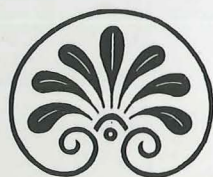


# Petras, Siteia

## 25 years of excavations and studies

Edited by *Metaxia Tsipopoulou*



Monographs of the Danish Institute at Athens  
Volume 16





Petras, Siteia  
– 25 years of excavations and studies





# Petras, Siteia

## – 25 years of excavations and studies

Acts of a two-day conference held at the Danish Institute at  
Athens, 9–10 October 2010

Edited by

*Metaxia Tsipopoulou*



Monographs of the Danish Institute at Athens  
Volume 16





*For Romanos,*

*who went to Petras for the first time  
when he was 7 months old, and since then  
Minoan Siteia has been a significant part of his life.*



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Petras, Siteia – 25 years of excavations and studies

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The participants of the Conference gathered in the courtyard of the Danish Institute at Athens (10/10/2012).

# List of contributors

- Maria Emanuela Alberti  
Department of History and  
Management  
of Cultural Heritage  
University of Udine  
Palazzo Caiselli  
vicolo Florio 2b  
33100 Udine  
Italy  
memalberti@gmail.com
- Philip P. Betancourt  
Department of Art History  
Temple University  
2001 North 13th Street  
Suite 2101  
Philadelphia, PA 19122  
USA  
ppbcourt1@aol.com
- Thomas M. Brogan  
INSTAP Study Center for East  
Crete  
Pacheia Ammos  
GR-72200 Ierapetra  
Crete, Greece  
instapec@otenet.gr
- Kostis S. Christakis  
Lecturer (visiting)  
Department of Primary Education  
University of Crete  
J. Psyhari 18  
GR-71305 Herakleion  
Crete, Greece  
christakis@her.forthnet.gr
- Cesare D'Annibale  
Material Culture Researcher  
Ontario Service Center, Parks  
Canada  
ces\_335@hotmail.com
- Heidi M.C. Dierckx  
Associate Professor of Classical  
Studies  
Elmira College  
One Park Place  
Elmira, NY 14901  
hdierckx@elmira.edu
- Donald C. Haggis  
Nicholas A. Cassas Term Professor  
of Greek Studies  
  
Department of Classics  
The University of North Carolina  
at Chapel Hill  
212 Murphey Hall, CB 3145  
Chapel Hill, NC 27599-3145  
dchaggis@email.unc.edu
- Susan C. Ferrence  
Director of Publications  
INSTAP Academic Press  
2133 Arch St., Ste. 301  
Philadelphia, Pa 19103  
USA  
instapress@hotmail.com
- Erik Hallager  
Director Emeritus  
Danish Institute at Athens  
Østerøgade 4  
DK-8200 Aarhus N  
Denmark  
klaeh@hum.au.dk
- Garifalia Kostopoulou  
Petras Excavations Project  
Pasiphae St. 10  
GR-72100 Hagios Nikolaos  
Crete, Greece  
garifalia@libero.it
- Olga Krzyszkowska  
Deputy Director  
Institute of Classical Studies  
Senate House, Malet Street  
London WC1E 7HU  
United Kingdom  
olgak@sas.ac.uk
- Colin F. Macdonald  
British School at Athens  
Chersiphronos 8  
GR-11631 Athens  
Greece  
colin.f.macdonald@gmail.com
- J. Alexander MacGillivray  
Co-director Palaikastro Excavations  
Ampelonon 50  
GR-19002 Paiania  
Greece  
macgillivrayalexander@yahoo.com
- Nektaria Mavroudi  
Archaeologist, MA  
Ilariona Katsouli 23  
GR-71305 Herakleion  
Crete, Greece  
nektarm@gmail.com
- Photini J.P. McGeorge  
Archaeologist-Physical  
Anthropologist  
N. Evoikou 35  
GR-19009  
Greece  
tinamcgeorge@gmail.com
- James D. Muhly  
Professor Emeritus  
University of Pennsylvania  
American School of Classical  
Studies at Athens  
Souidias St. 54  
GR-10676 Athens  
Greece  
jimmuhly@yahoo.com



Eleni Nodarou  
INSTAP Study Center for East  
Crete  
Pacheia Ammos  
GR-72200 Ierapetra  
Crete, Greece  
enodarou@yahoo.gr

Yiannis Papadatos  
Lecturer in Prehistoric  
Archaeology  
Department of Archaeology and  
History of Art  
National and Kapodistrian  
University of Athens  
University Campus, Zographou  
GR-15784 Athens  
Greece  
gpapadat@arch.uoa.gr

Leferis Platon  
Assistant Professor of Prehistoric  
Archaeology  
Department of History and  
Archaeology  
National and Kapodistrian  
University of Athens  
School of Philosophy  
University Campus, Zographou  
GR-15784 Athens  
Greece  
eplaton@arch.uoa.gr

Natalia Poulou-Papadimitriou  
Assistant Professor of Byzantine  
Archaeology  
Department of Archaeology  
Aristotle University of Thessaloniki  
GR-54124 Thessaloniki  
Greece  
npoulou@hist.auth.gr

Maria Psallida  
Petras Excavations Project  
D. Gounari 13  
GR-15342 Athens  
Greece  
mariapsld@yahoo.com

David W. Rupp  
Director  
Canadian Institute in Greece  
Voulgaroktonou 68  
GR-11473 Athens  
Greece  
drupp@brocku.ca

Anna Simandiraki-Grimshaw  
Associate Lecturer  
Classical and Archaeological  
Studies  
School of European Culture and  
Languages  
University of Kent  
Canterbury  
Kent CT2 7NF  
United Kingdom  
pytna@yahoo.co.uk

Chrysa Sofianou  
Hellenic Ministry of Culture and  
Tourism  
24<sup>th</sup> Ephorate of Prehistoric and  
Classical Antiquities  
Priggiptos Georgiou 47  
GR-72100 Hagios Nikolaos  
Crete, Greece  
chrsofianou@gmail.com

Tatiana Theodoropoulou  
Wiener Lab Post-Doctoral  
Research Fellow  
Wiener Laboratory – The  
American School of Classical  
Studies at Athens  
Souidias St. 54  
GR-106 76 Athens  
Greece  
tatheod@hotmail.com

Konstantinos Togias  
School of Science and Technology  
Hellenic Open University  
GR-26335 Patra  
Greece  
info@ktogias.gr

Metaxia Tsipopoulou  
Director Emerita  
Hellenic Ministry of Culture and  
Tourism  
National Archive of Monuments  
Director of the Petras Excavations  
Voulgaroktonou 68  
GR-11473 Athens  
Greece  
mtsipopoulou@yahoo.gr

Sevasti Triantaphyllou  
Lecturer in Prehistoric  
Archaeology and Osteoarchaeology  
Department of History and  
Archaeology  
Aristotle University of Thessaloniki  
GR-54124 Thessaloniki  
Greece  
[http://www.hist.auth.gr/el/  
user/302](http://www.hist.auth.gr/el/user/302)  
[http://auth.academia.edu/  
SeviTriantaphyllou](http://auth.academia.edu/SeviTriantaphyllou)  
strianta@hist.auth.gr  
sevittr@otenet.gr

Peter M. Warren  
Professor  
Department of Archaeology and  
Anthropology,  
University of Bristol,  
43 Woodland Road,  
Bristol BS8 1UU  
United Kingdom  
p.m.warren@bristol.ac.uk

# Preface

*Βίος ἀνεόρταστος, μακρά ὁδὸς ἀπανδόχεντος.*  
Demokritos (470–370 BC)

It is indeed hard and dull to lead a life, both personal and professional, without celebrations, anniversaries, gatherings of friends and colleagues, symposia of any type. The 25th anniversary of the Petras excavations offered a wonderful opportunity for me to organize a Symposium, and for an international group of scholars, known for many things, including being members of the Petras team, to work hard, and then gather in Athens and present the results of their studies.

It was an exciting experience organizing and conducting this two-day Conference, and also editing the Proceedings and preparing the present book. I was very happy to be able to work during the multiple tasks of the preparation, the coordination of the contributors, the two days of the event itself, the collection of the papers and the editing of the present volume, with two hard working, creative, and very patient colleagues, Ms Garifalia Kostopoulou and Dr Maria Psallida. They are responsible before the event for the invitations, the preparation of the catering, the reservation of the restaurant for the speakers' dinner, and the printed material of the Conference. During the Symposium they made sure that everything went smoothly. After the Conference they worked for many months to do the pagination, the bibliography and the list of contributors, and they helped significantly with the proof reading and the index (Psallida), and the plates and the cover design (Kostopoulou). The editing of the volume was a very interesting task for me, and having no day job at the Ministry after the end of November 2011, a victim of the crisis that struck Greece, I was able to dedicate myself entirely to it. Furthermore, I am responsible for the transcription of the discussions, an interesting first-time experience. Many thanks go to David Rupp who patiently corrected all the English manuscripts of the 11 non-native speakers, as well as the dis-

cussions. Also my warmest thanks to Melissa Eaby for the final proof reading and significant improvements. The specialized text of Konstantinos Togias, the developer of the Petras website, was translated from Greek by Ms Effie Patsatzi, Museologist, a specialist in the Management of Digital Heritage.

Dr Erik Hallager is responsible for the final pagination and the insertion of the figures into the text.

I wish also to thank the creators of the four posters presented at the Conference: two posters, one of which was in collaboration with the director of the excavation, were by Ms Clio Zervaki, the Petras Conservator, MA in Museology and MA in Cultural Management, and another two were by Garifalia Kostopoulou.

