clearly shows that the vast majority of slag is found not within buildings but in the spaces between them, mostly likely due to cleaning practices. Although slag is prone to redeposition, iron smithing fortunately leaves other evidence. During the smithing process, as hot iron is exposed to the atmosphere, the surface of the iron reacts with oxygen to produce a surface layer of iron oxide. When hammered this layer flakes off and falls in the immediate vicinity of the smithing activity. As well as this plate-like form, so-called hammerscale can also be formed as small spheres. Any residual slag in the iron will, when molten, be squeezed out of the iron during forging or welding and form as fused spheres. These spheres are comprised of iron silicate and, like plate hammerscale, contain very high concentrations of magnetite (Fig. 12). Fortunately for archaeologists hammerscale is produced in large volumes and is highly magnetic. This means that its presence can be detected through simple soil analyses and once its presence is confirmed its concentration across a site can be mapped using geophysical techniques such as magnetic susceptibility. Iron smithing produces hammerscale in large quantities which then becomes incorporated into the floor surface; this means that any context associated with iron smithing will, over time, become magnetically enhanced.

Accordingly, potential contexts of production were assessed at Oropos with efforts concentrating in and around Buildings A, B-Γ, I and Θ. Whilst the only building not to produce metalworking debris or other evidence for craft working was Building Θ, the presence of hammerscale was restricted to Building A and, in smaller concentrations, Building I.

Remarkably, during the excavation of Building A a hearth structure was discovered, highly fired and built of a coarsely tempered refractory ceramic with a diameter of approximately 350mm. The morphology of the hearth cavity corresponds perfectly to the size and shape of some of the smithing hearth bottoms recovered from the site, strongly suggesting that its original function was indeed metallurgical. To establish whether Building A was associated with metal production a high-resolution magnetic susceptibility survey was undertaken, with readings every 25cm across the floor layer within the structure and extending to the surrounding areas.

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ing area. Soil samples were also taken across the floor layer to check whether high magnetic susceptibility corresponded with the presence of hammerscale. Results from the intensive survey of Building A were compared to the variability of magnetic susceptibility across the site by readings taken across a transect. It was clear that readings within Building A were considerably higher than across the site, with readings peaking at 411 within the structure compared to readings averaging 73 across the site. These high magnetic susceptibility readings were correlated with soil analyses which identified the presence of hammerscale concentrations. Fig. 13 shows the results for the magnetic susceptibility survey; of particular note is the concentration occurring within the centre of the structure towards the threshold. From the magnetic susceptibility survey and the results of soil analyses it is clear that Building A was associated with the practice of metallurgy. These are not unimportant results, since architecturally Building A is not suggestive of craft production. The presence of a peristyle and prominent stone in the apse might well suggest a more ritual function. In light of the unequivocal results that suggest metallurgical activities took place within this structure, it is perhaps advisable to reconsider our assumptions about the types of contexts associated with metallurgical practice.

The only other structure to have evidence to associate it with metallurgical practice is Building I. It has already been mentioned that this structure had the largest quantity of slag associated with it, but due to complicated stratigraphy it was not possible to undertake extensive soil analyses or intensive magnetic susceptibility survey. However, limited soil sampling did produce evidence for hammerscale which along with the high concentration of slag suggests that the area associated with Building I was also a location where metal craft was practised.

**CHANGING PLACES: TEMPORAL ASPECTS OF METALLURGICAL PRACTICE**

Across the Aegean, the 8th century is characterised by dramatic changes which seemingly unfold at a regional level. Increasing evidence for colonisation, especially in the West, and greater use of oriental motifs (both presumably being linked to more sustained voyaging and innovations in shipbuilding)\(^ {20}\), along with expanding population evidenced in changes in cemetery and settlement, all contribute to the image of the 8th century as a period which witnessed fundamental systemic transformation\(^ {21}\). Understanding these changes in terms of dynamic processes, for example colonisation and exchange, both of which extend over considerable distances, means that any analysis of change is complicated by an inability to precisely and continuously locate these processes in space and time with the outcome that scholars have tended to address these issues at an abstract level. This has meant that many syntheses of this critical period have discussed change in a "notoriously vague" manner\(^ {22}\) with continuing references made to colonisation or the intensification of exchange but with few instances where this has been dealt with in terms of specific archaeological context and inferred practice. Whilst textual evidence can bring a sense of security to any discussion of changing societal values and their relations to such abstract conceptualisations, texts cannot themselves help in locating

\(^{20}\) See Morris, *Archaeology*.


such processes in terms of lived experience. The archaeologist's challenge then remains as to how these spatially and temporally segmented processes can be both recognised and analysed. For Iron Age Greece, changes in architecture, material culture and funerary remains may all be seen to be linked to wider processes such as colonisation and exchange, but the link is not simple or direct and the challenge remains how these material categories can be opened most effectively to satisfactory analysis especially in terms of how they relate to wide scale phenomena. It is not necessarily simply a matter of cataloguing the material evidence and recognising patterns within our datasets. Allowing material residues of the human past to stand in for these absent processes is what Barrett has termed "the representational model of archaeology". Implicit in such models is the notion that material evidence is the effect of these extinct processes and that sensitive analysis is required to reveal an authentic meaning. A key problem is that when material residues are seen to be a concrete link to abstract processes in the past, historical analysis becomes a problem of relating cause to effect: what is either not admitted or de-emphasised in such historical writings is human agency. The result is that change tends to be explained in terms of a mix of environmental and technological determinants, i.e. availability of resources and ability to exploit them. For our understanding of technological practice in the 8th and 7th centuries at Oropos this is an important point, since central to any historical analysis of craft must be the question of how communities engaged in these practices and in doing so how they mediated the consequences of strategies played out at the wider scale. After all "What happened in the Eighth century?" is something Morris has identified as being the fundamental question for Greek Iron Age studies; adopting an approach which encourages deterministic explanations (see above) seems to be a less than fruitful means by which to understand craft production and social life in EIA Oropos.

Current understandings of production have emphasised the socio-constructivist nature of technology and cautioned against seeing technology as a desocialised act. Technical histories, which reduce cultural choice to detailed chemical pathways or explain technological change in terms of evolutionary development, are the most common forms of written history tending to desocialise craft production, usually as a consequence of overlooking contextual data. Critiques of so-called internalist histories of technology, have argued that craft is better understood as an act that brings together both intangible social values and tangible material elements. Indeed, creative acts weave together people, things, and meanings at defined points in time and space. Understood as such, craft production may be seen as a locatable act which employs skills, learned through varied practices facilitated by social networks, and draws on diverse material resources which themselves have moved through extensive exchange networks. Accepting craft production in this way means that to under-

24. Ibid.
stand metalworking in the 8th century one need consider the role of the creating agent as centrally embedded in a relationship between technological choice on the one hand and the concomitant opportunities and constraints of wider scale processes on the other. For our study of craftworking at Oropos, most obvious is the relationship between the securing of metal resources and Euboean expansion in the Mediterranean. Equally though developing values towards production, foreign lands, story telling and the past may also be as relevant to the understanding of craft.

It is in identifying and understanding the change in metalworking practice at Oropos that we begin to define the changing material conditions under which individuals engaged in acts of metallurgical production forged their identities. Whilst we have identified the technological practices and their location at Oropos we have not so far considered how the organisation of craft production changed through time. Fig. 14 shows the architectural phases recognised at Oropos and it is within this framework that we can begin to understand changes in the organisation of craft production.

The occupation history of the Central Quarter at Oropos evidences profound changes in the way space is used. Mazarakis Ainian has noted that the earliest evidence for occupation in the Central Quarter is of burnt deposits on sterile soil: these he links to a possible dedication to the Telchines associated with cult of Halia. This establishes an interesting link between Oropos, metallurgy and the sea and is something we will return to later. This early association between Oropos and metallurgy is further confirmed by the evidence for metallurgy located in and around Building I (see above) during the early phases of the occupation. It remains unclear whether what happens to be the highest concentration of slag from the site along with the presence of hammerscale can be linked directly to Building I, or whether these represent deposits prior to the construction of Building I. Either way, it seems safe to conclude that this area was the location for metalworking activities. In Phases 1 and 2 analysis of slag has shown that both iron smithing and copper working were practised in and around Building I. Although there is discontinuous evidence for a contemporary wall structure to the East of Building I it is apparent that during phases 1 and 2 this area was not enclosed and access would have remained relatively unrestricted giving the impression that metalworking would have taken place in a reasonably public space. This stands in stark contrast to the subsequent enclosure of this space in phase 3. Phase 3 is the most dramatic reworking of space witnessed at Oropos and it is worthwhile detailing the specific architectural changes. A significant peribolos wall is constructed with an entrance in the south-west corner; this construction effectively encloses the area formally associated with metallurgical practice and becomes the location for the most elaborate building, Building Θ. There is no evidence in this phase for metallurgical activities within this enclosed space, rather metallurgy is relocated to the interior of newly built Building A, situated alongside Building B. It is probable that these two buildings functioned together.


30. Mazarakis Ainian, 'Excavations'.

most likely as working and domestic space. Whereas earlier metallurgical practice was performed in an open public space, access to this space was now restricted, whilst metalworking activities themselves became more private as they were obscured within a designated structure and further shielded by Building B. This increasingly private nature of metalworking is ambiguous however since Building A is in the immediate vicinity of the South-western entrance to the enclosure. The effect, intentional or not, is that individuals entering the enclosed space would be aware of the metalworking activities in Building A — through hearsay, the sounds of forging and the scatter of slag in the vicinity; the architectural design, however, would no longer permit groups to gather to watch the metallurgical drama unfold. Indeed the wide scatter of slag across the site would have advertised the presence of metalworking and may even be seen as a deliberate attempt to publicise a private act.

This contradiction between the public and the private surrounding metalworking is further developed in the architectural style of Building A. These oval buildings, built towards the end of the 8th century, would have looked decidedly Archaic and hence decidedly odd. The design may have been a deliberate attempt to evoke a sense of place permeated with the past; the architectural style of Building A with its peristyle and steeply pitched roof would have emphasised the peculiarity of the individuals and activities associated with this area. The enclosure of space previously associated with metallurgy and the peripheralisation of activities to outside the enclosure was not simply an attempt to obscure production. Obscuring the specifics of metalworking whilst advertising its generic presence would have cultivated a sense of mystery and intrigue around these activities. Much has been written on the magical nature of metallurgy, focussing on its transformative nature, but it is perhaps more the mystery which surrounds magic and the unease which comes with the unknown potentials of individuals and events that provides an "inexhaustible source of power, capable of producing effects which were infinitely special and infinitely varied".

Phase 4 sees the construction of a flanking wall between the enclosing peribolos and Building A and unit B serving to associate the activities taking place in Building A with those within the peribolos enclosure. At the same time, Building Θ was remodelled in apsidal form with a porch being added to form a tripartite structure. Annexe Z was also added to the circular Building Σ located at the entrance. The overall impression of the architectural modifications in Phases 3 and 4 is one of increasing preoccupation with control of this area and the wilful management of experience during access and exit. What was previously an accessible and probably public space, certainly one which would not have prevented individuals from gathering to watch the entrancing flames and percussion accompanying smithing, became a space where access was restricted with a defined entrance and exit now closely associated with craft working activities. Accompanying these architectural restrictions is evidence for a narrower range of resources being drawn upon. Whereas analytical studies have shown that both copper and iron were worked in Phases 1 and 2, slag analysis from later phases has failed to identify any evidence for copper working. It is apparent that by phase 3 metalworking is concentrated

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32. Mazarakis Ainan, 'Excavations', 154.
33. Morris, Archaeology.
on iron smithing. It might be that this was a deliberate strategy of increasing specialisation but equally it might reflect the inabilities of individuals to negotiate access to copper resources.