The Danish Institute at Athens, and its two consecutive Directors, Erik Hallager, a dear old friend and member of the Petras team, and Rune Frederiksen, have my gratitude for hosting the Symposium and for including the publication in the series of monographs of the Institute.

The Institute for Aegean Prehistory (INSTAP), which has been supporting the excavations at Petras, the conservation of the finds and the studies since 1987, also funded the Symposium and the publication of the present volume. My deep gratitude goes to INSTAP and its Executive Director, Philip Betancourt, also a good friend and member of the Petras team.

The success of the Symposium, which was really a wonderful and very stimulating experience, is due to all the participants, the speakers, and the chairpersons. More than 100 colleagues, Greeks and foreigners, from the Hellenic Archaeological Service, the Universities and the Foreign Schools of Archaeology in Greece, including senior members and graduate students, were present at the Danish Institute, and were very active during the discussions. They contributed to the creation of a very



friendly and positive atmosphere throughout the Symposium. A very special thanks goes to the chairpersons, Philip Betancourt, Michael Wedde, David Rupp, Erik Hallager, Colin Macdonald, Lefteris Platon, Thomas Brogan, Olga Krzyszkowska and Alexander MacGillivray. I am very grateful to Peter Warren, my mentor, who enthusiastically agreed to write the concluding remarks for this volume.

Three generations of scholars participated at the Symposium, some of the younger ones had come to Petras as undergraduate or graduate students, long ago. Their names in the order they presented their papers are: Yiannis Papadatos, Eleni Nodarou, Tatiana Theodoropoulou, Cesare D'Annibale, Philip P. Betancourt, Susan C. Ferrence, James D. Muhly, Olga Krzyszkowska, Sevasti Triantaphyllou, Heidi M.C. Dierckx, Donald C. Haggis, Maria Emanuela

Alberti, Kostis S. Christakis, Nektaria Mavroudi, Erik Hallager, David W. Rupp, Anna Simandiraki-Grimshaw, Photini J.P. McGeorge, Natalia Poulou-Papadimitriou, Chrysa Sofianou, Thomas M. Brogan and Konstantinos Togias.

The 25 years of the Petras excavations and studies coincided with a period of crisis for Greece that worsened significantly between October 2010, the time of the Symposium, and spring 2012, the time these lines are written. From the beginning my idea for the organization of this event and its publication was an idea of resistance to the crisis. I am very happy that we succeeded and very grateful to all who worked hard and made this success happen.

Athens, Exarcheia, Easter 2012  
Metaxia Tsipopoulou

# Abbreviations

## *Archaeological periods*

EBA	Early Bronze Age
EH	Early Helladic
EM	Early Minoan
FN	Final Neolithic
LH	Late Helladic
LM	Late Minoan
LN	Late Neolithic
LBA	Late Bronze Age
MBA	Middle Bronze Age
MH	Middle Helladic
MM	Middle Minoan
MN	Middle Neolithic
PPN	Pre-Pottery Neolithic

P.TSK	Petras cemetery
P.TSU	Petras-Rock Shelter
Σ-palace	Stratigraphical trenches of the palace

## *Other*

A.S.L.	Above Sea Level
diam.	diameter
gr	gram
h	height
kg	kilogram
w	width
wt	weight
th	thickness
lt	liter
NISP	Number of Identifiable Specimens
MNI	Minimum Number of Individuals
SM	Archaeological Museum, Siteia
vol.	volume

## *Petras Area*

HT	House Tomb
L	Lakkos
P	Petras

The form of the English language for the native speakers (British or American) was the author's choice. For the non-native speakers the American form was applied.

# Bibliography

## *Bibliographic abbreviations*

*AASOR* – *Annual of the American School of Oriental Research*

*ActaArch* – *Acta archaeologica Lovanensia*

*AJA* – *American Journal of Archaeology*

*AJPA* – *American Journal of Physical Anthropology*

*AR* – *Archaeological Reports*

*ArchDelt* – *Archaeologikon Deltion*

*ArchEph* – *Archaïologike Ephemeris*

*ASAtene* – *Annuario della Scuola archeologica di Atene e delle Missioni italiane in Oriente*

*BAR-IS* – *British Archaeological Reports, International Series*

*BASOR* – *Bulletin of the American Schools of Oriental Research*

*BCH* – *Bulletin de correspondance hellénique*

*BCH Suppl.* – *Bulletin de correspondance hellénique. Supplément*

*BÉFAR* – *Bibliothèque des Écoles françaises d'Athènes et de Rome*

*BICS* – *Bulletin of the Institute of Classical Studies of the University of London*

*BSA* – *Annual of the British School at Athens*

*BSPF* – *Bulletin de la Société préhistorique française*

*CHIC* – Olivier, J.-P. & L. Godart 1996. *Corpus hieroglyphicarum inscriptionum Cretae* (Études Crétoises 31), Athens and Rome.

*CMS* – *Corpus der minoischen und mykenischen Siegel*, Berlin 1964–2000; Mainz 2002–

*GORILA* – Olivier, J.-P. & L. Godart 1976–1985, *Recueil des inscriptions en linéaire A*, 1–5 (Études Crétoises 21, 1–5), Paris.

*CretChron* – *Kretika Chronika*

*CurrAnthr* – *Current Anthropology*

*JAnthArch* – *Journal of Anthropological Archaeology*

*JAS* – *Journal of Archaeological Science*

*JMA* – *Journal of Mediterranean Archaeology*

*JPR* – *Journal of Prehistoric Religion*

*Kentro* – *Kentro: The Newsletter of the INSTAP Study Center for East Crete*

*OpAth* – *Opuscula Atheniensia*

*Prakt* – *Praktika tes en Athenais Archaïologikes Etaireias*

*SIMA* – *Studies in Mediterranean Archaeology*

*SkrAth* – *Skrifter utgivna av Svenska Institutet i Athen*

*WorldArch* – *World Archaeology*

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# Greetings from Erik Hallager

*Director Emeritus of the Danish Institute at Athens*

Καλημέρα σε όλους.

On behalf of the new Director of the Institute Dr Rune Frederiksen, I have been asked to welcome you all here to the Danish Institute. The Institute is very happy to host such an important event, with so many distinguished scholars, and we hope that you will feel at home here, as I know many of you come

from far away. The Institute also wants to take the opportunity to congratulate Dr Tsipopoulou for her achievements during 25 years at Petras, which is also the topic of the Conference. Anyway, I feel confident that we shall learn a lot of new things about Minoan archaeology in the next two days. Welcome to everyone!







# Introduction: 25 years of excavations and studies at Petras\*

*Metaxia Tsipopoulou*

Petras is located *ca.* 2 km east of the modern town of Siteia in eastern Crete (Fig. 1). The first to investigate the site was Robert Carr Bosanquet in 1900,<sup>1</sup> for two days, following his excavations at Praios. He opened various trenches on the plateau of the hill and on the lower slopes, but was disappointed. He abandoned the site and moved on to Palaikastro.<sup>2</sup> Bosanquet, however, did not fail to note in his brief report the importance of the site as a harbour place.<sup>3</sup> In 1983, as a junior member of the Hellenic Archaeological Service, I was transferred from Khania (25<sup>th</sup> Ephorate of Prehistoric and Classical Antiquities) to eastern Crete (24<sup>th</sup> Ephorate). The then Ephor, Dr Costis Davaras, entrusted me with the supervision of the Minoan monuments and sites of the Siteia area. In 1984 and 1985, I had the chance to excavate the MM I fortified rectangular building at Hagia Photia-Kouphota.<sup>4</sup> The excavation started as a rescue project, as the construction of a hotel was planned on the site. That building which is of a unique plan, the fortification wall, the two MM IIA circular buildings which were constructed partially on top of the large rectangular construction,

and were practically empty, but identifiable as tholos tombs for their architecture, were, individually and collectively, very difficult to understand, and even more so incorporate into a meaningful historical reconstruction of the area of the Siteia Bay and eastern Crete in general. Twenty-six years later, despite

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\* The conservation of the finds is by Clio Zervaki, and the drawing in fig. 5 is by David Rupp. The photographs in Figs. 5, 9, 16 are by Metaxia Tsipopoulou, in Figs. 6, 7, 10a by Yiannis Papadatos, in fig. 17 by Garifalia Kostopoulou and Michael Wedde. The plan of the cemetery in Fig. 13 is a collective work by the members of the excavation team. The vessels in Figs. 6, 7 have been photographed by Chronis Papanikolopoulos. G. Kostopoulou is also responsible for the plates and D. Rupp checked my English text. To all of them my warmest thanks.