Phase 5 sees the demise of Building A and metalworking is no longer in evidence at Oropos but craftworking did not disappear entirely. During the later phase of the B-Γ composite this area became a site for ceramic production with evidence for a kiln, and a further kiln was constructed in Phase 6 alongside the west wall of Building A. The location of ceramic craft in the area previously associated with metalworking is not the only evidence to suggest a relationship between these two crafts. Like metalworking, ceramic production relies on pyrotechnical knowledge, whilst metalworking, like ceramic production, uses ceramics for hearth construction, crucibles, moulds and tuyères. This shows that potters and metalworkers drew on similar materials. The results from petrographic analysis strengthen the sense of continuity between these two craft practices, confirming that identical clay resources were used for the construction of furnaces and kilns. Analysis showed that the furnace and kiln fabric was a calcareous clay with phyllite and quartz inclusions along with added organic temper. The final phases of occupation at Oropos, then, attest to the continuing importance of craftworking at the site, but suggest that craft working took place in a world were metal resources were becoming increasingly difficult to secure. This is not to suggest that the late 8th and early 7th centuries were periods when metal was unavailable because of generic problems of supply but rather that access to such resources was not uniform. The increasingly narrow range of metals used at Oropos and the final cessation of metalworking in Phase 5 may suggest that groups in other centres, perhaps Eretria, were more effective in negotiating access to raw materials and their subsequent working. Either way it seems probable that access to such resources was not straightforward, as the exchange of metals was no doubt entwined with political as well as economic machinations. Although still in a very preliminary stage of assessment, contrasting evidence for changes in metalworking practice is also forthcoming from Eretria. Phase One at Eretria, MG II, is associated predominantly with bronze working whereas it is only in Phase Two, roughly contemporary with Phase Three at Oropos, that iron smithing begins to feature; interestingly this development is accompanied by evidence for gold working. Although it is perhaps too early to be clear on such matters it remains a tantalising point that whilst evidence from Oropos suggests that an ever decreasing range of metal resources were accessible through the 8th and 7th centuries, at Eretria the opposite is true. If such preliminary impressions are substantiated by further investigation, then it is apparent that the competition for raw materials is played out not just near the sources of metal, Pithekoussai(?), but also at the locations where those metals are themselves brought to be worked into recognisable artefacts.

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36. See J. Sofaer Derevenski, 'Pots, Houses and Metal. Technological Relations at the Bronze Age Tell at Százhalombatta, Hungary', OJA 25:2 (2006), 127-147, for an interesting analysis of the interplay between different craft techniques.
37. See Verdan in this volume.
38. Ibid.
CONCLUSION

Metalworking practices at Oropos were neither constant nor uniform during the occupation of the Central Quarter. So far we have shown that the range of metals worked changed through time as did the spatial location of practice. This latter point is perhaps the most important and above we argued that it altered from a relatively unrestricted public performance to one which was increasing private or at least under the control of those who had overseen the dramatic architectural changes which characterise Phase 3, namely the enclosure of space by the substantial peribolos wall. At present we do not know the source of the iron or the copper, but it is intriguing that the earliest phase of Euboean colonisation, or “multinational entrepreneurial expansion” as Ridgway calls it, is commonly, although not unanimously, associated with the securing of metal supplies. Pithekoussai, on the edge of the Etruscan world, has since the time of Strabo been associated with early colonisation by Euboeans. Whilst this has been supported by various archaeological observations, such as similarities in settlement organisation, craft activities, cult and funerary practice and material culture, it is also a point of contention, with the relative proportions of Corinthian pottery being highlighted. If we are prepared to accept the hypothesis that metal from the Etruscan world was brought to Oropos then we must accept that those working the metal would either have come into contact with the voyagers who had secured the resources or that perhaps the metalworkers themselves were involved in voyaging. It is perhaps relevant to remind ourselves of the marine association with metallurgy witnessed by the dedication of offerings at Oropos to the Nymph of Halia and by extension the Telchines, themselves metalworking children of the sea. Such contact with voyaging and the sea, either direct or indirect, would have allowed craftspeople to become familiar with stories of far off places, most likely in relation to the source of the metal, and in doing so they would have been identified as cosmopolitan individuals directly connected with heroic voyaging and the consequences which expanded travel would have brought.

The performance of metalworking is a dramatic spectacle and can act as an effective focus for social gathering. The production of artefacts, especially in the public space of Phases 1 and 2, would have provided the opportunity for metalworkers to reinforce their identities as cosmopolitan and skilled individuals through the performance of their craft and accompanying tales of voyaging and material origins. In other words, the physical creation of an object becomes an opportunity to assert biographical details of the material and hence a prehistory for the object, and with that the social life of the object begins. In the hands of the craftworker

40. Ridgway in this volume.
43. See Ridgway in this volume for a discussion of these points.
44. Blakely, op.cit. n. 34, 155.
then rests not only the creation of physical objects but also, in large part, the creation of meanings and values. These meanings not only relate to the craftworkers' identity and the object at hand, but also extend to how the community understands itself in relation to a larger world, the connection to newly expanded horizons being mediated through both the physicality of the worked object and the performance of the craftworker. The performance of craft activities then, especially when using resources brought from afar, is one way in which communities negotiate their own place in a changing world.

Morris has indicated that this period was characterised by competing ideologies of elitist and so-called middling values. We can perhaps begin then to understand the changes at the end of the 8th century at Oropos in these terms. The public performance of metalworking with its allusions to distant exchange and the production of elite goods would have sat firmly within elitist values. In the earlier phases it is tempting to see metalworkers as composite individuals, dextrous in the art of working various materials and adventurous as they voyage to far off places by sea to use their knowledge of minerals and metals to secure resources. By the end of the 8th century at Oropos the means by which this identity is constructed have been reworked so that the space associated with public performance is now controlled in terms of access with practices centring on Building Θ. Although metalworking endures it is no longer the practice which was once central, but now a more private practice sub-ordinate to the practices within the peribolos. This shift of metallurgy and those who practice it from central public performance to a more private peripheral affair can be seen then as the materialisation of the tensions that exist between Morris's elitist and middling values. Evidence from Oropos does suggest that public group practices supplanted individual public performance which centred on elitist material culture.

We have tried to develop the idea that the profound reworking of architecture and space in Phase 3 was purposeful and actively drew upon understandings and memories associated with the space enclosed by the peribolos wall. It is the knowledge and memory of metalworking and the associated power relations played out in this space that would have infused it with a sense of place. It is this sense of place and its associations with the elitist connotations of prestige goods, voyaging, exchange that was reworked during phase 3 with the result that resources which had been used, intentionally or not, to construct individual identities now became common resources through which communities could express and understand themselves. Enclosing a space which evoked memories of specific practices and social relations is a simple strategy by which those enclosing this space could legitimate the new practices now intended for this space. It remains unclear what created the impetus for such dramatic changes at the end of the 8th century at Oropos although it is tempting to suggest elitist individuals (metalworkers?) redefining themselves in order to allay tensions within the community; a tendency towards middling values. Equally it could have been a purposeful strategy devised by the same group to maintain power relations in light of their failing ability to negotiate access to crucial metal resources necessary for the practices which defined them as such.

To conclude it is perhaps useful to return to where we started. Early in this paper we made the point that the discussion of metal in the Iron Age had focused on the inception of iron metallurgy and that this had been discussed predominantly in terms of circulation of knowledge, technology and resources. Morris has made this point elsewhere suggesting...
that a consideration of depositional practices is more useful for understanding the role of iron metallurgy. We feel that evidence from Oropos is of unique importance as it allows us to move the discussion away from consumption altogether and for the first time to think about strategies of production.

Finally, the ideas discussed here should act as a cautionary tale about how we think of technological innovation. Evidence from Oropos showed that through the 8th to 7th centuries the repertoire of metals worked decreased from copper and iron to iron alone. This may have been a wilful decision to specialise in one material but equally it could, as suggested above, be the result of metalworkers failing to negotiate access to such resources because of changes in economic and political power. This serves as a lesson to remind us that even though rich deposits were no doubt being exploited at this time, access to resources is not uniform, and is not guaranteed simply by geographical proximity. To bring about appropriate technological innovation individuals needed not merely technical know how but also they needed to be effective in negotiation in political, economic and social realms, in doing so they forged much more than the metal they worked.

47. Morris, 'Circulation.'
Fig. 1. Site plan of Oropos O.S.K. showing Central Quarter (N. Kalliontzis).
FORGING IDENTITY IN EARLY IRON AGE GREECE

Fig. 2. Distribution of slag across Central Quarter.

Fig. 3. Pie chart showing slag distribution amongst and outside of structures.

Fig. 4. Fragment of Type One slag (smithing hearth bottom fragment, scale 10cm).

Fig. 5. Fragment of Type Two platy slag (scale 4cm).
Fig. 6. Fragment of Type Three slag (scale 2cm).

Fig. 7. Fragment of Type Four slag (scale 2cm).

Fig. 8. x400 SM10b showing delafossite and copper prills.

Fig. 9. SM7 corroded iron fragment (scale 2cm).

Fig. 10. Inclusions of copper in iron structure.

Fig. 11. Five fragments of copper ingots (photo: A. Mazarakis Ainian).
Fig. 12. Examples of flake and spheroid hammerscale.

Fig. 13. Magnetic susceptibility survey of Building A.

Fig. 14. Architectural phases at Oropos O.S.K. showing changing location of metallurgical practice (grey ellipse).
THE CONTRIBUTION OF THE STUDY OF ANIMAL BONES IN THE
SOCIAL UNDERSTANDING OF EARLY IRON AGE OROPOS

Katerina Trantalidou

INTRODUCTION. SAMPLE RECOVERY

The formation of the Oropos site, in northern Attica, near the seashore, involves the history of the whole archaeozoological deposit. The agglomeration yielded extensive architectural remains of the EIA (8th through 6th centuries BC) and the animal bone sample, which does not exceed the 4488 specimens, is coming from both habitation and “industrial” areas (Figs. 1, 2). Those bones were collected during the 1985 through 2003 excavations campaigns.

The modified specimens: The fertile alluvial plain and the river Asopos, which flew close to the antique agglomeration, played a crucial role in the history of the settlement and the taphonomic process of the faunal assemblage: the nature of the bone modification (Figs. 1, 3-9) was due to human activities, yard dogs, which occur as scavengers, breakage due to the

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ABBREVIATIONS:

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1. The pre-Classical agglomeration was situated on the border between Attica and Boeotia, on the South Euboean gulf, opposite Eretria. See Mazarakis Ainian, 'Periboles', where one may find a detailed account on the buildings, the enclosures, the metalworking quarter, the public areas, the inhumations of the younger members of the community and the chronological framework, spanning from 9th c. BC thought the 6th c. BC.
2. Mazarakis Ainian ('Excavations', 151-154), summarizing all previous literature and field work, notes that 1. Oropos could be the local variant of the Boeotian river Asopos. 2. The geomorphological studies have located one arm of the river next to which the EIA settlement was found. In fact in the western part of the Central Quarter, a torrent bed 10m wide was excavated. 3. In antiquity, enclosure walls were lined by stone packing, in all likelihood to provide protection from the surrounding rivers or torrents.
active use of the site and the abiotic disturbance caused mainly by the water flowing across the buried remains.

Four hundred and thirty fragments (9.58% of the total faunal remains) bear easily recognizable traces. They could be apportioned in 14 elements (0.44%) having scratches and cut marks (incisions, striations), made during the slaughtering and butchering the carcass of consumed animals, and 416 bones (9.26%) burned under different intensities of heat. Most of the material was burned under low temperatures or exposed to heat for a short time, since 323 of the fragments (7.19% = relative frequency on the whole material) are black. It also seems (Fig. 2) that most bones (24.9% of the remains safely attributed on floors in the catchment area) were disposed in pits. That array of animal remains could be a measure for sanitation. Char specimens have lost their organic components and a number of them were further reduced. One hypothesis could be that trash disposal have been thrown in fire pits for the metallurgy in order to recycling the material and preserving the public health. The rather low percentage (0.64%) of grooves and pit-like fractures could provide the information of a second hypothesis. Although dogs were allowed to roam between the dwellings, food remains were maybe not exposed for a great length of time. At other sites, e.g. Kastro on the Siteia mountains of Crete (Fig. 19), smashed fragments exposed to scavenging carnivores exhibit higher proportions of gnaw marks (<10%).

Quite a large number of bones bear black flows, deterioration, which could be attributed to the water saturation. The existence of manganese minerals and the fire influence seem less probable. The impact on the bones of that last alteration is much higher than the numbers we have registered (Figs. 1, 3-9). The fragmented bones could perhaps draw the major changes on the deposit. Usually the portion that remained represented only the 1/5 of the initial shaft (87.70% of all available specimens), independently of the taphonomic causes (breakage, trampling, weathering etc.) and of the animal species. Even teeth, tissues with a high percentage of inorganic material, were usually affected. In brief, the animal remains were small and fragile, a situation observed usually in Insular Greece.

SELECTION IN THE ANIMALS USE FOR FOOD AND THOSE USED FOR OTHER PURPOSES

A. Faunal composition

At Oropos domestic and herd animals (goat and sheep, in equal proportions, cattle, pigs, 3. In the South-east of the sanctuary of Apollo Daphnephoros (Fig. 20), where some fire pits were discovered, 32% of bones were burned (carbonized). It seems that the carcasses were prepared, cooked and the bones were thrown in the pits: I. ChenaTVelarde, 'Des festins à l’entrée du temple? Sacrifices et consommation des animaux à l’époque géométrique dans le sanctuaire d’Apollon à Érétrée, Grèce,' Archaeofauna 10 (2001), 31. At the sacrificial area the material was calcinated. 4. Klipper & Snyder, 'Kavousi', 182.

5. It is interesting to note that 5 goat horn-cores (2 of them were found in the pits XXIII, 20 and 22) had small scimitar-shaped horn cores. It is well known that domestication affects the way the horn twists. Can we suppose that cross-breeds, or introductions or species in captivity where full domestication is not detected on the skeletal morphology, existed still during the Iron Age?

A single goat tibia (greatest length: 200.5; proximal breadth: 31.6; diameter at minimum breadth of diaphysis:
dogs, asses and/or small horses), hunted fauna (deer and hare) and symbiotic (mice and tortoises died among the refuse) totalize 10 species (Figs. 1-9).

B. Evidence for nutrition

To compare animal use through time and space, we quantified the abundance in relative terms between food mammals. It appears that the excavators collected 4127 Identifiable Remains (NISP) of animals destined for nutrition and subsistence activities. Goat and sheep provided 3558 fragments or 86.25%, cattle 350 fragments or 8.48%, pigs 189 or 4.58%, hare 22 or 0.53% and deer 8 or 0.19% of the whole Number of Identifiable Elements of Consumed Species (not in specimen weight, biomass or food energy).

The smallest number of individuals (for MNI, we choose “the most abundant element of the species found into right and left components and use the greater number as a unit of calculation”\(^6\)), which was found in the site, refers to 9 caprins, 3 bovid, 3 suids and 1 deer, if we trust the long bone fragments. If we use teeth’ frequency (Figs. 11: a-f, 12: a-e), then the MNI distribution is 7, 8 and 2 caprines at the Central, West and South Quarter respectively (total 17). Bovids could be at least 1, 6 and 2 (total 9) and suids (Figs. 13: a-e) 1, 3 and 1 (total 5) at the same catchment area\(^8\). We presume that for those animals and the hare (Figs. 3-6, 8) all portions were consumed, except for the deer, where the skeletal frequency (Fig. 9) shows that only the forequarter, the hindquarter and the hind foot were present. The head was either left on the hunting site or transported in another spot of the site for further exploitation (e.g. antler tools, if it was an adult male animal). The different taphonomic effects acting on the archaeological material and the sample recovery do not allow us more considerations.

21.7; distal breath: 31.8mm) allow us, using the conversion factor from Z. Schramm, 'Long Bones and Height in Withers of Goat', Roczniki Wyższej Szkoły Rolniczej to Poznaniu, 36 (1967), 89-105, to identify an animal of 59.9cm at Withers Height. That animal was shorter than those of Neolithic Euboea, which could be up to 10cm higher (E. Kotzabopoulou & K. Trantalidou, 'Faunal Analysis of the Skoteini Cave', in A. Sampson (ed.). Skoteini. Tharrounia. The Cave, the Settlement and the Cemetery [in Greek] (Athens 1993), 428), but individuals of such high occur at Iron Age sites, e.g. Kastanas: see C. Becker, Kastanas. Die Tierknochenfund (Berlin 1986). Nevertheless, such a remark could only be indicative and used with precaution.


7. Being hard tissues, they are always better preserved.

8. The first ten years of excavation of Iron Age levels at Kommos, Messara bay, east Crete, produced remains of at least (MNI) 257 caprines, 90 cattle, 69 pigs, 19 hare, 8 dog, 5 equid, 3 deer, 45 rodent and shrew, 34 birds, 215 fish and 94.000 marine invertebrate individuals: D. S. Reese (M. Rose & D. Ruscillo contributions), 'The Iron Age Fauna', in J. W. Shaw & M. C. Shaw, Kommos IV, The Greek Sanctuary, Part 1 (Princeton 2000), 415-645. The functional relationships between humans and their environments at Kommos and at Oropos seem the same.

Both methods we used do not attempt to estimate the amount of meat, fat and marrow provided by the complete carcasses of a taxon. Estimation of dietary contribution may consider the eventually population number (smiths and their family). However, we suggest that the archaeofauna sample is rather small for such evaluations and the taphonomic loose seems quite important. NISP and MNI could be used as indices, which oriented our thought to the emphasis on husbandry and food preferences, since domesticated animals provided most of the meat.

C. Nutritional and non nutritional purposes

The Bovinae family: Anatomical features of age (different stages of maturation) indicate that cattle (Figs. 10, 17: a, b, c) were sub-adult (1 individual) and adult at death, goats and sheep (Figs. 10, 16: a, b, c) were rarely slaughtered young, especially during the 9th through the 7th c. BC. On the contrary, 71.42% survived more than 6 years (based on mandibular tooth wear stages and maxillary tooth attrition) (Fig. 27). The data are slightly different during the 6th c. since 66.66% appear to be old.

9. People obtain a variety of nutrients. Many of the components are based on low risk resources such as plants and molluscs —certainly only few contribute to a substantial amount of meat—, the diversity and contribution of which cannot always be calculated. At Oropos, 1980 molluscs fragments were collected. Most species of them have been consumed. See A. Theodoropoulou, La malacoofaune marine du site géométrique de Skala Oropou, Grèce : Approche systématique, ressources alimentaires et objets sociaux, unpublished DEA, Université de Paris I-Panthéon (Paris, 2001).

For early societies a 2500kcal per person per day is a measure commonly used. D. Crawford, 'Food: Tradition and Change in Hellenistic Egypt', WorldA 11: 2 (1979), 136-146; E. Yannoulis, 'Dimitra, a Neolithic and Late Bronze Age Village in Northern Greece: the Faunal Remains', in D. Grammenos (ed.), Νεολιθική Μακεδονία (Athens, 1997), 122-124. R. Dennel, Early Farming in South Bulgaria from the VI to the III Millennia B.C., BAR Int. series 45 (Oxford 1978), 105, for Neolithic South Bulgaria, and M. Fotiades, 'Dimitra, Eastern Macedonia: Reconstructing the Economic Model of a Neolithic Community's Natural Environment', in Grammenos, op. cit., 72, for Neolithic Macedonia, have calculated that domesticated plants, especially cereals and pulses, probably contributed quite the 75-80% of the daily calories.

The easiest estimation for the dietary contribution of whole animals (E. Reitz & E. Wing, Zooarchaeology (Cambridge 1999), 225-235 discuss several possibilities) is to multiply the mean weight of a mature animal (data based on ethnographic and European medieval sources) and the MNI. We can calculate then the caloric value of meat, which is different for each animal contributed. If we accept those conceptions cattle totalize 1350kg or 2,700,000kcal and pork 150kg or 435,000kcal or at least 3,975,650kcal. Hunting and fishing offered a supplementary source of proteins. However, beef provided the greatest part of the annual dietary requirements of the community.

10. Young animals are quite absent, besides new born and children human skeletons are present with very few bones (personal observation).


12. The mean age of life of cattle is 12 years, of goats 10 years and of suids 10 years old. Only exceptionally they can double their life; L. Chaix & P. Méniel, Archéozoologie. Les animaux et l'archéologie (Paris, 2001), 110.
Pigs\(^\text{13}\) (Figs. 10, 13: a-c, 18: a, b, c, 28) were mainly used in diet. Most of them were consumed before reaching the age of 2 years old. However, beef\(^\text{14}\) provided the greatest part of the annual dietary requirements of the community.

The three species of the Bovidae family may have been used primarily for other purposes (wool, skins etc.) useful for the metallurgy in addition to food (meat and milk by-products), which is the most fundamental use of animals. The dietary trends were some how different at other sites: the Kastro profile was most closely to the meat model, with relatively high levels of mortality of sheep and goat occurring between one and three years old\(^\text{13}\). At Nichoria, southwest Peloponnese (1050-850 BC), the economy was oriented to a meat ranching economy specializing in beef\(^\text{16}\).

All the other species were not used for food. Dogs (Figs. 1, 2, 15: a, b) represent the 0.16% of collected bones (relative frequency on the Number of safely Identified Specimens, except intrusive animals). Those few osteological remains bear no chop or cut marks. The animals were adult.

The absence of butchering marks reflects a cultural policy, a change in the animal status from the long prehistoric tradition or an accident due to the taphonomic disturbance? At Nichoria, from the end of 10th c. BC, dogs seem not to be cooked. Researchers presumed that they were hunting dogs\(^\text{17}\). Butchering bones occurred at other sites of the same period (e.g. Kastro on Crete)\(^\text{18}\). At Oropos dogs could have been used as watchdogs and, if larger individuals existed, as greyhounds.

Equids (Figs. 1, 7, 10, 14: a-c, 22-26, 29-30) represent 2.54% of the remains among domesticated and wild animals, except intrusive ones. They were mainly adult animals though one young and one senile have been recorded. They totalize at least 3 individuals (MNI based on long bones frequency). The number was certainly higher if we trust the teeth frequency. The sample included at least 3 and 1 (total 4 animals) at the West and South Quarter of the site respectively. Sometimes their teeth were severely worn, so we can assume that animals were

\(^{13}\) One single astragal from the 8th c. strata (greatest lateral length: 28.6mm) allow us to suppose that pigs Withers Height could be 51.19cm; conversion factor from: M. Teichert, 'Osteometrische Untersuchungen zur Berechnung der Widderisthohe bei vor- und fruhgeschichtlichen Schweinen', \textit{Kuhn-Archiv}. 83 (1969), 237-292.

\(^{14}\) There again, we have shorter animals than those of Neolithic Euboea (Kotzabopoulou & Trantalidou, \textit{op. cit.} n. 5, 421), but again those measurements are only indicative and in the range of Iron Age individuals (Hecker, \textit{op. cit.} n. 5).

\(^{15}\) Klipper & Snyder, 'Kavousi', 184. At Zagora, on Andros, the Geometric temple and especially the cella yielded more bones than any other building in the site. Predominant among those deposits were piglets and lambs; A. Cambitoglou, \textit{Guide to the Finds from the Excavations of the Geometric Town at Zagora} (Athens 1981). 83. At the sanctuary of Demeter at Corinth, as might be expected, identified taxa include mainly domestic pig, but as the use extended from LH III B to the end of 4th c. AD a number of other species were also present; N. Bookidis, J. Hansen, L. Snyder & P. Goldberg, 'Dining in the Sanctuary of Demeter and Kore at Corinth', \textit{Hesperia} 68 (1999), 1-54; (Figs. 14, 15).


\(^{17}\) \textit{Ibid.}, 74.

\(^{18}\) Klipper & Snyder, 'Kavousi', 181.
left to die naturally at a senile age. A deciduous tooth has also been found. Asses could have been used for the transportation of the raw material or the finished products.

DESCRIPTION OF THE NON EDIBLE SPECIES

A. Morphological characteristics of the equid remains

Osteological differences between equid species are still definable. Most of the authors for the Iron Age fauna, in Greece, prefer to use the expression “small equid”19.