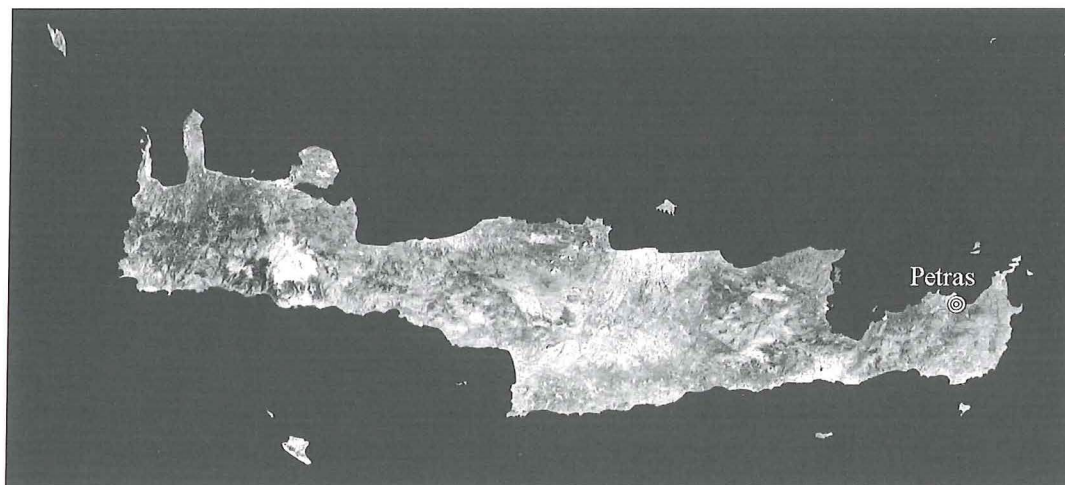
<sup>1</sup> Bosanquet 1901–1902.

<sup>2</sup> Bosanquet 1901–1902.

<sup>3</sup> Bosanquet 1901–1902, 282: “Lying on a deep bay and commanding as it does the easiest route into the Eteocretan highlands, it seemed likely that Petras might furnish useful clues, if not to the indigenous culture of the district, at any rate to the foreign influences that were at work during the Bronze Age”.

<sup>4</sup> Tsipopoulou 1988.

Fig. 1. Map of Crete showing the location of Petras (Google Earth).



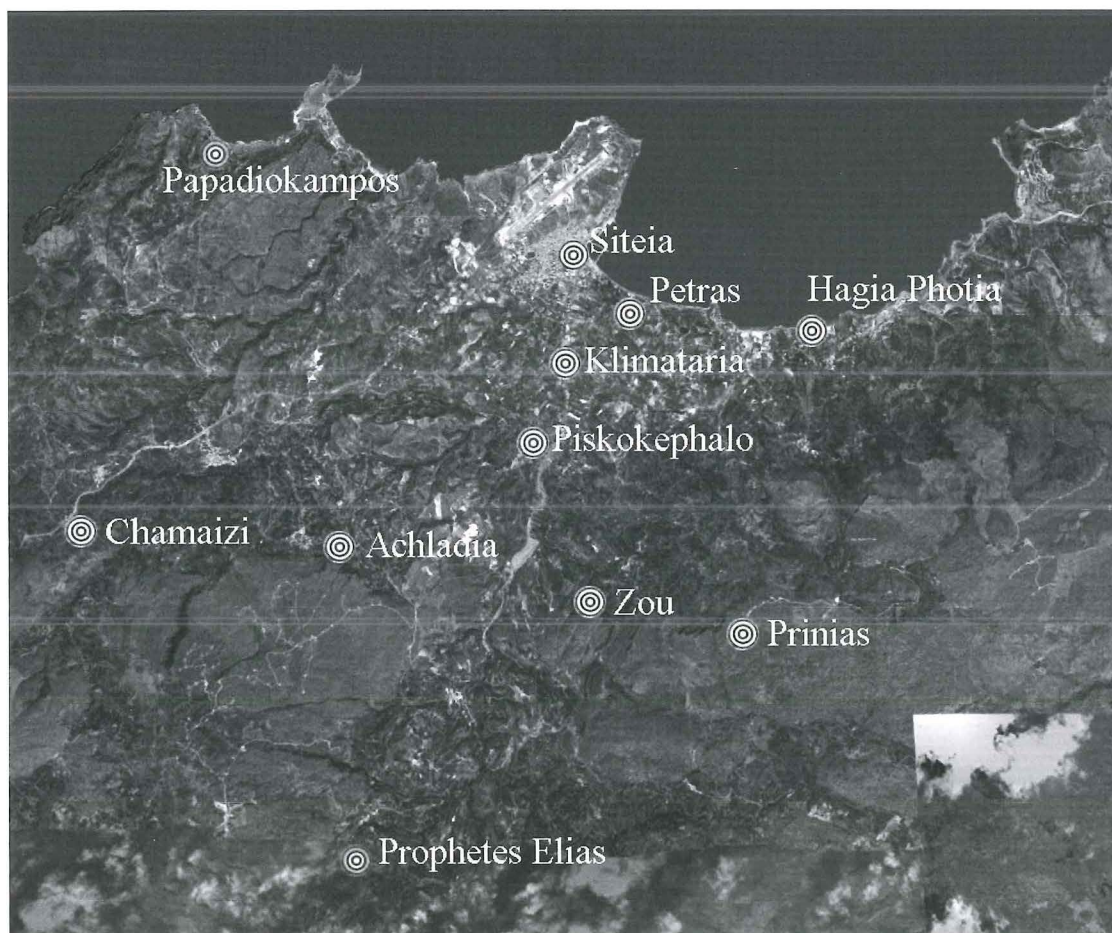


Fig. 2. Petras and its hinterland.

the important discoveries at Petras, the mystery of the Kouphota building(s) remains unsolved.

In 1985, during the second year of the excavation at Hagia Photia, we were able to conduct an intense surface survey over 4,000 stremmata in the Hagia Photia Plain, with the support of the Municipality of Siteia.<sup>5</sup> The survey produced interesting results, dated mostly to the Neopalatial period. Several small isolated farmhouses, scattered over the plain, were identified. Many years later, in 1997, I was able to return to Hagia Photia to conduct further cleanings of the fortification wall and thus complete its plan. Only then was I able to realize that some puzzling remains at the southwest part of the site belonged to the EM I–IIA settlement of the better known cemetery.<sup>6</sup>

Already in 1984 the idea of investigating intensively the totality of the Siteia Bay area in order to understand the settlement patterns over various

prehistoric periods was a very clear research goal for me. That year I visited for the first time the Hill of Petras. The topography, and also the surface remains convinced me that an important Minoan site should have existed in that place. Soon I discovered that Nikolaos Platon believed the same.<sup>7</sup> He never investigated Petras, even though the presence of the shrine at Piskokephalo suggested to him the significance of the site. Zakros was discovered in 1960 and he went there to fulfil his destiny. When I first asked Davaras to allow me to make some trial trenches at Petras, he did not believe that the preservation of the site was worth an excavation, but he supported me nevertheless and wished me to discover “a second Gournia”.

<sup>5</sup> Tsipopoulou 1989.

<sup>6</sup> Tsipopoulou 2007a.

<sup>7</sup> Platon 1952a.



Excavations began in 1985. In the late 1980's the excavation was granted the status of a "systematic research project" by the Hellenic Ministry of Culture, after the expropriation of 40,000 m<sup>2</sup>.

Prior to the beginning of the excavation at Petras, the following sites were known, due to the earlier research in the area of the Siteia Bay and its hinterland, by Stephanos Xanthoudides at the beginning of the 20<sup>th</sup> century, Nikolaos Platon in the 1950s, and Costis Davaras in the 1970s (Fig. 2):

- a) The Middle Minoan Oval House at Chamaizi.<sup>8</sup>
- b) Two Minoan shrines at Piskokephalo and Prinias, dated both to the Proto- and the Neopalatial periods.<sup>9</sup>
- c) Several important Neopalatial buildings in the hinterland, the so-called "villas" at Klimataria, Zou, Achladia and Prophetes Elias.<sup>10</sup>
- d) The LM III tholos tomb at Achladia.<sup>11</sup>
- e) The well known Early Minoan cemetery at Hagia Photia.<sup>12</sup>
- f) The above-mentioned fortified late Prepalatial building at Hagia Photia, and the Neopalatial remains located during the survey.<sup>13</sup>

All these sites, each one very important, seemed rather isolated, and apparently there was a link missing to integrate them into a meaningful interpretative narrative. It was easy to see Petras as the central place in the area, and the continuation of the research has demonstrated that this hypothesis was valid.

## Hill I

The systematic excavation on Hill I of Petras (1985–2000), revealed part of a large urban Minoan settlement, dated from EM II to LM IIIB, and a small palace, built in MM IIA, which functioned until the end of the Neopalatial period in LM IB (Fig. 3).<sup>14</sup>

In 1985, at the beginning of the excavation, and for a few years afterwards, I believed that Petras was principally a Neopalatial settlement, although the intensive surface survey of 1986 (see below) had also produced MM pottery. The existence of a central building on an artificial plateau, midway up the hill, seemed probable, as the topography was similar to that of Gournia.<sup>15</sup> However, my priority was

to obtain first a good knowledge of the topography and the stratigraphy, and also to get acquainted with the various categories of finds, before I started investigating the large plateau.

### *I. The settlement*

Excavations in Sectors I, II and III, as well as various stratigraphical trenches below the palace, combined with trial trenches excavated prior to the construction of the paths for the visitors, have offered significant evidence about the settlement, which will be summarized below. Unfortunately, because of the fragmentary character of the investigations, the extent of the Prepalatial settlement is not well established. It is certain though, that the area of the future palace was more or less covered by EM houses. Also, remains of this period came to light in Sectors I and III. The Proto- and Neopalatial settlement extended from the top of the hill to the seashore. It is quite probable that the settlement of Petras in the palatial periods occupied a very large part of Hill I, if not the totality, although I will never be able to support this hypothesis. Furthermore, very little is known about the urban layout, unlike at other Minoan towns such as Gournia, Pseira, Palaikastro, Zakros or Mochlos.<sup>16</sup> Maybe a future generation of archaeologists will return to Petras to continue the excavation within the expropriated area, and bring to light more of the settlement.