1. Judging from their date, there is no doubt that the bones could have come from domestic species. However, to ascribe to a certain species, we used comparative measurements (Fig. 21) from wild ass (Equus africanus)20, donkey (Equus asinus)21, wild horses (Equus przewalskii [modern wild population], tarpan), domestic horse (Equus caballus); the Dereivka horses could represent a very early North Pontic domesticated population22, having large heads and robust legs, and hemiones (Equus hemionus). Researchers have shown that the main factor in the identification is the size, at least for the postcranial skeletal elements23. At Oropos the animals were of a small size, a first thought, which could exclude horses.

2. Among the bones of the ankle joints, the astragals has the best characters for discrimination between hemiones and asses: “The medial tuberosity for the collateral ligament is generally more protruding in asses than in hemiones”24. That is the case for the two astragals from Buildings ΙΘ and A. It seems that we have no hemiones at the site.

19. See supra n. 6. The only exceptions are shown on Fig 17. Last year I saw the osteological material of the same period from Pieria in central Macedonia. The animal has a small size, too.

20. The earliest osteological evidence available at present is from Uruk in southern Mesopotamia, identified by Boessneck, von den Driesch and Steger, cited by Uerpmann, 'Equus africanus', 30.


3. Patterns of enamel folding: A. The “lower cheekteeth are well-rounded and fairly symmetrical loops of the metaconid and metastylid with V-shaped sulcus between them. The external valley opposite to this sulcus usually does not penetrate the istmus”\textsuperscript{25}, features of asses are visible at most of Oropos specimens (Fig. 23, 24). Certainly more complicated characters are also found\textsuperscript{27}. B. The maxillary cheekteeth shows no assymetrical protocones or developed pls caballine, criteria that are considered as caballine (Figs. 22, 24-25). Therefore, at Oropos, there could be asinine equids. There is one exception, however, an UP4 burned, from the upper layers\textsuperscript{28} having a pronounced caballine fold. It could be a horse.

B. The size of the dogs

At Oropos estimation of body size support the existence of small to medium sized\textsuperscript{29} animals. There was certainly a variation within populations in Greece. The P2-P4 manbibular breath supported the Gejvall’s opinion of a similar size mandible. According to the researcher, that specimen could belong to an individual about the size of the Australian wild dog, dingo, though exact relationship between modern and archaeological data cannot be established. At Sitagroi there were small to medium size animals and at Argos the excavator found the inhumation of a medium sized dog. The Oropos specimens seem smaller than the Argos one and close to the smaller of Sitagroi and the Lerna individuals.

CULTURAL CHRONOLOGY AND ARCHAEOZOONOLOGICAL DATA

Despite the fragmentary data\textsuperscript{30}, we assume that the main bulk of the bones (more than 44%) were collected from the strata dated from mid to the end of the 8th c. BC (760-700 BC),

\textsuperscript{25} Uerpmann, 'Equus africanus', 27; S. Payne, 'Early Holocene Equids from Tall-i-Mushki (Iran) and Can Hasan III (Turkey)', in Meadow & Uerpmann, Equids, 132-177; H. Buitenhuis, 'Some Equid Remains from South Turkey, North Syria, and Jordan', in Meadow & Uerpmann, Equids, 34-61.

\textsuperscript{26} The buccolingual occlusal length and the mesio-distal occlusal length measurements (in mm) of the teeth (external cement included) of one maxillary are: P2 = 32.4/23.7; P324.8/23.7; P4 = 24.7/25.0; M1 = 24.2/24.5; M2 = 21.2/24.4; M3 = 23.9/20.9. The height of the crown, all teeth combined varied from 30mm(P2) to 43.2mm (M3).

\textsuperscript{27} The LM2, found in Building Θ, has a more U-shaped vallis interna but there is no higher penetration of the vallis externa. The tooth breath (Lingual-Buccal) is 11.8mm. The LM2 (L:27.3, B: 11.9mm) found near the wall 115, has quite the same characteristics but the reaches the region between the preflexid and postflexid.

\textsuperscript{28} Campaign of 1986 (L: 26.0, B: 27.3mm, wear stage 2-3). A LM3 was found at the same place. It must be asine.

\textsuperscript{29} The proximal breath of a femur is 32.4mm. The P2-P4 manbibular breath of another specimen, found at the South Quarter, is 33.3mm. At Sitagroi, the first dimension calculated, presented a variation between 32.5 to 36.0mm, from the strata Sitagroi III through Sitagroi V phase, that is 4600-2200 BC; S. Bokonyi, ‘Faunal Remains’, in C. Renfrew, M. Gimbutas & E. S. Elster, Excavations at Sitagroi. A Prehistoric Village in Northeast Greece, vol. 1 (Los Angeles 1986), 63-132, esp. 122. At Lerna, the second dimension is 35.0-36.5mm during the MH to LH periods; N.-G. Gejvall, Lerna. A Preclassical Site in the Argolid. The Fauna (Princeton 1969), 69. The second dimensions are 29.0-37.00mm at Lerna (ibid., 61-64) from Middle Neolithic through MH strata and 35.0mm at the Argos tumulus, Rebelos plot, dated during the Geometric period, K. Trantalidou. ‘Το αρχαϊκό ιερό στο Άργος και οι παλαιότερες ταφικές συνθήκες: σημειώσεις μελετώντας τα οστά’, in K. Barakari, ‘Νέος χώρος λατρείας στην αρχαϊκή πόλη του Άργους’ (Ph.D. thesis).

\textsuperscript{30} The percentages we will refer to are preliminary and just indicative. They could change when the inter-disciplinary research of the site will finish.
THE CONTRIBUTION OF THE STUDY OF ANIMAL BONES

the first phase of occupation at Oropos. The second cultural phase left very few residues, so we prefer to incorporate that material to the previous phase. During the third phase (the first phase of the Archaic period, the 7th c. BC), the zoological remains collected reach the 17%. Around the 650 BC, there were the second major occupation of the site according the debris; the forth phase totalize around 21%. The second half of the 7th c. and the end of the 7th c. —beginning of the 6th c. (phases fifth and sixth)— produced the 10% and 4% respectively. That range of amount of residues could enlighten us on the site demography.

SPATIAL DISTRIBUTION OF MAMMAL REMAINS INSIDE THE SITE.
A CASE STUDY: THE CENTRAL QUARTER

A. Dwellings and enclosures

According to the rest of archaeological context (buildings and their contents)31 (Fig. 2) inside the domestic areas (such as Buildings B, I, IΑ, IΣΤ)32 193 bone fragments have been found. The NISP corresponds to the 31.03% of fragments found on floor levels, pits, in or around graves. If we add the remains (66 bones) from the floors of Buildings Δ, E, IB H, whose function is unknown but they could well be connected with household activities, the percentage could be 42.11%. Probably the bones found inside the enclosures (the ancient and more recent)33, outside them and the open areas between the buildings (bones totalize 50, 141 and 16 fragments) represent also food residues from the everyday consumption34.

B. Storehouses

Buildings ΙΓ and ΙΔ could have been granaries. Twenty-four (3.90%) bones were collected. Judging from their plan, the interpretation is plausible. In that case bones could have come from a post-depositional process (refuse disposal from the earth that filled the area). Building ΙΓ contained 21 of them.

C. Area of industrial activity

Oval Building A has been identified with an iron-working workshop. Thirty-nine bones have been recovered (6.3%). Inside the pits (trench containing refuse material and iron slag) XVIII and, XXIV 21 fragments (3 of them were carbonized) and 37 (33 of them were carbon-

32. They were not all inhabited during the same period but the sample is small and we do not find strong changes in subsistence strategies.
33. Enclosures including the Walls 23, 27, 32, 61/50.
34. Those disposal remains could be related with the half of the faunal assemblage.
ized. On the total, those bones which represent the 15.77% of the animal remains derived from the floors and pits associated with metallurgic activities.

D. Places of worship

Buildings Θ (the largest edifice of the site), Z and ΣΤ seem to have been connected with cult activities as well. Thirty-seven (6.01%) bones were found inside them. Bones from Equidae, Cervidae and Canidae families were absent. No intrusive animals.

E. Tombs

The approximately 30 tombs discovered at the Central Quarter are dated in the Geometric and Early Archaic periods. The majority of the burials are children buried in jars or in shafts. Among the poor grave goods sea shells and a few bones were found. Sometimes bones are outside the funeral vase as it was in the trench between the coarse jars XXIV and XXV. In that case we cannot be sure if they represent funeral meals or just the previous earth deposits. Nevertheless, they totalize 95 bone fragments. The percentage 15.44% refers to the NISP of the Central Quarter sample recovery. Half of the bones associated with burials (49) were black to grey-blue in colour.

Other bioarchaeological remains

The distribution of shells (food remains, tools, ornaments and on site purple manufacturing) within the buildings and the tombs of the Central Quarter produced the same evidence:

- 50.5% inside the domestic areas,
- 16.4% near the enclosures,
- 0.7% inside the granaries,
- 5.4% at metal working areas,
- 13% inside the religious constructions.

The frequency on, in and around tombs aroused at 5.8%.

CONCLUSIONS

Taking a conservative approach, in the sense that no archaeological remains can indicate the faithful history of a site, we will try to understand some of the reflections the osteological material allows us to see:

1. Residential debris is the main bulk of the Oropos deposit (most debris is a food residue from dwellings). Concentrated along the houses wall and in pits, they were mostly damaged by foot traffic and water, which flew over the site. Apart the sacred areas, ritual behaviour of the inhabitants could be related with remains dispersed in and outside tombs. That category is the second main assemblage of the site.

35. Fifty-eight fragments came from the refuse pits, which represent the 9.43% of the collected bones on the excavated floors and pits at the Central Quarter.

36. Theodoropoulou, op. cit. n. 9.
2. The quantification of the elements represented and the relative abundance of different taxa\(^{37}\), indicates that all the elements of artiodactyla and perrissodactyla domesticated species were present. That note determines the fact that they lived close to human dwellings. The specimen count reflects the use of ovicaprids for the dietary contribution, supported by cattle, pigs, hunted fauna and fishing. However due to the body dimensions and calories cattle could, probably, provide most of edible meat.

3. The construction of age classes provides information about production (prime-aged animals missing) and other economic activities. We suggest that milk products, wool, hair and hides were used.

Trade and heavy work were carried out principally with asses, used as pack animals.

\(^{37}\) The sample ideally requires that each species used at the site had an equal opportunity to be recovered.
REFERENCES INCLUDED IN TABLES (FIGS. 19-21)

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### Table: Modification and Taphonomic Research

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Fig. 1. Oropos (8th-6th c. BC). Animal remains except marine assemblages (fish and shells). Taxonomic identification, Relative abundance, Modification and Specimen count.

Fragmentation resulted from butchering, food preparation as well as trampling and weathering.

NISP: Number of Identified Specimens.
Fig. 2. Oropos (8th-6th c. BC). Central Quarter: dwellings, industrial area, cult places, tombs. Distribution of animal remains in their archaeological context. We choose the specimens found near or on the floor of the buildings (not the fill deposits), the area just outside them and the pits/tombs. The greatest concentration is observed in building ΨΕ (19.2%), the tombs (15.44%), and pits (= total 24.9%). Testudines may be intrusive animals.
### THE CONTRIBUTION OF THE STUDY OF ANIMAL BONES

#### Modification and Taphonomic Research

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Fig. 3. Oropos (8th-6th c. BC). Specimens identified as caprines shown anatomically using NISP and MNI (Minimum Number of Individuals).

p = proximal, s = shaft, d = distal
### THE CONTRIBUTION OF THE STUDY OF ANIMAL BONES

**Modification and Taphonomic Research**

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**Fig. 4.** Oropos (8th–6th c. BC). Specimens identified as goats shown anatomically NISP and MNI. Most of the horn cores are twisted (9). The rest of them look like the so called "Scimitar" shape.

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Fig. 5. Oropos (8th-6th c. BC). Specimens identified as sheep shown anatomically using NISP and MNI.

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**Fig. 6.** Oropos (8th-6th c. BC). Specimens identified as cattle shown anatomically using NISP and MNI.