The only complete plans of houses excavated to date on Hill I are the two large two-story Neopalatial buildings, investigated between 1985 and 1990, on the north-northeast slopes of the hill, Houses I.1, and II.1. The first one was abandoned in LM IA, probably after an earthquake.<sup>17</sup> Stratigraphical

<sup>8</sup> Xanthoudides 1906.

<sup>9</sup> Platon 1952a, 631–6; Davaras 1971; 1972; 1976; 1988.

<sup>10</sup> Platon 1952b, 636–9; 1952c, 646–8; 1953; 1954b; 1955; 1956; 1959; 1960.

<sup>11</sup> Platon 1952c, 643–6.

<sup>12</sup> Davaras & Betancourt 2004.

<sup>13</sup> Tsipopoulou 1989.

<sup>14</sup> Tsipopoulou 1999b.

<sup>15</sup> Soles 2002.

<sup>16</sup> Cunningham 2001.

<sup>17</sup> Tsipopoulou & Papacostopoulou 1997; Tsipopoulou & Dierckx 2006.

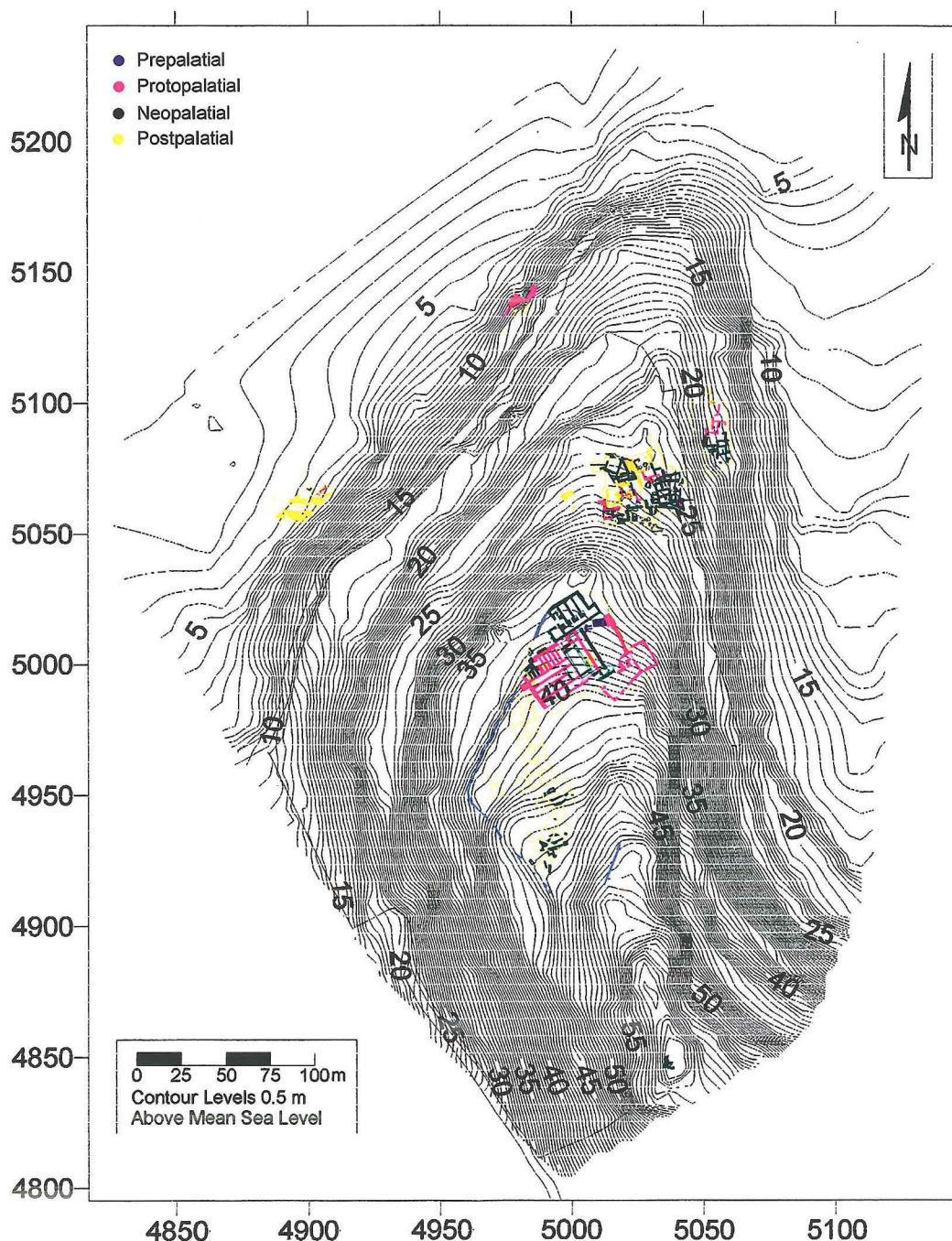


Fig. 3.  
Topographic map  
of Petras, Hill I  
with excavated  
remains.

trenches showed that in the area of House I.1 there was a Protopalatial (MM IIA) building with similar orientation, some parts of which have been integrated in the Neopalatial structure.<sup>18</sup> A few EM II sherds were found lying on the bedrock, but no walls of this period was preserved in the area. House I.1 presents interesting features, such as an installation for wine production with a large stone wine

press, one of the largest preserved, intact Minoan stone vessels, and pithoi.<sup>19</sup> It also offered evidence for stone vase production. A quite unexpected find connected with House I.1 was an infant burial.<sup>20</sup>

<sup>18</sup> Tsipopoulou 1999b; Tsipopoulou & Wedde 2000.

<sup>19</sup> Tsipopoulou & Dierckx 2006.

<sup>20</sup> McGeorge this volume.



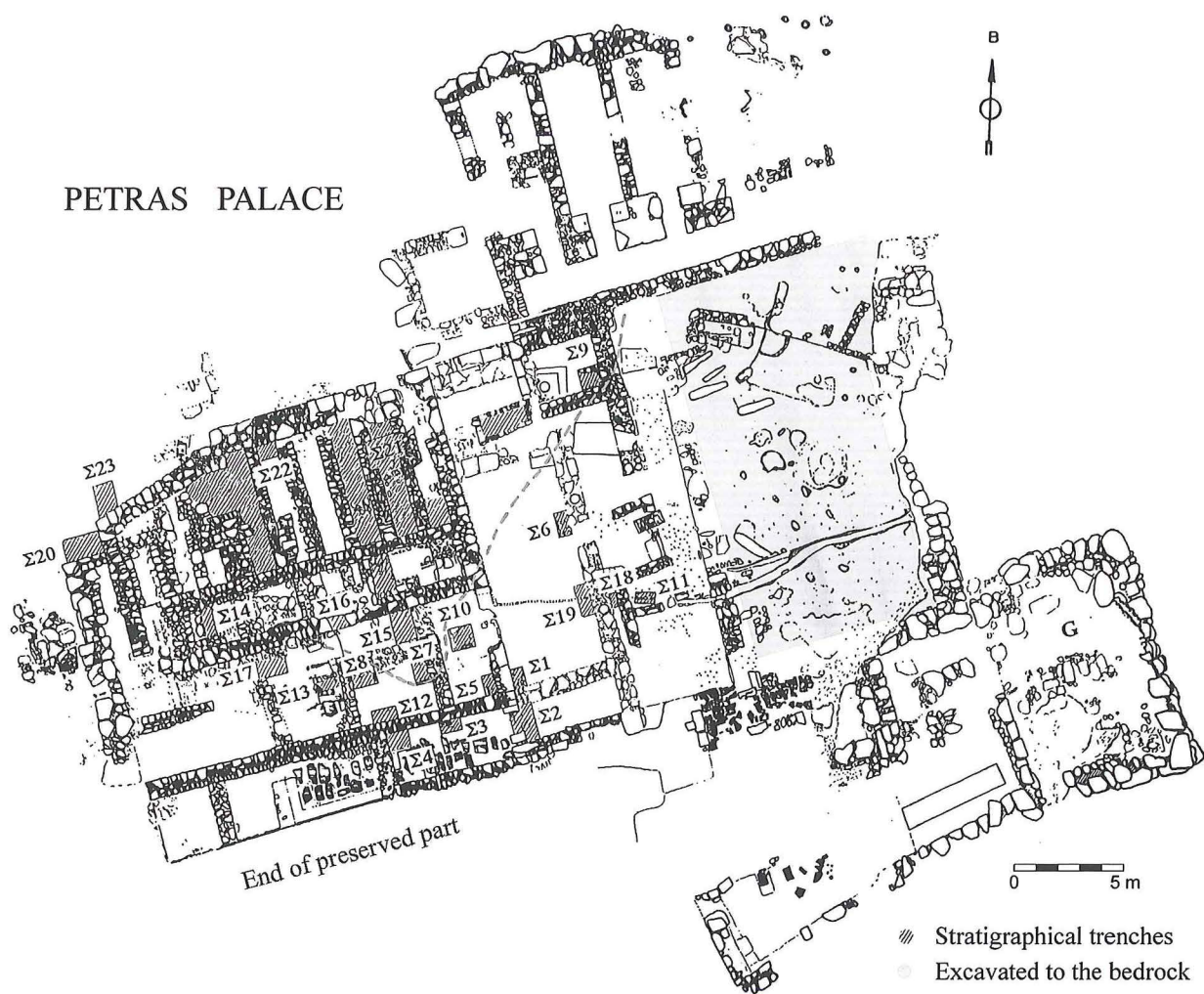


Fig. 4. Plan of the palace of Petras with stratigraphical trenches.

House II.1 was founded in MM III/LM IA and destroyed by fire in the LM IB period.<sup>21</sup> During its last phase of occupation, the ground floor was modified to be used for industrial activities, probably connected with wool dyeing and weaving, as suggested by various rock cut *gournes* which were connected with channels on the previously plastered floors, loom weights, as well as movable mortars.<sup>22</sup>

Between 1994 and 2007, various excavations offered evidence about the extent and the importance of the settlement, albeit rather isolated and fragmentary. From 1994 to 1997 a large program of stratigraphical trenches, measuring 1 x 1 m or 1 m x 0.50 m, was conducted in many areas of the palace, with the goal of discovering the pre-Neopalatial phases of the building itself, and the history of occupation on the plateau in general (Fig. 4). In

addition, the entire northeast section of the plateau was excavated down to the bedrock.<sup>23</sup> In that area Byzantine, LM III, Neopalatial, Protopalatial and EM remains came to light on the same level.

The first organized occupation on the plateau is dated to EM II. Architectural remains, including floor surfaces with complete pots *in situ* were preserved. It was a very fortunate coincidence that a large part of an EM II building, with a floor made of red clay, and a hearth cut into the bedrock, was preserved at the northeast end of the plateau, as

<sup>21</sup> Mavroudi 2004; 2011; Tsipopoulou & Alberti 2011.

<sup>22</sup> Mavroudi 2004; 2011; this volume.

<sup>23</sup> Tsipopoulou 1999b; Tsipopoulou & Wedde 2000.



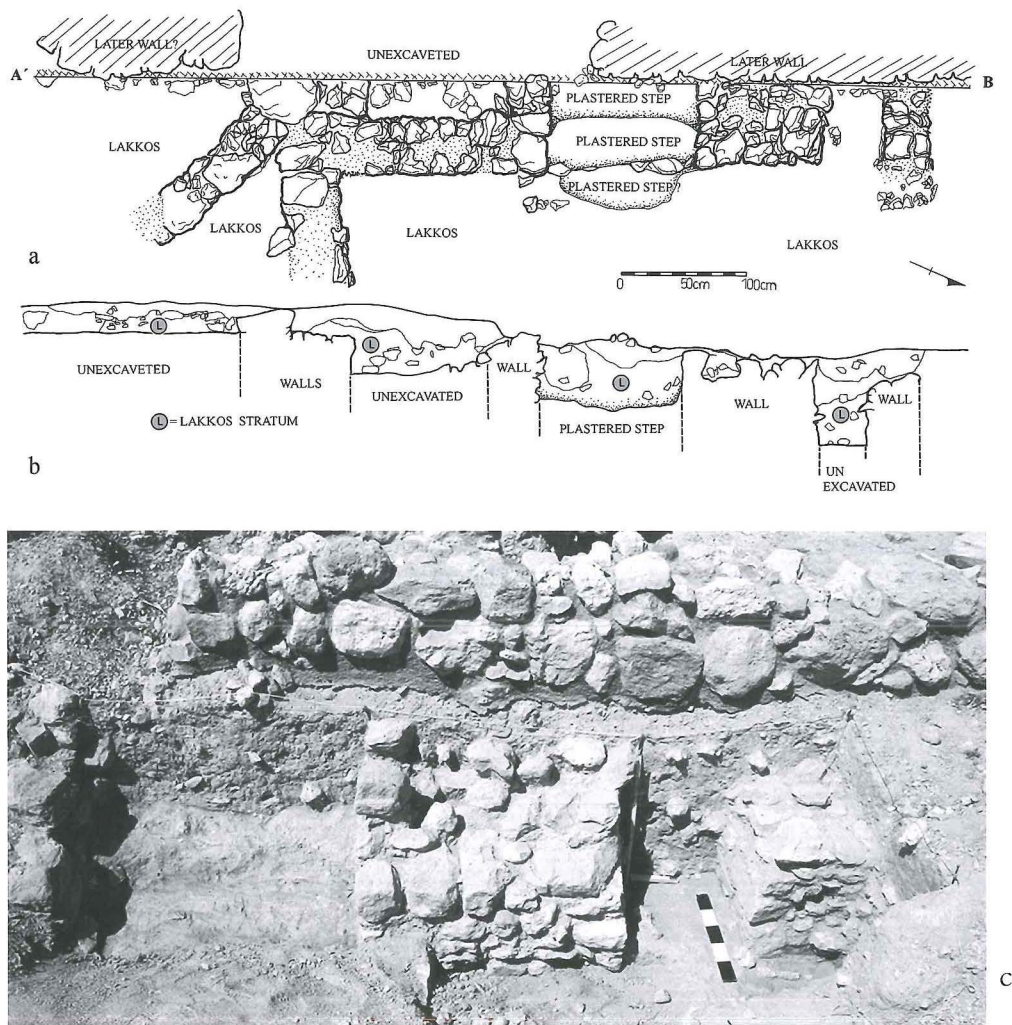
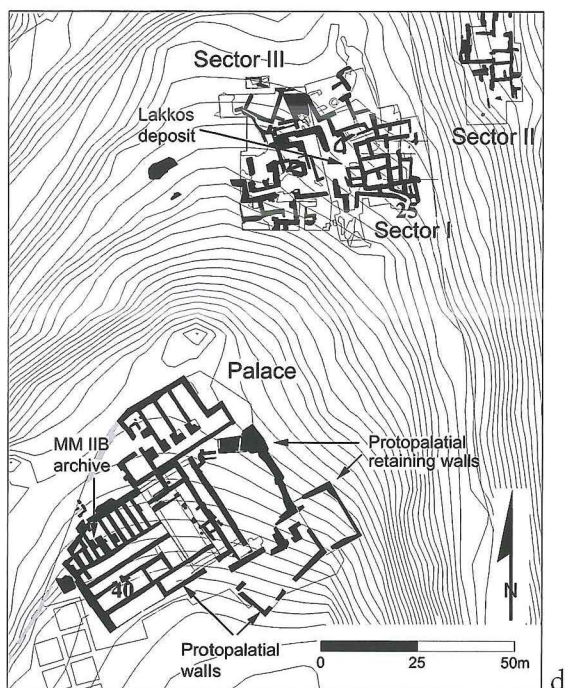


Fig. 5. The Lakkos:  
 a) Plan of the northeastern façade of the EM III structure;  
 b) Section A'-B' through the EM III structure showing the Lakkos stratum;  
 c) View of the western section of the northeastern façade of the EM III structure from the northeast;  
 d) Plan of the palace and the excavated areas of the settlement showing the location of the Lakkos deposit.



well as an industrial installation, consisting of several basin-like cuttings in the bedrock.<sup>24</sup>

From the second phase of occupation, EM III/MM IA, are preserved only a few remains on the plateau, although as it was proven later during the excavations in Sector III of the settlement, as well as in the cemetery, this period represents an increase in the population of Petras. There is a strong possibility, though that the plateau was not as densely inhabited as the slopes of the hill. In MM IB, the latest Prepalatial phase at Petras, the area of the palace was occupied by one or more important buildings, which were subsequently leveled to make space for the central building at the beginning of MM IIA. The MM IB floors produced pottery of high quality.

In 1994–1997 Sector III of the settlement, situated at the northeast slope of the hill, was investi-

<sup>24</sup> Tsipopoulou 2012.





Fig. 6. Trial trenches excavated before the paths for visitors were constructed to the north of Sector III: MM IIA floor with column base and conical vessel *in situ*.

gated. Fragmentary Neopalatial houses, as well as a very interesting stratigraphical sequence from EM II to LM IIIB came to light there. Of particular importance was the excavation of a large refuse pit (or Lakkos) dated to the end of the Prepalatial (for Petras) period (Fig. 5).<sup>25</sup> It occupied a large depression in the bedrock, more than 15 x 4 m, and 2 m in depth, which was filled with very good quality pottery, indicating large scale food and drink consumption or ritualized feasting. The cavity in the bedrock had been partially dug out to accommodate the refuse, thus partially covering the ruins of an EM III/MM IA building. A seal with the depiction of a probable male authority figure, one of the earliest in Crete, was found in this area.<sup>26</sup> The pottery of the Lakkos had MM IIA as a *terminus ante quem*. For many years I believed that the contents of the Lakkos came from elite houses that occupied the plateau of the palace and were destroyed prior to its construction. Test trenches dug prior to the construction of the paths for visitors in 2005, offered evidence for the presence in the immediate vicinity of the Lakkos of important Pre- and early Protopalatial buildings of elite character, unfortunately not well preserved, nor extensively excavated, though they suggest that this material connected with *symposia* could have been related to them. At the north slope of the hill, slightly lower than Sec-

tor III of the settlement, a MM IIA floor, made of beaten earth, and initially part of an important building was excavated. It included three large column bases, *ca.* 50 cm in diameter. On the floor there was an upright large conical vessel (Fig. 6). Unfortunately, the walls of the building were not found in the limited space excavated. This was the first time at Petras that a Protopalatial structure was found free of later buildings. Column bases are very rare, as no such features are preserved in the Protopalatial palace. This data suggests that the structure was of special character. To this one should add some of the finds, clearly of elite, or more precisely, palatial character, although this building is at a distance of 100 m from the palace. The finds in this area include a fragment of a stalactite, very nicely cut, and a sea pebble with incised bull's heads.<sup>27</sup> It could not be excluded that the situation at Petras in the Protopalatial period was similar to that well known at Malia, where important structures were excavated outside of the palace.