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Fig. 7. Oropos (8th-6th c. BC). Specimens identified as equids (asses or small horses) shown anatomically using NISP and MNI.

p = proximal, s = shaft, d = distal
THE CONTRIBUTION OF THE STUDY OF ANIMAL BONES

Modification and Taphonomic Research

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**Modification and Taphonomic Research**

Modification due to Human Activities

- Burned, Intensity of Heat
  - 300-350°C
- Weathering
  - Alteration

### Epiphyseal Fusion

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**Fig. 9. Oropos (8th-6th c. BC). Specimens identified as cervids shown anatomically using NISP and MNI.**

p = proximal, s = shaft, d = distal
### The Contribution of the Study of Animal Bones

In 600 BC, the study of animal bones began with a focus on different elements. These include:

- **Equids**: Metacarpus, d/Metatarsus, d, Humerus, d/Radius, d, Humerus, p/Radius, d/Tibia, p.
- **Cattle**: Scapula/Pelvis, Humerus, d/Phalanx II, p, Phalanx I, p, Metacarpus, d/Metatarsus, d/Tibia, d, Radius, d/Ulna, p/Femur, d.
- **Sheep/Goat**: Radius, p/Humerus, d, Scapula/Pelvis/Phalanx II, p, Phalanx I, p, Metacarpus, d/Metatarsus, d, Tibia, d, Femur, p/Tibia, d, Femur, d, Ulna, p.

### Age in Months

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Fig. 10. Oropos (8th-6th c. BC). Estimation of the age at death of domestic animals (equids, cattle, sheep, goats and pigs). The interpretation of age-related sequences was based on the epiphyseal fusion of different skeletal elements (after Barone 1976). In this figure we have chosen specimens (bone fragments) from well-dated levels. All equids were adults, senior adults or seniles when they died. Bovids were also adults at death, except one specimen that was under 30 months old, data that we can interpretate as a subadult animal. Sheep and goats were rarely slaughtered under 1-2 years during the whole 8th and the early 7th century. At the end of 7th century younger specimens (<6 months old) occoured. Mandibular tooth wear stages for caprines point to an age of 4 years old. Pigs were fed until 1-2 years old. In some cases they were kept at least until 4 years old.

p = proximal, d = distal
THE CONTRIBUTION OF THE STUDY OF ANIMAL BONES

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Fig. 11a. Oropos. South quarter. Caprines. Isolated maxillary teeth.

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Fig. 11c. Oropos. Central Quarter. Caprines. Isolated maxillary teeth.
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Fig. 11e. Oropos. West Quarter. Caprines. Isolated maxillary teeth.

405
### THE CONTRIBUTION OF THE STUDY OF ANIMAL BONES

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**Fig. 11f.** Oropos. West Quarter. Caprines. Isolated mandibular teeth.

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**Fig. 12a.** Oropos. South Quarter. Cattle. Isolated mandibular teeth.

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**Fig. 12b.** Oropos. Central Quarter. Cattle. Isolated maxillary teeth.
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Fig. 12c. Oropos. Central Quarter. Cattle. Isolated mandibular teeth. We can also add a left P4 maxillary teeth found in the same area.

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Fig. 12d. Oropos. West Quarter. Cattle. Isolated maxillary teeth.

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Fig. 12e. Oropos. West Quarter. Cattle. Isolated mandibular teeth.
### The Contribution of the Study of Animal Bones

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Fig. 13a. Oropos. South Quarter. Suids. Isolated mandibular teeth.

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Fig. 13c. Oropos. Central Quarter. Suids. Isolated mandibular teeth.
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Fig. 13d. Oropos. West Quarter. Suids. Isolated maxillary teeth.

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<tr>
<td>TOTAL</td>
<td>29</td>
<td>13</td>
<td>11</td>
<td>5</td>
<td>13</td>
</tr>
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</table>

Fig. 13e. Oropos. West Quarter. Suids. Isolated mandibular teeth.

### Teeth Preservation

<table>
<thead>
<tr>
<th>Teeth</th>
<th>N</th>
<th>Side</th>
<th>Teeth Preservation</th>
<th>MNI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>R</td>
<td>L</td>
<td>Unid</td>
</tr>
<tr>
<td>M(_1)</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M(_2)</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M(_3)</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>M(_4)</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>C(_1)</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I(_1)</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>7</td>
<td>1</td>
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</table>

Fig. 14a. Oropos. Central Quarter. Equids. Isolated mandibular teeth.
THE CONTRIBUTION OF THE STUDY OF ANIMAL BONES

<table>
<thead>
<tr>
<th>Teeth</th>
<th>N</th>
<th>Side</th>
<th>Teeth preservation</th>
<th>MNI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>R</td>
<td>L</td>
<td>Unid</td>
</tr>
<tr>
<td>M1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>M2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M3</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>9</td>
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<td>5</td>
<td>3</td>
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</tbody>
</table>

Fig. 14b. Oropos. West Quarter. Equids. Isolated maxillary teeth.

<table>
<thead>
<tr>
<th>Teeth</th>
<th>N</th>
<th>Side</th>
<th>Teeth preservation</th>
<th>MNI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>R</td>
<td>L</td>
<td>Unid</td>
</tr>
<tr>
<td>M1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>M2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M3</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>8</td>
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Fig. 14c. Oropos. West Quarter. Equids. Isolated mandibular teeth.

<table>
<thead>
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<th>N</th>
<th>Side</th>
<th>Teeth preservation</th>
<th>MNI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>R</td>
<td>3/5</td>
<td>5/5</td>
</tr>
<tr>
<td>C</td>
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<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>P3</td>
<td>1</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>P3</td>
<td>1</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>P4</td>
<td>1</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>M1</td>
<td>1</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
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<td>5</td>
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<td>4</td>
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</table>

Fig. 15a. Oropos. South Quarter. Dog. Isolated mandibular teeth.
### Teeth Preservation Table

<table>
<thead>
<tr>
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<th>N</th>
<th>Side</th>
<th>Teeth Preservation</th>
<th>MNI</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>2</td>
<td></td>
<td></td>
<td>1/5</td>
</tr>
<tr>
<td>P₁</td>
<td>1</td>
<td>1</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>P₂</td>
<td>1</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>1</td>
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</tbody>
</table>

*Fig. 15b. Oropos. Central Quarter. Dogs. Isolated mandibular teeth.*

### Age Classes Table

**a.**

<table>
<thead>
<tr>
<th>Age Classes</th>
<th>Loose Mandibular and Maxillary Teeth</th>
<th>NISP</th>
<th>Archaeological Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2 yrs.</td>
<td>M₁</td>
<td>1</td>
<td>South Quarter 6th c. BC</td>
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<tr>
<td>3-5 yrs.</td>
<td>M₁</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>6-10 yrs.</td>
<td>M₁, M₂, M₃</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>&gt;10 yrs.</td>
<td>M₁, M₁</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>9</td>
<td></td>
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</tbody>
</table>

**b.**

<table>
<thead>
<tr>
<th>Age Classes</th>
<th>Loose Mandibular and Maxillary Teeth</th>
<th>NISP</th>
<th>Archaeological Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2 yrs.</td>
<td>M₁, M₂</td>
<td>4</td>
<td>Central Quarter, 8th and 7th c. BC</td>
</tr>
<tr>
<td>3-5 yrs.</td>
<td>M₁, M₂, M₃, P₃, M₃</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>6-10 yrs.</td>
<td>M₁, M₂, M₃, M₁, M₃, M₁, M₂, M₃, I</td>
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<tr>
<td>TOTAL</td>
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<td>36</td>
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**c.**

<table>
<thead>
<tr>
<th>Age Classes</th>
<th>Loose Mandibular and Maxillary Teeth</th>
<th>NISP</th>
<th>Archaeological Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2 yrs.</td>
<td>M₁, D₁, M₁</td>
<td>4</td>
<td>West Quarter, 9th and second half of the 8th c. BC</td>
</tr>
<tr>
<td>2-3 yrs.</td>
<td>M₁, M₂, M₃, I, M₁, M₂</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>3-5 yrs</td>
<td>M₁, M₂, M₃, M₃, M₁</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>6-10 yrs.</td>
<td>M₁, M₂, M₃, P₂, M₃, M₁, M₂, M₃, M₂</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>&gt;10 yrs.</td>
<td>M₁</td>
<td>2</td>
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<tr>
<td>TOTAL</td>
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<td>70</td>
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</table>

*Fig. 16 a, b, c. Oropos (8th-6th c. BC). Estimation of the age at death for caprines. Mandibular tooth wear stages refers to standardized recording system recommended by Payne 1973; Deniz and Payne 1982; Payne 1985.*
### a. West Quarter (Geometric - Early Archaic period)

<table>
<thead>
<tr>
<th>Wear Stages</th>
<th>a</th>
<th>c</th>
<th>d</th>
<th>f</th>
<th>h</th>
<th>i</th>
<th>k</th>
<th>l</th>
<th>m</th>
<th>o</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loose Teeth</td>
<td>$M_1$</td>
<td>$P^3$</td>
<td>$M_2, M_4$</td>
<td>$M_1, M_2, M_4, P^3$</td>
<td>$M_1$</td>
<td>$M_1$</td>
<td>$M_2, M_2, M_4$</td>
<td>$M_1, M_2, M_4$</td>
<td>$M_1, M_2, M_4$</td>
<td>$M_1, M_2$</td>
</tr>
<tr>
<td>Number of Specimens</td>
<td>2</td>
<td>1</td>
<td>1, 1</td>
<td>2, 2, 2, 1</td>
<td>2</td>
<td>1, 1</td>
<td>3, 3, 1</td>
<td>1, 1, 1</td>
<td>1, 1</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>3</td>
<td>2</td>
<td>1</td>
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</tbody>
</table>

### b. South Quarter (6th c. BC)

<table>
<thead>
<tr>
<th>Wear Stages</th>
<th>e</th>
<th>k</th>
<th>o</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loose Teeth</td>
<td>$M_2, M_3$</td>
<td>$M_2, M_4$</td>
<td>$M_1$</td>
</tr>
<tr>
<td>Number of Specimens</td>
<td>1, 1</td>
<td>1, 1</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
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<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

### c. Central Quarter (8th-7th c. BC)

<table>
<thead>
<tr>
<th>Wear Stages</th>
<th>c</th>
<th>f</th>
<th>g</th>
<th>h</th>
<th>k</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loose Teeth</td>
<td>$M_1, P_4$</td>
<td>$M_1, M_2, P^3$</td>
<td>$P_4$</td>
<td>$M_1, M_2, M_3, P_4, M_2', M_3'$</td>
<td>$M_1$</td>
</tr>
<tr>
<td>Number of Specimens</td>
<td>2, 1</td>
<td>1, 1, 1</td>
<td>1</td>
<td>1, 1, 3, 1, 1, 1</td>
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<tr>
<td>TOTAL</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>8</td>
<td>1</td>
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---

**Fig. 17a, b, c. Oropos (8th-6th c. BC). Tooth wear stages for Cattle (after Grant 1982, 92-94) during the cultural history of the site.**

Stage f represents young adults and stage i senile age at death.
### a. West Quarter (Geometric – Early Archaic period)

<table>
<thead>
<tr>
<th>Wear Stages</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>g</th>
<th>h</th>
<th>i</th>
<th>k</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loose Teeth</td>
<td>$M_1$</td>
<td>$M_1, M_1, P_1, D_1$</td>
<td>$M_2, M_2, P_2, (M'_1, P'_1)$</td>
<td>$M_3$</td>
<td>$M_4$</td>
<td>$M_4$</td>
<td>$M_4$</td>
<td>$(M'_1)$</td>
<td>$M_4$</td>
</tr>
<tr>
<td>Number of Specimens</td>
<td>2</td>
<td>1, 2, 3, 2</td>
<td>2, 1, 1, 1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
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<td>6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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</tbody>
</table>

### b. South Quarter (6th c. BC)

<table>
<thead>
<tr>
<th>Wear Stages</th>
<th>a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loose Teeth</td>
<td>$M_1$</td>
</tr>
<tr>
<td>Number of Specimens</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>1</td>
</tr>
</tbody>
</table>

### c. Central Quarter (8th-6th c. BC)

<table>
<thead>
<tr>
<th>Wear Stages</th>
<th>a</th>
<th>b</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loose Teeth</td>
<td>$M_1, M_2, D_3, P_3$</td>
<td>$M_4, P_4$</td>
<td>1</td>
</tr>
<tr>
<td>Number of Specimens</td>
<td>1, 1, 1, 1</td>
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<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>4</td>
<td>3</td>
<td>1</td>
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</tbody>
</table>

**Fig. 18a, b, c. Oropos (8th-6th c. BC).** Tooth wear stages for pigs (after Grant 1982, 92-94) during the cultural history of the site.