Below the level of the column bases, excavation proceeded down to the bedrock. A deep deposit with very good quality MM IB pottery, includ-

<sup>25</sup> Haggis 2007; this volume.

<sup>26</sup> Rupp 2006.

<sup>27</sup> Hallager this volume, Fig. 2.



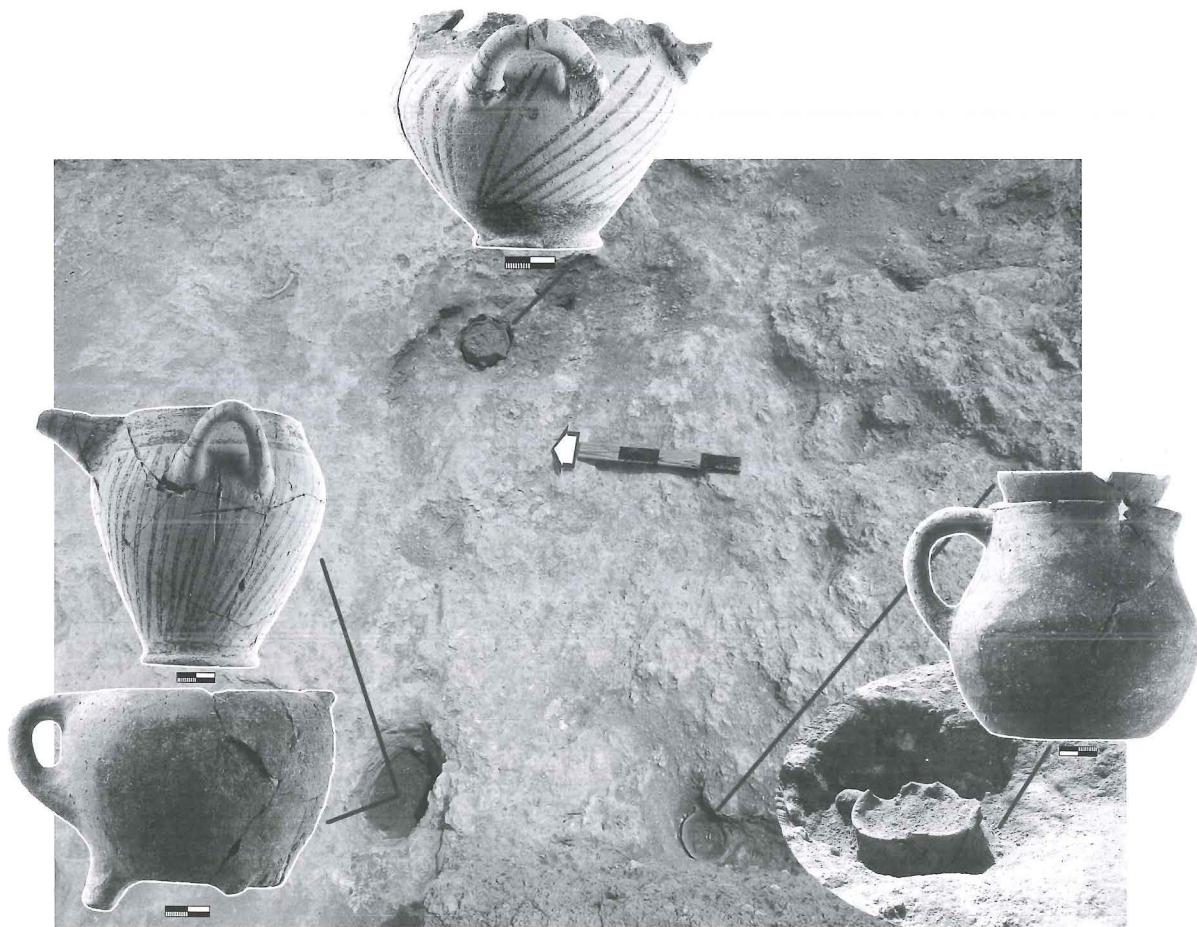


Fig. 7. Trial trenches excavated before the paths for visitors were constructed to the north of Sector III: probable foundation deposits with vases.

ing polychrome vases similar to the pottery of the Lakkos, was preserved in this earlier level. In three small cavities in the bedrock, probable foundation deposits of MM IB date were preserved, including two bridge-spouted jugs, a one-handed cooking pot and a wide-mouthed jug with a conical cup as a lid (Fig. 7). In the neighbouring trenches, in an area close to House I.1, two very interesting LM IA rooms have been excavated. The smaller one contained a large number of conical cups in a deposit with traces of burning, animal bones and painted plaster.

In 2007 three private properties excavated on the west slopes of Hill I offered new evidence about the settlement.<sup>28</sup> The first one was adjacent to the fence of the expropriated site, very close to the entrance gate. Test excavations brought to light fragmentary Neopalatial, Protopalatial and Prepalatial remains. To the Neopalatial period belong three

terrace walls. The earlier remains consisted of two rooms, one of them destroyed by the construction of a large LM IA wall, the second one using the bedrock as its floor. To the east of the latter a floor made of plaster and sea pebbles was partially excavated. The limited space and the scarcity of *in situ* movable finds do not allow for an understanding of the function. A very interesting find was a LM IA seal bearing a female figure (a priestess? or possibly a hunting “goddess”?) holding a rampant horned caprid and a bow.<sup>29</sup>

The second property excavated is adjacent to the road connecting Petras and Piskokephalo. Neopalatial architectural remains (walls and floors) came to light. In the same plot, there were parts of a Roman

<sup>28</sup> For the location of these excavations, see [www.petras-excavations.gr](http://www.petras-excavations.gr).

<sup>29</sup> Rupp & Tsipopoulou this volume.





Fig. 8. Aerial photo by M. Bridges of the palace of Petras.

irrigation pipe and a Byzantine oil or wine cistern. The third property lies also on the lower slope of Hill I and is adjacent to the previous one. There, part of a Neopalatial wall was discovered. An interesting find was a rectangular construction with a plaster floor, probably Byzantine in date, used for the storage of oil or wine and comparable to the cistern in the neighboring property.

As far as the Postpalatial periods are concerned, on Hill I at Petras there were various indications of occupation, albeit again rather fragmentary. First it should be pointed out that no LM II pottery has come to light anywhere at Petras. In the area of the palace there is evidence for the existence of at least two small houses dated to LM IIIA and B, while the central court was an open space between them.<sup>30</sup> At the northeast end of the plateau, there was a refuse pit containing good quality LM IIIA pottery. Poorly preserved architectural remains, dated to LM IIIC, were excavated to the

north of House I.1. They consisted probably of three or four rooms. Two hearths made of stones and clay were part of the same complex. In Sector III isolated fragments of walls and associated pottery dated to LM IIIA, IIIB, and IIIC came to light. Scattered sherds of the various Postpalatial periods were found during the intensive survey on all the slopes of Hill I. The most important feature of the Postpalatial period was the double fortification wall on the lower east slope of the hill (see below).

## II. The palace (Figs. 4, 8)

In 1990 the excavation of the large plateau on top of the hill started. Before any architectural remains were uncovered, the first Linear A inscription came

<sup>30</sup> Tsipopoulou 1997b.



to light just below the surface.<sup>31</sup> In 1992 the central court of the large building was excavated.<sup>32</sup> The Petras palace is equipped with nearly all of the usual architectural features found in the important Minoan structures conventionally labeled “palaces”, although on a smaller scale. Unfortunately, it is not preserved in very good condition, as its south section is completely lost and there is no evidence regarding its original dimensions.

The remains of this large Minoan building were extensively disturbed, and in some cases destroyed, by 33 graves of various types and by a built ossuary dated to the 12<sup>th</sup> century AD (see below).<sup>33</sup> The graves caused great disturbance to the Neopalatial strata, and the ossuary is situated at the north part of the central court, its construction having destroyed all earlier levels down to the EM II. Also a Byzantine burial placed on top of the plaster covering the “monumental” staircase leading to the central court, disturbed the LM IA destruction deposit which contained large amounts of conical cups, fallen from the upper floor.<sup>34</sup> A rock cut tomb even used a part of the big drain of the central court. Further complication in the stratigraphy was created by the fact that funerary meals took place among the tombs, and consequently Byzantine pottery was scattered everywhere. For example, both of our LM IB Linear A tablets were found with pottery predominantly dated to the 12<sup>th</sup> century AD.<sup>35</sup>

The stratigraphical trenches showed that the history of the palace was particularly complex. It became clear that the main core was Protopalatial, and that it continued to function as a palace, with many repairs and alterations, to the end of the Neopalatial in LM IB.

MM IIA was marked by major changes at Petras, the most significant being the construction of the palace. Concurrently the large plateau was surrounded by a massive wall of almost cyclopean construction, equipped with a large tower at its eastern end. The wall, visible from a distance, especially from the sea, separated the palace from the settlement, and had apparently both a defensive and a highly symbolic function, being a statement of the newly established central authority. The construction of this wall is particularly significant for

the investigation of the deep economic and social changes connected with the foundation of the Cretan palaces.

At the end of MM IIB, the palace was destroyed by fire, and one of the destruction deposits contained the hieroglyphic archive.<sup>36</sup> It is particularly noteworthy that it was a rare opportunity in Minoan archaeology to study and to publish the entire excavation context of a hieroglyphic archive, including the pottery, the animal bones, the obsidian and a catalogue of the important and well preserved plaster fragments.

The careful excavation and study enabled us, for the first time in Minoan archaeology, to reconstruct the archive room on the upper floor, where the scribes worked, and to establish that the catastrophe from the earthquake and the subsequent fire occurred in the morning, while people were working in the archive. The scribes ran away from the area, leaving several documents incomplete. The study of the pottery dated the archive to MM IIB and confirmed the presence of two scribes who used two different sets of elite pottery to take their snacks during work hours.

The palace was rebuilt after the disaster with various changes to its plan, the most significant being the addition of the large North Magazines.<sup>37</sup> Unfortunately, no evidence of the Protopalatial magazines is preserved, as the Neopalatial magazines were founded directly on the bedrock, destroying all traces of previous occupation. A staircase connected the magazines to the upper floor, where perishable goods such as textiles might have been stored.

The next big destruction, in LM IA, caused large scale alterations to the structure. The last palatial phase, LM IB, saw important changes to the plan as well as the functions and the circulation patterns of the palace, starting from the central court, the dimensions of which were reduced. Also, many im-

<sup>31</sup> Tsipopoulou & Hallager 1996.

<sup>32</sup> Tsipopoulou 2007c.

<sup>33</sup> Poulou-Papadimitriou this volume.

<sup>34</sup> Rupp & Tsipopoulou 1999.

<sup>35</sup> Tsipopoulou & Hallager 1996.

<sup>36</sup> Tsipopoulou & Hallager 2010.

<sup>37</sup> Tsipopoulou 1999a; 1999b; 2002.



Fig. 9. Protopalatial probable fortification wall on the lower west slope of Hill I.



portant areas with flagstone floors changed use and became storerooms.<sup>38</sup>

The Neopalatial palace as preserved, covers an area of *ca.* 2,400 m<sup>2</sup> and comprises four units: the west wing, the central court, the North Magazines and an open space to the east. In the sizable complex of the North Magazines there were 36 large pithoi which probably contained oil at the time of the LM IB destruction. Two of them bore a Linear A inscription.<sup>39</sup> Also a medallion inscribed on both sides in hieroglyphic script was connected to another pithos, suggesting the use of that script in Neopalatial times at Petras.<sup>40</sup> A 4.5 m wide plastered staircase connected the lower level of the magazines to the central court in LM IA, but it went out of use in LM IB, when another magazine was added in front of it.

At the west part of the palace, in the same area where the hieroglyphic archive was found, fallen from the upper floor, two Linear A tablets came to light, at a level of some 2 m higher than the archive.<sup>41</sup> It is not certain whether there was also a Linear A archive at Petras, due to of the large scale disturbance caused by the Byzantine cemetery. However, the large storage facilities and the Linear A tablets prove the continuity of the administrative function of the palace in the Neopalatial period.<sup>42</sup> A large open space to the southwest of the building is probably identifiable as a garden. Buildings on a higher smaller plateau could have been the industrial areas of the palace.

Furthermore, the architecture, the increase of storage spaces, the nature of the deposits and the movable finds of the LM IB period indicate that the inhabitants suffered a period of insecurity and stress before the final destruction. This fact differentiates Petras from the other settlements of East Crete, where the last phase of the Neopalatial period was a time of prosperity and expansion. In LM IB pithoi were stored even in the central court.<sup>43</sup>

### *III. The Protopalatial fortification wall*

Low on the west slope of the hill, very close to the Minoan coastline, an impressive massive wall, of almost cyclopean construction and equipped with towers, is preserved to a height of *ca.* 3 m. This wall was erected during the extensive urban modifications of the Protopalatial period in Middle Minoan IIA. This wall is unique to Crete, especially for its dimensions, and probably had a defensive function (Fig. 9).<sup>44</sup>

<sup>38</sup> Tsipopoulou 1999a; 1999b; 2002.

<sup>39</sup> Hallager this volume.

<sup>40</sup> Tsipopoulou & Hallager 1996.

<sup>41</sup> Tsipopoulou & Hallager 1996.

<sup>42</sup> Christakis this volume.

<sup>43</sup> Tsipopoulou & Hallager 1996.

<sup>44</sup> The wall was visible at the time of Bosanquet's investigation and was also noted by Evans when he first visited the site in 1897.



#### IV. The LM III fortification walls

In 2002 a private plot was excavated, situated very low on the slope of Hill I, to the west of the fenced main site. This area is only 4–6 m above sea level.<sup>45</sup> Parts of two massive walls came to light, of similar construction, oriented east-west, and roughly parallel to each other. Between them there is a long open space, *ca.* 4 m wide. The width of the walls is 2.2 to 2.60 m; their total length is still unknown. The north wall has been excavated to a length of 19 m and the south to a length of 11 m. The preserved height was 1.85 m, but probably they were higher initially. The exterior faces of the walls are built in a pseudo-isodomic style, mostly with very large ashlar blocks, some of which are clearly Neopalatial in a secondary use, and bear mason's marks similar to those found in the palace. The space between the two faces is filled with medium sized stones, as well as with mudbricks and earth. The manner of the construction of the walls suggests a hasty effort. The most important diagnostic sherd connected with the foundation of the walls was a fragment from a stirrup jar, a product of the Kydonia workshop and LM IIIB in date. Presumably the construction of the walls belongs to the same period. Since the excavation was not completed, many issues remain obscure, such as their exact date, the historical conditions related to their construction and their pronounced Mycenaean features. Also the two walls are directed towards the coastline, and not parallel to it, which again is very puzzling. Nevertheless their defensive function is indisputable.

#### V. The Byzantine cemetery

The Byzantine cemetery of Petras, dated to the 11<sup>th</sup>–13<sup>th</sup> centuries AD, is of great importance for the history of Crete, since there are not many completely excavated Middle Byzantine cemeteries.<sup>46</sup> It included 33 graves of different types: cist which were built using Minoan stones and in many cases Minoan walls, rock cut rectangular graves, and simple pits, usually dug into the LM IB destruction deposit of the palace.<sup>47</sup> All graves contained single burials. Both sexes and various age groups, including small children, were represented. The study of

the skeletal material by Ethne Barnes revealed that the graves were used several times and cleaned of their previous content. Thus the number of dead identified amounted to 99.<sup>48</sup> A very interesting and unusual feature for an orthodox cemetery is the lack of a church. Many burials were accompanied by one clay bowl. In one case a pair of iron belt buckles was deposited with a young female. Often, underneath the skulls there was a large coarse sherd inscribed *ΙΗΣΟΥΣ ΧΡΙΣΤΟΣ ΝΙΚΑ*. Several of these sherds were Minoan.

#### Hill II (Kephala)

Remains of human presence on Kephala Hill (Fig. 10) were first identified in 1986 during surface survey (see below), when sherds of Final Neolithic date and a substantial quantity of obsidian were collected. Remains of LM III occupation were also located and a LM IIIA seal was collected.<sup>49</sup>

I had no intention to continue excavating Petras in the 21<sup>st</sup> century, as with an international team of experts we are studying the various classes of materials for final publication. The fact that several areas with surface remains, especially on Kephala Hill, were not included in the registered (legally protected) sites in 2000, forced me to continue the excavations in non-expropriated plots, as the only way to protect them.

Excavation has revealed a unique (for Crete) FN IV and EM I settlement, in stratigraphical sequence,<sup>50</sup> as well as a cemetery, which included house tombs and a rock shelter and was in use from an advanced stage of EM I (slightly later than the neighboring EM I settlement) until the end of the Prepalatial period for Petras (MM IB–beginning of MM IIA), while some of the house tombs contained Protopalatial burials.<sup>51</sup>

<sup>45</sup> Tsipopoulou 2005b.

<sup>46</sup> Poulou-Papadimitriou this volume.

<sup>47</sup> Tsipopoulou 2007c, figs. 6.11–6.13.

<sup>48</sup> E. Barnes, unpublished manuscript.

<sup>49</sup> Tsipopoulou 1997b.

<sup>50</sup> Papadatos this volume with further bibliography.

<sup>51</sup> Betancourt this volume; Tsipopoulou 2011b; this volume, 117–31; in press a.