Stage b represents 6-12 months and stage ca. 12-24 months at death.
## The Contribution of the Study of Animal Bones

Zagora on Andros Cyclades

<table>
<thead>
<tr>
<th>Kastro, Siteia Mountains, East Crete</th>
<th>Eleutherna, Rethymnon Central Crete</th>
<th>Nichoria, SW Peloponnese</th>
<th>Asine, NE Peloponnese</th>
<th>Kastri, Thassos, Cemetery</th>
<th>Kastanas on Axios River, Central Macedonia</th>
<th>Zagora on Andros Cyclades</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gl</td>
<td>%</td>
<td>Gl</td>
<td>%</td>
<td>Gl</td>
<td>%</td>
<td>Gl</td>
</tr>
<tr>
<td>Caprines</td>
<td>2164</td>
<td>77.89</td>
<td>29</td>
<td>23.38</td>
<td>42</td>
<td>33.6</td>
</tr>
<tr>
<td>Sus scrofa</td>
<td>246</td>
<td>8.85</td>
<td>4</td>
<td>3.24</td>
<td>38</td>
<td>30.4</td>
</tr>
<tr>
<td>Bos taurus</td>
<td>230</td>
<td>8.27</td>
<td>13</td>
<td>10.48</td>
<td>37</td>
<td>29.6</td>
</tr>
<tr>
<td>Equids</td>
<td>2</td>
<td>0.07</td>
<td>3</td>
<td>2.41</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>Canis familiaris</td>
<td>66</td>
<td>2.37</td>
<td>2</td>
<td>1.61</td>
<td>3</td>
<td>2.4</td>
</tr>
<tr>
<td>Felis domesticus</td>
<td>1</td>
<td>0.03</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Wild Animals

| Sus scrofa fer. | 3 | 2.41 | | 277 | 4.92 | 127 | 2.13 | 2 | 3.38 |
| Lepus capensis | 36 | 1.29 | 11 | 8.87 | | 8 | 0.14 | 21 | 0.35 |
| Capra aegagrus | 3 | 0.1 | 6 | 4.84 | | | | | |
| Cervids | 14 | 0.5 | 3 | 2.4 | 4 | 1.76 | 2 | 1.46 | 281 | 4.99 | 706 | 11.88 |
| Meles meles | 4 | 0.14 | | | | | | | | | | | | | |
| Rodentia | | | | 6 | 0.11 | 6 | 0.1 | | | | | | | |
| Carnivora | | | | 40 | 0.71 | 16 | 0.26 | | | | | | | |
| Aves | 10 | 0.35 | 13 | 10.48 | | | | | | | | | | | |
| Pisces | 2 | 0.07 | | | | | | | | | | | | | |
| **TOTAL IDENTIFIED** | 2778 | | | 125 | 227 | 137 | 20 | 90 | 5627 | 5939 | 59 |
| **TOTAL UNIDENTIFIED** | 7216 | | | 76 | | | | | | | |
| **TOTAL SPECIMENS** | 9994 | | | 124 | | | | | | | |

### Chron. Period

<table>
<thead>
<tr>
<th>CHRON. PERIOD</th>
<th>Late Geometric</th>
<th>1400-700 BC</th>
<th>DA I 1050-975 BC</th>
<th>DA II 975-850 BC</th>
<th>DA III 850-775 BC</th>
<th>Geometric</th>
<th>Early Iron Age</th>
<th>1000-800 BC</th>
<th>800-600 BC</th>
<th>Geometric</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Caprines</td>
<td>2164</td>
<td>77.89</td>
<td>29</td>
<td>23.38</td>
<td>42</td>
<td>33.6</td>
<td>80</td>
<td>35.2</td>
<td>45</td>
<td>32.9</td>
</tr>
<tr>
<td>Sus scrofa</td>
<td>246</td>
<td>8.85</td>
<td>4</td>
<td>3.24</td>
<td>38</td>
<td>30.4</td>
<td>55</td>
<td>24.2</td>
<td>22</td>
<td>16.1</td>
</tr>
<tr>
<td>Bos taurus</td>
<td>230</td>
<td>8.27</td>
<td>13</td>
<td>10.48</td>
<td>37</td>
<td>29.6</td>
<td>81</td>
<td>35.7</td>
<td>63</td>
<td>46</td>
</tr>
<tr>
<td>Equids</td>
<td>2</td>
<td>0.07</td>
<td>3</td>
<td>2.41</td>
<td>2</td>
<td>1.6</td>
<td>3</td>
<td>1.32</td>
<td>2</td>
<td>1.46</td>
</tr>
<tr>
<td>Canis familiaris</td>
<td>66</td>
<td>2.37</td>
<td>2</td>
<td>1.61</td>
<td>3</td>
<td>2.4</td>
<td>4</td>
<td>1.76</td>
<td>2</td>
<td>1.46</td>
</tr>
<tr>
<td>Felis domesticus</td>
<td>1</td>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Wild Animals

| Sus scrofa fer. | 3 | 2.41 | | 277 | 4.92 | 127 | 2.13 | 2 | 3.38 |
| Lepus capensis | 36 | 1.29 | 11 | 8.87 | | 8 | 0.14 | 21 | 0.35 |
| Capra aegagrus | 3 | 0.1 | 6 | 4.84 | | | | | |
| Cervids | 14 | 0.5 | 3 | 2.4 | 4 | 1.76 | 2 | 1.46 | 281 | 4.99 | 706 | 11.88 |
| Meles meles | 4 | 0.14 | | | | | | | | | | | | | |
| Rodentia | | | | 6 | 0.11 | 6 | 0.1 | | | | | | | |
| Carnivora | | | | 40 | 0.71 | 16 | 0.26 | | | | | | | |
| Aves | 10 | 0.35 | 13 | 10.48 | | | | | | | | | | | |
| Pisces | 2 | 0.07 | | | | | | | | | | | | | | | | | |
|------|--------------------------------|------------------|-----------------------------|----------------|----------------------|--------------------------|--------------------------|
|      |                                |                  |                             |                |                      |                          |                          |

(1) Dama dama, Cervus elaphus, Capreolus capreolus.
(2) Pig and boar.

Fig. 19. Oropos (8th-6th c. BC). Absolute (Number of Identified Specimens) and relative distribution of the most important species found at the Iron Age levels throughout sites in Greece.

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Fig. 20. Oropos (8th-6th c. BC). Absolute (Number of Identified Specimens) and relative distribution of the most important species found in sanctuaries during the Iron Age in Greece.
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Fig. 21. Oropos (8th-6th c. BC). Dimensions (in mm) of Equid remains and recent Equids from southeastern Europe and eastern Mediterranean.

Gl = greatest length, Bp = proximal breadth, Bd = distal breadth.
Fig. 22. Oropos: Maxilla, palatine and upper teeth row of a male ass. Ventral view. Life size.
Fig. 23. Oropos. Equid incisors at different ages. Life size.
The occlusal surface is related to tooth attrition: no. 2 is a lower very worn incisor (triangular shaped occlusal surface) of an individual which could have survived more than 15 years.

Fig. 24. Oropos. Left and right upper teeth row (P2-M3) of the same ass. Ventral view. Life size. P2 are the triangular shaped teeth.
As the pattern of enamel folding differs in teeth in the same tooth row especially between molars and premolars, when dealing with isolated teeth, the first step is to try to distinguish the different categories. The morphology (size and shape) vary when the tooth is worn, for instance, no. 1 is a molar from a senile individual, no. 7 is a lacteal tooth. Nos. 2-4 are maxillary first molars, no. 5 is a second molar and nos. 6, 8 are third and second premolars respectively.
Fig. 26. Oropos: Mandibular cheekteeth, illustrated on the occlusal surfaces, the buccal side down. Life size. The lower cheekteeth show different shapes of double knots and different states of depth of the ectoflexid. Nos. 1-5 are lower first molars, no. 6 is a second molar, no. 7 is a left lower third molar of senile individual, nos. 9-10 are premolars. The second premolar, no. 10, is found in the mandible.
THE CONTRIBUTION OF THE STUDY OF ANIMAL BONES

Fig. 27. Oropos. Isolated upper second right molar of a bovid. Occlusal surface. Life size.

Fig. 28. Oropos. Shortened right maxilla of a pig with crowed teeth. Life size. Reduction of size is widespread during domestication of large animal such as pigs. Relatively short snouts of domestic pigs are expressed in dentition (e.g. errors of premolars alignment).

Fig. 29. Oropos. Second phalanges of equids. Plantar and dorsal view. Life size.
Fig. 30. Oropos. Third metatarsals of equids. Plantar view. Life size.
"GIFTS" FROM THE GULF: THE EXPLOITATION OF MOLLUSCS IN THE GEOMETRIC ARTISAN SITE OF OROPOS

Tatiana Theodoropoulou

INTRODUCTION

The important information given by molluscs and other archaeobiological remains has begun to interest Greek archaeologists during the last decades. In several recent excavations, it has been a priority to collect vigorously this type of remains. Unfortunately, this is not always the case, mainly in rescue excavations, which focus on other important features, such as architecture or ceramics, namely in historical contexts.

In the case of the site of Skala Oropou, we disposed a corpus of shells collected in first place between 1985-1987 during a rescue excavation; the important results of this excavation led to an organised campaign since 1996. Although the director of the recent works, Prof. A. Mazarakis Ainian, has shown great interest in all kinds of archaeobiological materials, few samples have been retrieved thoroughly. Therefore, our study is to a certain extent influenced by this partial sampling. In the following, we will try to show the potential the study of such a kind of fragmentary material can give, allowing us to comprehend different aspects of the relation of the man with the aquatic environment: that is, to indicate the ecological habitats exploited, the possible uses of shellfish, as well as the pre- and post-deposition phenomena involved, and the spatial distribution in a site.

* I would like to thank Prof. Alexander Mazarakis Ainian for entrusting me this material for my MA dissertation (Université de Paris I Pantheon-Sorbonne, 2001, unpublished) and sharing his knowledge on Geometric archaeology with me. My deepest thanks to my tutors at the Muséum National d'Histoire Naturelle de Paris, Pierre Lozouet and Nathalie Serrand who introduced me to the miracles of the ancient seas. I also extend my thanks to Drs. D. S. Reese and C. Becker for providing me with literature.

ABBREVIATIONS:


"GIFTS" FROM THE GULF

THE SITE AND ITS AQUATIC ENVIRONMENT

The LG–Archaic settlement of Skala Oropou is located in a coastal, alluvial plain within the city limits of Skala Oropou, 50km North of Athens (Fig. 1-2). The inhabitants would have privileged a rich and diverse aquatic environment at the time of its occupation. The site is actually at 350m South of the coast of South Euboic Gulf, but geomorphological studies and evidence from other excavations indicate that it could have been much closer to the littoral during its occupation².

The S. Euboic gulf is an ancient lake basin, which has been filled by seawater at the end of the Pleistocene. It is therefore rather shallow (68m, ca. 35m in the area of Oropos) and flat (inclination 1%); the initial mobile, muddy marine sediments at the bottom of the gulf have been gradually mixed with sandy-muddy deposits brought in by the rivers Asopos and Lilas¹ (Fig. 1-2). In depths below 7m, the sediment is composed of fine sand of terrigene-biogene origin.

The southern coasts of the gulf, around Oropos, are not very jagged and of rather low relief (of a maximum height of 2.5m. from the surface of the sea)⁴. They are composed of sand and few pebbles, with the exception of a zone of gravel (80m long) at the South of the Asopos delta (North of Oropos); this same river deposits occasionally clay sediments at the coasts (namely when NE winds blow in the region). As far as the freshwater environments are concerned, besides the Asopos river, a hydrographical network of seasonal streams passes through the region, including the Skala Oropou site; we should imagine similar conditions in ancient times, which would have caused frequent inundations of the site.

We will try to align, in the following, the studied samples with the environmental information they carry, and make some comments on the nature and extend of the exploitation of the aquatic resources.

THE MATERIAL AND METHODS⁵

One thousand and sixty-five samples from both the old and the new field seasons in all sectors gave a total of 3653 remains (NISP) of marine molluscs⁶. 41% (1506) and 46.5% (1706) of the remains account for the two Quarters (Central and West), whereas a few number has been recovered in the rectangular Archaic house (2.6%) as well as in the Archaic street and rooms of the South Quarter (9.4%) (Fig. 2). We have also identified 4 vertebrae of fish, 1 bone

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³. Leontaris et al., op. cit. n. 2.
⁴. Leontaris et al., op. cit. n. 2.
⁵. This paper gives different counts of the material compared to previous ones (n. paper presented in the 4th Archaeometry Symposium, 2002, in press): we included here the results from the West complex as well as the material from some additional trenches in the East Quarter (campaigns 2002-2005).
⁶. A large number of land snails has also been recovered (788 NISP), 701 of which in the West Quarter. They will not be discussed in this paper. Nevertheless, we will note that their presence is interesting in terms of post-abandon processes in this complex, which seem more intense than in the east complex.
of cuttlefish, 7 claws of crab, 1 coral fragment and a few plaques of urchins. Their poor condition of conservation did not permit a further treatment but their presence, though scant, suggests the voluntary or involuntary transport to the site of various marine resources.

In a first place we proceeded in the identification of the molluscan species involved, with the help of identification guides for the Mediterranean Sea\(^7\) and the Aegean in particular\(^8\), and the reference collections of the Laboratoire des Invertébrés Marins et de Malacologie (LBIMM) at the Musèum National d'Histoire Naturelle of Paris (MNHN). Nomenclature follows the CLEMAM database (Check List on European Marine Molluscs).

We identified 41 species of marine molluscs, all of them actually occurring in the coasts of the Euboic gulf. They mainly belong to the class of Bivalves (31 species, a total of 59% of the remains) and to the class of Gastropods (17 species, 41% of the remains). A single remain of the class of Scaphopods, a *Dentalium sp.*, has been identified.

In the total corpus, the most abundant species, in terms of NISP (Number of Identified Specimens or number of remains, Fig. 3, left column), were purple-dye murex or πορφύρα (*Hexaplex trunculus*, 24% of the remains), followed by grey rough and rayed rough shell or χρυσές (*Mactra stultorum* and *Mactra glauca*, 23%). The species *Pinna nobilis*, the noble pen shell or πινάκα (18%) and *Cerithium vulgarum*, the common cerith or κέρατο (8%) are equally well represented. Other species, such as the banded murex or πορφύρα (*Bolinus brandaris*), the cockle or μπουρλίδες/καρδιές (*Cerastoderma glaucum*), the common piddock or κυδώνι (*Venus sp.*), are present in limited numbers, between 4 and 7% of the total remains. The other species are sparse, often representing less than 2% of the total. These numbers are partly reversed when expressed in MNI, as some species are subject to a greater fragmentation, thus producing higher numbers of remains (Fig. 4, right column).

FROM SEA...

The environmental parameters of the encountered species allowed us to indicate the possible zones of ancient human gathering in the surroundings of the site\(^9\) (Fig. 5-6).

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Surprisingly, few individuals were collected in the upper and more easily reached levels of the beach, the supra- and intertidal zones. The taxons involved can mainly be found in the subtidal zone, situated below the tide level, sometimes in the circatidal zone, from 30-40m to the bottom of the gulf. Finally, the majority of the shellfish in the site’s record has been collected in sandy-muddy substrates, such as the ones in the nearby shores of Euboic gulf. Some of these animals often live in dense colonies, and can easily be spotted and collected. Others (infaunal) require more elaborate techniques, such as sticks or hand-dredges, in order to be extracted from their soft substrate.

The above environmental distributions lead us to the assumption that the inhabitants of the settlement of Skala Oropou procured the aquatic resources in different ways: not only in the most accessible zones, but also in the deeper waters of the gulf, using various equipments. This suggestion is supported by the presence of net weights and hooks in the site, as well as by the known progress of the navigation in this period. On the other hand, the low quantities of molluscs and the very scarce remains of fish cannot speak in favour of a specialized exploitation of the nearby marine environment. Another possibility for this scarcity could also be related to the fact that the inhabitants probably discarded food remains outside the settlement.

As far as freshwater resources are concerned, it is surprising that, despite a rich freshwater environment surrounding the site (see above), only one freshwater mussel (Unio sp.) has been found. Human preferences should be considered here. On the other hand, no micromolluscs inhabiting wet conditions (e.g. streams) have been observed. They would have been valuable for a micro-environmental reconstruction of the inundation hypothesis.

...TO LAND

The study of the conservation of the samples has revealed that most of the molluscs caught were introduced fresh in the habitats. The few intact individuals could correspond to consumption debris, mainly after cooking, which can permit the extraction of the flesh without fracturation of the shell; in addition, some remains present a slight decolourisation of the surface, as a result of heating, or an exfoliated, burned shell, possibly due to direct exposure to fire (according to experiments conducted by Serrand 1996). Apart from these cases, the assemblage presents a high proportion of fragmentation, especially in the West Quarter (82% of the remains), which indicates either breaking of the shell during cooking, or different methods of extraction (crushing in order to consume the flesh raw); the most important species in our

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10. Aegean, 10.
12. C. Becker, 'Nourriture, cuillères, ornements... Les témoignages d’une exploitation variée des mollusques marins à Ayios Mamas (Chalcidique, Grèce)', *Anthropozoologica* 24 (1996), 3-17; Serrand, *op. cit* n. 11.
record (Hexaplex trunculus, Mactra sp., Cerithium vulgatum, Cerastoderma glaucum, Pinna nobilis) present a recurrent pattern of fracturation, which probably indicates specific methods of preparation of the mollusc in order to be consumed (Fig. 10). Post-depositional processes should also be considered, which are probably responsible for part of the severely fractured individuals as well as for the abrasion of the shell sculpture. A comparison between the two main complexes is interesting: the ratio of MNI/NISP of the East centre is 59%, only 25% in the West centre.

Finally 8% of the assemblage had a totally naturally worn surface, which could be an indicator of sea and wind abrasion; this suggests a collection of these shells on the beach, after the death of the animal. Their transport to the site may be accidental, for example along with other materials (sand, rocks, algae), or deliberate, a choice of attractive and coloured shells found at the beach, often having an adaptable shape. These worn shells often have natural orifices made by the action of waves or by scavengers: this does not exclude the possibility that these individuals might have been collected on purpose; for instance, the perforated apex of some specimens of the small gastropods Columbella rustica and Conus mediterraneus is probably due to natural processes; these individuals have, however, been probably collected of these orifices (Fig. 11).

On the other hand, in the material there are examples of human perforation: orifices that are always located on the same part of the shell and that permit suspension, such as some individuals of the species Luria lurida and Columbella rustica (Fig. 11). Furthermore, we have repeatedly observed a regularisation of the edges of the valves of Spondylus gaederopus, after polishing (Fig. 12).

In general, it is often difficult to estimate the exact origin of the traces and alterations observed, pre- or post-depositional, in the absence of a reference collection.

WHERE...

A second important part of our work focused on the spatial analysis. The first step was the verification of the structuration of the material in the sectors, with the help of a Correspondence Factor Analysis (CFA) (Fig. 7). The ideal would be to treat all samples in one and only matrix, in order to see if there are some relations that come out; the limited quantities of most of the samples made this approach statistically insufficient; we therefore preferred to group the samples (active variables) according to their provenance (active individuals), in order to see if there is some kind of inner relationship between the different architectural ensembles.

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14. According to the Dodson-Wexlar method, the closer the ratio to 1 (here converted to %), the higher the completeness of the assemblage: P. Dodson & D. Wexlar, 'Taphonomic Investigations of Owl Pellets', Paleobiology 5: 3 (1979), 275-284.
17. For this, the MNI counts seemed more useful, in the way that they reflect actual numbers of specimens introduced to the site.
The structuration of the CFA, quite significant (F1 and F2: 88%), confirmed a difference between the sectors: the main complexes, Central and West, seem well structured (left of the F2 axis) and thus differentiated from the rest of the structures (the Archaic house and the South Quarter street-rooms), positioned on the right side of the F2 axis, and that, despite the distance between them. In a first place, it seems possible that this grouping reflects different chronological contexts: we observe that the house and street-room structures both correspond to a later phase of the occupation of the area, than the artisan complexes. This clustering could also suggest different uses of marine molluscs. Whether this would be the result of environmental parameters, namely a change in the species spectrum of the gulf, or an evidence of some kind of cultural/functional shift, cannot be ascertained yet.

Nevertheless, a closer look at the CFA shows that the LG–Early Archaic habitation and artisan complexes are very well structured around some dominant species, namely *Hexaplex trunculus* (33.4% and 31.3% of MNI). On the other hand, in the samples from the street-stores structures and the Archaic house, the dominant taxon is *Mactra sp.* (58% and 62% of MNI respectively).

The above statements being rather flat, in the sense that they do not reflect the stratigraphical or spatial parameters, we decided to push our research to a finer level, inside different groups of structures, in order to have a clearer image of the chronological and spatial particularities.

For the purposes of this paper, the example of the *Central Quarter* as habitation and artisan centre will be examined in detail, thus offering a wider range of uses. Two aspects were analysed: the analysis of the distribution of the remains in each occupation phase confirmed a significantly higher accumulation of shells in the phases of evolution and expansion of the settlement (phases 3 and 4)\(^\text{18}\) (Fig. 8). Inside this same ensemble, we then proceeded in the analysis of the remains by different use of the structures (Fig. 9):

- This grouping revealed a greater accumulation of shells, 40% of the total, in the domestic contexts (Buildings B, I, IA, IΣΤ) as well as in the limits of the settlement, near the west and south peribolos\(^\text{19}\), which could be interpreted as food debris, disposed inside or in the vicinity of the houses\(^\text{20}\). The taxons of these contexts, mainly edible species (*Hexaplex trunculus*, *Murex brandaris*, *Pinna nobilis*, *Mactra sp.*), verify this hypothesis. A quite important concentration of murex in some buildings (for example IA), correlated to a relatively high number of loom weights (over 80), could possibly suggest a limited and certainly family restricted production of pigments. Few shell ornaments or shells that could be used as recipients or tools were recovered. They will be discussed in the following section.

- A limited number of remains (14%) come from the structures associated in one way or another with cult activities (Θ, ΣΤ, Z), the tombs and the depotories:

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\(^\text{18}\) After discussion with Prof. A. Mazarakis Ainian, we decided to study phases 3 and 4 as one and only matrix, as most of the samples coming from these two phases have been unified during the excavation, often belonging to the same structures, that were in use during both phases, 3 and 4.

\(^\text{19}\) Although these areas are not considered as areas of specific activities *sensu stricto*, they can indirectly provide information for food preparation and rejection activities: R. Chenorkian, 'Étude spatiale en milieux de rejets', *Préhistoire Anthropologie Méditerranéennes* 3 (1994), 43-56.

\(^\text{20}\) Some authors suggest that there are social implications in the disposal of food remains inside domestic structures; see on this matter J. Chapman, *Fragmentation in Archaeology: People, Places and Broken Objects in the Prehistory of South Eastern Europe* (London 2000), 225.
A low range of species comes from the structures of cult (Θ, ΣΤ, Z), mainly *Cerastoderma glaucum*, *Mactra sp.*, *Venus sp.*, *Hexaplex trunculus* and *Pinna nobilis* are usually found in particular contexts. For example, in Building Θ no tests have been revealed in the area of the bench. All shells came from the middle room, 2, with charcoals and bones. Similarly in Building Z, a great number of molluscs have been found *in situ*, in a lekané, which bore no bottom. A single specimen could have been collected for ornament, as it disposed a natural orifice.

The same taxons were recovered in tombs and depotories, usually found along with burnt bones and broken vases in the vicinity of hearths and tombs and could be interpreted as remains of ritual feasts. They present a very poorly preserved, calcified surface. Sometimes, examples of some other kind of use can be implied, for example a big *Tonna galea* that could serve for choai, or *Spondylus gaederopus* for spools.

- A 10% of the samples was recovered in structures of uncertain function for the moment (Δ, E, IB, H), but the taxons presented do not differ from the other assemblages.

- Finally, some sparse remains came from specific contexts: the “hoard” of the iron objects, the trenches outside the rectangular peribolos, the open spaces between the buildings, some storage structures and artisan Kilns. They sometimes produced unique examples, such as the *Dentalium sp.* in the “hoard” of the iron objects, most probably used as an ornament²¹, as well as some *Spondylus gaederopus* inside buildings with a metallurgical function, eventually used as recipients or tools.

The use of molluscs in the West Quarter, although equally important in quantities, seemed to be less diversified and clustered around specific contexts. The same species were observed, namely those used for consumption, which were often severely fragmented. No other particular marks or secondary uses were observed.

In the results from the Archaic street-rooms, it is interesting to see that half of the remains, essentially the taxon *Mactra sp.*, were concentrated in one of the four rooms of the complex, interpreted as stores or houses of the Archaic period. Their presence could therefore suggest food consumption.

Similarly, inside the Archaic house, 71% of the molluscan remains came from one of the rooms and were recovered in vicinity of a hearth, where quantities of burnt animal bones were found.

...AND WHY

The study of the malacological data in their archaeological contexts has emitted some further general hypotheses as to the possible uses of the molluscs in the site (see also Table 1).

²¹. This fine shell, usually found in deeper waters, has usually been used in Neolithic and Bronze Age contexts as bead because of its shape: Egée, *passim*; Y. Taborin, *La parure en coquillage au Paléolithique*, Gallia Préhistoire, XXIXème Suppl. (Paris 1993), 295-300; M. A. Miller, *Jewels of Shell and Stone, Clay and Bone: the Production, Function, and Distribution of Aegean Stone Age Ornaments*, Ph.D. thesis (Ann Arbor 1997), *passim*; J. S. Ridout-Sharpe, Shells from the Ancient Aegean, *The Conchologists’ Newsletter* 154 (2000), 379-385. We also find attractive interpretations of this shell as representation of the male sex or as money in an unmodified state: L. Joleaud, ‘Rôle magique et monétaire de dentales fossiles et actuelles dans les temps préhistoriques et modernes,’ *Revue scientifique* 74 (1953), 495-500; *Shells*, 203-210; *Aegean*, 26-27. Could the later suggestions be in relation to the context of iron objects, possibly belonging to a man?
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<table>
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<tr>
<th>Taxon</th>
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<tr>
<td>Solen marginatus</td>
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<td>Venus verrucosa</td>
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</tr>
<tr>
<td>SC  Denticulium sp.</td>
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</tr>
<tr>
<td>Bolinus (Murex) brandaris</td>
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</tr>
<tr>
<td>Cerithium vulgatum</td>
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</tr>
<tr>
<td>Columbella rustica</td>
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</tr>
<tr>
<td>G  Conus mediterraneus</td>
<td>(Hwass in Bruguère 1792)</td>
</tr>
<tr>
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<td>(Linnaeus 1758)</td>
</tr>
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<td>S  Fasciolaria lignaria</td>
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<td>T  Fusinus syrcusanus</td>
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<td>R  Gibbula varia</td>
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**Table 1.** Different possible uses of taxons present in the Oropos assemblage.
At this point, we have tried to correlate our facts with the results from other sites in Greece; as the malacological record is rather limited for the historical periods, as well as for the geographical areas concerned, we have extended our search in prehistoric and protohistoric contexts22.

Food consumption

We suggest that the molluscs, found in the settlement of Skala Oropou, had primarily been consumed by the inhabitants of the site, but always as a secondary source of food, rich in vitamins and metals, or simply a “spicing” of their everyday diet; in particular, the species *Hexaplex trunculus* and *Bolinus brandaris* (murex), *Mactra sp.* (clams), *Pinna nobilis* (noble pen shell), *Cerithium vulgatum* (horn shell), *Cerastoderma glaucum* (cockles), present in quantities over 5% of the total number of remains and collected fresh, are the ones more likely to have been consumed (Fig. 10). It is difficult to say more about the modalities of consumption (eaten raw or cooked), for the traces on the shells are not always interpretable; besides, the limited and not homogenous sampling does not permit a more thorough proposition on the dietetic habits. Nevertheless, all the taxons cited above as elements of food have been recorded in a number of other sites all over Greece23.

Purple-dye production

An interesting question is the possible use of the Muricidae family (purple) for a limited purple-dye production. This activity involves the exploitation of a significant number of molluscs24 as well as specialized structures, not present in our site23. Nevertheless, a quite important concentration of murex in some buildings (houses) of the Central Quarter, cor-

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23. Égée, passim.
related to a relatively high number of loom weights (over 80), could possibly suggest a limited and certainly family restricted production of pigments 26 (Fig. 11).

Baits

There are quite a few ethnographical examples on the use of the flesh of molluscs as baits by marine populations 27. Such a use could be suggested for some taxons, with less attractive flesh, such as *Cerithium vulgatum*; all that was needed was crashing the shell or simply pulling out the animal, so it is difficult to talk with certainty in the lack of specific traces on the shell. Moreover, this process would have directly taken place on the shore or in the fishing boat rather than in the site.

Recipients-tools

Another possible use of the shells of the molluscs was that of recipients and tools of all kinds. This use could have been either primary, in the sense that the shells had been collected dead on the beach in order to be used, or secondary, meaning that some shells had been re-used, after their flesh having been consumed. A characteristic example in the Oropos assemblage are the big valves of *Spondylus gaederopus*, all collected dead on the beach: their shape permits a direct use as spoons; some individuals have been given a more regular shape after a polishing of the edges (Fig. 12). Some other taxons, such as *Cerastoderma glaucum, Arca noae, Ostrea edulis, Unio sp*, *Glycymeris glycymeris, Pinna nobilis*, present in our samples, have been interpreted, in particular in the prehistoric bibliography, as spoons, pestles, spatulas or polishers 28. Others, such as *Tonna galea*, may have served as recipients. Such interpretations should be treated with caution, notably in historical contexts where other, more resistant materials (bronze, iron) were used for the tools replacing the “natural tools”.

Ornaments

The presence of shell ornaments is rather sparse in the Geometric and Archaic periods, as other materials such as gold, bronze and ivory, replaced them 29. Nevertheless, a few samples in the site testify the use of shells as ornaments; these are quite characteristic and unique (Fig. 13): a beautiful reddish shell of *Luria lurida*, a fragile specimen of *Dentalium sp.*, as well as a couple of *Columbella rustica* and *Conus mediterraneus* individuals. They were all perforated

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27. Shells, 10-11, 176-178, 187.

28. Égée, passim.

29. As shown in Coldstream, GG. Nonetheless, some examples are found in Lefkandi: Lefkandi 1, 115, as well as personal study (July 2004, in preparation), and in Emporio: J. Boardman, Excavations at Chios, 1952-1955. Greek Emporio, BSA Suppl. 6 (London 1967), 243.
in recurrent spots of their shell, most probably by humans\textsuperscript{30}; in the case of the only specimen of *Dentalium sp.* in our material, this has probably been collected on purpose because of its natural shape, in order to be used as ornament (see n. 19). No other use of these taxons (food elements or other) is possible.

Furthermore, some specimens, although not worked, could have been collected as items of an aesthetic value: such as some fresh individuals of the species *Fasciolaria lignaria*, *Fusinus syracusanus*, *Aequipecten opercularis*, *Pecten jacobeus*. Finally, few remains of another beautiful species, *Tonna galea*, have been found in domestic and ritual contexts, and could, therefore, suggest relative uses (Fig. 13, 14).

**Funerary-ritual context**

A number of shells have been found in funerary and ritual contexts: these were mainly remains of edible molluscs; this could suggest the practice of ritual feasting taking place around the tomb and in certain buildings of the settlement. In these same contexts, punctual examples of *Tonna galea* and *Spondylus gaederopus* could represent ritual recipients, offerings or simply beautiful objects placed in the tomb with the deceased\textsuperscript{31} (Fig. 14). In general, this kind of activities is not easy to recognize\textsuperscript{32}.

**CONCLUSIONS: THE REMAINS OF MOLLUSC EXPLOITATION, POTENTIAL OF A FRAGMENTARY MATERIAL**

The material we presented above can be considered as a rather limited one and of minor importance, both because of its size as well as of its chronological context. Nevertheless, a multi-level analysis permitted to extract different aspects of information, concerning the ecological origin of the encountered species, the pre- and post-deposition phenomena involved as well as the spatial and chronological distribution of the remains. The possible uses of the molluscs and their shells have been discussed in their relative contexts and in comparison with external archaeological data.

Finally, the study of the limited shell material from the Geometric site of Skala Oropou revealed the omnipresence of sea molluscs in the inhabitants' everyday life. We therefore think that the study of biological remains from historical periods, usually very scarcely sampled, can offer important factual information for the understanding of sea resources' exploitation.

\textsuperscript{30} Taborin, *op. cit.* n. 21; Aegean, 18-19, 28-29.

\textsuperscript{31} See discussion on ritual use of tun shell in: D. S. Reese, ‘Recent and Fossil Shells from Tomb XVIII, Gypsades Cemetery, Cnosso, Crete’, *BSA* 77 (1982), 249-250.

\textsuperscript{32} For this discussion, see Mazarakis Ainian, *Rulers' Dwellings*, 283. A geographically close example of secure funeral-ritual use of molluscs is Lefkandi: *Lefkandi I*. 
Fig. 1. Map of the S Euboic Gulf and main sites in the region:
1. Late Geometric-Archaic settlement, 2. PG-SPG settlement,
3. LBA settlement, 4. "Old Oropos" (MH-LH settlement)
(after A. Mazarakis Ainian, modified).

Fig. 2. Hypothetical reconstruction of the shoreline by the time of occupation of the site of Oropos
(after A. Mazarakis Ainian 1996, modified).
**Fig. 3.** Distribution of the assemblage in the Sectors of the site (in % of NISP; after A. Mazarakis Ainian 1999, modified).

**Fig. 4.** Proportions of main species of the assemblage.
Fig. 5. The S Euboic Gulf from the hills of Oropos area.

Fig. 6. Proportional representation of the zonation of the encountered species.
Fig. 7. Correspondence Factor Analysis (CFA) expressed in MNI values.

Fig. 8. Distribution of shells in different phases of the East Complex.
Fig. 9. Distribution of shells in each group of structures.

Fig. 10. Main edible species in the assemblage (modern specimens a. Cerastoderma glaucum=31mm, b. Cerithium vulgatum=50mm, c. Pinna nobilis 219mm, d. Hexaplex trunculus=45mm, e. Bolinus brandaris=78mm and assemblage from the street-stores structures, f. Mactra glauca= ca. 45mm)(not scaled).
Fig. 11. Murex shells (a. Bolinus brandaris=70mm and b. Hexaplex trunculus=50mm) with traces of extraction, and typical image of fracturation in the assemblage (width of caption ca. 200mm)(not scaled).

Fig. 12. Some examples of shells possibly used as tools or recipients (a. Spondylus gaederopus= ca. 100mm, b. Pinna nobilis= 88mm and 52mm, c. Tonna galea=170mm)(not scaled).
Fig. 13. Perforated shells in the assemblage, interpreted as ornaments (a. *Dentalium* sp.=21mm, b. *Luria lurida*=28mm, c. *Acanthocardia* sp.=23mm, d. *Conus mediterraneus*=28mm, e. *Columbella rustica*=14mm, f. *Cerithium vulgatum*=48mm, g. *Cerithium vulgatum*=45mm) (not scaled).

Fig. 14. Some examples of shells found in ritual-funerary contexts (a. *Spondylus gaederopus*=90mm, b. *Fasciolaria lignaria*=40mm, c. *Pecten jacobeus*=104mm, d. *Tonna galea*=170mm, e. *Cerithium vulgatum*= width of caption 100mm) (not scaled).