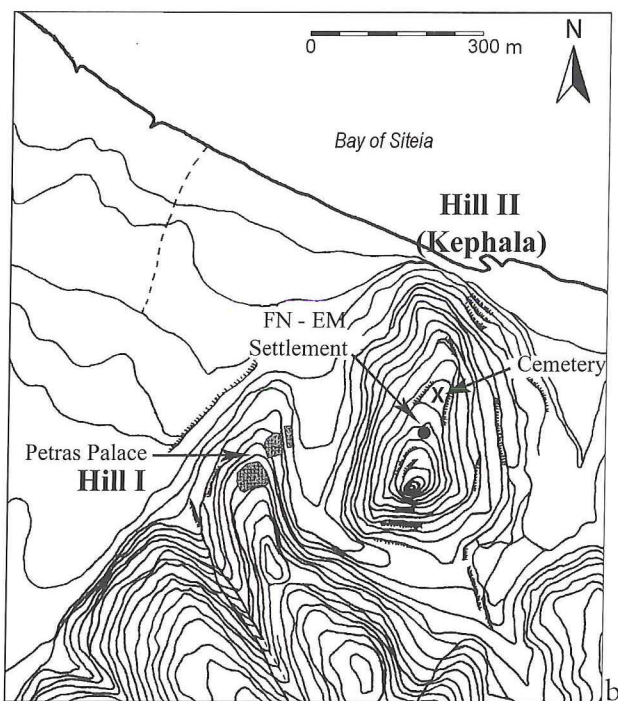
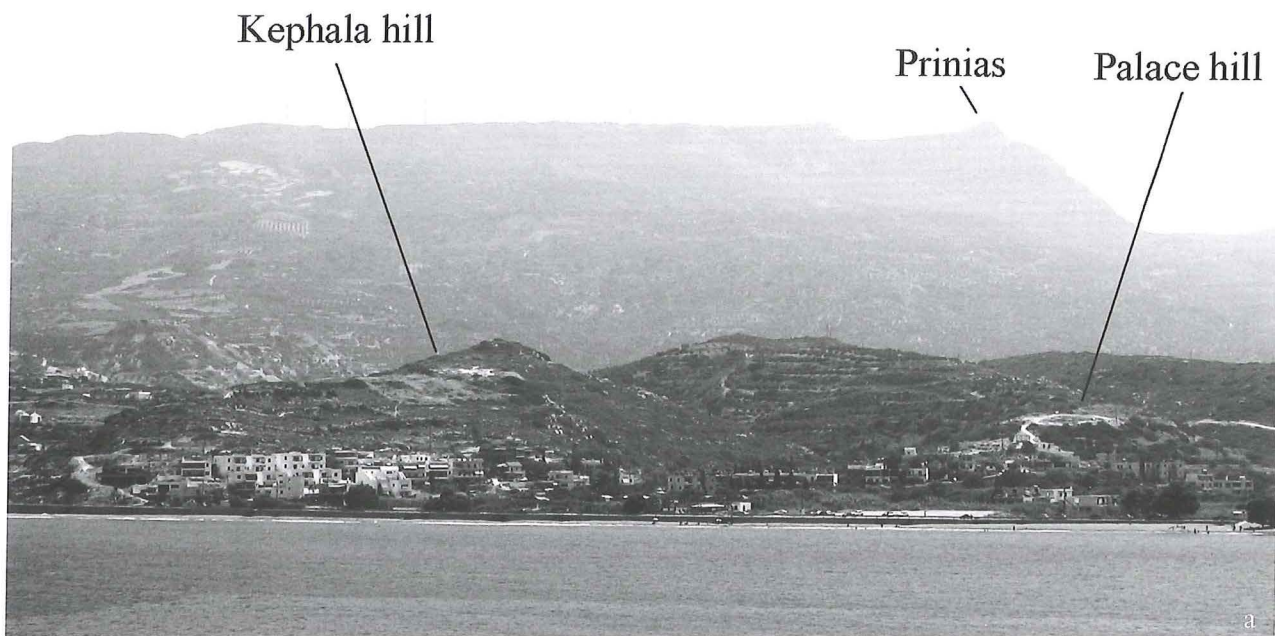


Fig. 10. a) Petras, Hill I, Hill II (Kephala) and the peak sanctuary at Prinias; b) Topographic map of Hills I and II.

### I. FN-EM I settlement

In 2002 and 2003 a private plot on the north slope of Kephala Hill was excavated. The area lies 65 m above sea level and has visual control of the gulf of

Siteia to the north and the valley to the southwest. The EM I remains belong to a large complex with at least 11 rooms occupying some 300 m<sup>2</sup> (Fig. 11).<sup>52</sup> The architectural remains, the pottery (both fine and coarse wares) and the large number of bedrock mortars suggest a domestic installation. Architectural remains of this period are extremely rare in Crete. Very significant is the spatial relationship of the EM I installation at Kephala with the well-known Hagia Photia cemetery, which is only 2 km distant from it.<sup>53</sup> The architecture is well preserved. The finds included a large amount of good quality pottery, many tools, ground stone and obsidian, pumice, shells, animal bones, amulets and beads made of stone and bone. The Final Neolithic phase includes a series of curvilinear and rectilinear walls belonging to three buildings, founded directly on the bedrock, and a large cavity in the bedrock, probably a storage pit, lined with vertical schist slabs. The pottery from this period shows close relationships with the East Aegean. Other finds include beads and ground stone tools. Of major importance is the evidence of metallurgical activity at Kephala,<sup>54</sup> which was found below the floors of the EM I buildings.

<sup>52</sup> Papadatos this volume.

<sup>53</sup> Davaras & Betancourt 2004.

<sup>54</sup> Catapotis *et al.* 2011.





Fig. 11. Aerial photo of FN-EM I settlement on Kephala Hill.

The Kephala settlement constitutes the first human presence in EM I at Petras. Kephala Hill is higher, less easily accessible, and hence more protected, than the lower Hill I, where the Minoan settlement and the palace lie. It is obvious that it has been used for habitation in not very secure times. This applies not only to the earliest period of the Minoan era, but also to the latest, namely LM IIIC, when a settlement was established there after the abandonment of the main site in LM IIIB (see below).

## II. Prepalatial-early Protopalatial cemetery (Figs. 12, 13)

The unlooted cemetery on Kephala (excavated from 2004 to present) lies on a large plateau, a few meters lower than the FN IV-EM I settlement. It consists of house tombs and it is dated to the Prepalatial and Protopalatial periods.<sup>55</sup> Until now 11 large house tombs have been completely or partially excavated, and it is certain that more exist. The excavation of 2010 showed that the visible buildings with finds date to the end of the Prepalatial period and that a few Protopalatial burials were

built upon the remains of earlier ones which are probably dated to EM IIB. The size of the house tombs is usually over 60 m<sup>2</sup>, and they have at least six rooms, in many cases as many as nine or ten. The house tombs belonged to elite groups of society,<sup>56</sup> and, as the study of the bones showed, these groups are identifiable as nuclear families.<sup>57</sup> Both sexes and all ages are represented.

The cemetery is also important because it shows the transition from the Pre- to the Protopalatial period. In House Tomb 2, probably the latest to be constructed, there were burial vessels, namely two larnakes and a pithos. The tombs contained a large number of prestige artifacts, such as stone vases (some clearly imported) and also an abundance of metal objects made of gold and bronze, both jewelry (bands, amulets) and items of personal beautification, such as tweezers.<sup>58</sup> The seals, especially those from House Tomb 2 are remarkable, some of them have hieroglyphic inscriptions, probably an

<sup>55</sup> Tsipopoulou 2011b.

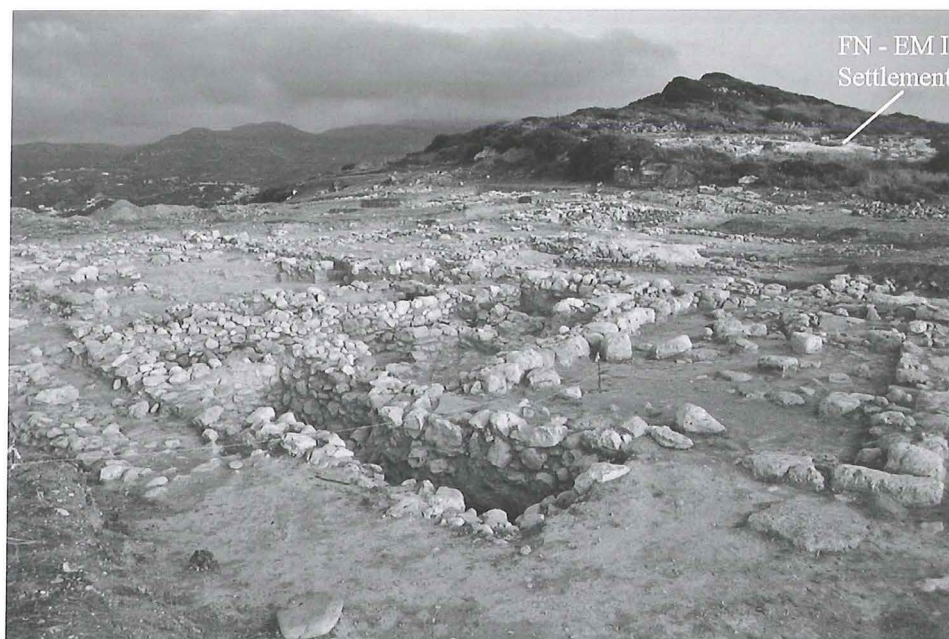
<sup>56</sup> Tsipopoulou this volume, 117–31, with further bibliography.

<sup>57</sup> Triantaphyllou in press; Triantaphyllou *et al.* forthcoming.

<sup>58</sup> Ferrence *et al.* this volume.



Fig. 12. Prepalatial-early Protopalatial cemetery. View from the north. End of 2010 excavation campaign.



indicator of palatial administration.<sup>59</sup> The skeletal material from the house tombs is preserved in a very large quantity and is also in good condition.

House Tomb 1 was also a very important structure. Although its excavation is not yet completed, it is certain that it was earlier than House Tomb 2. Interestingly enough, despite the fact that it contained various prestige artifacts, such as gold jewelry and stone vases, along with its impressive architecture and large size, it did not produce any seals.

In 2006 a rock shelter was excavated on the west slope of the hill, a few meters lower than the plateau of the house tombs, which was used for secondary burials. It is probable that the deposition took place on a single occasion following the cleaning of a particular house tomb, as shown by the inverted stratigraphy.<sup>60</sup> Of great interest is the chronology of the Rock Shelter, which dates from EM I to MM IB–IIA. It must be stressed that the earlier periods were not found *in situ* in the house tombs.

The skeletal material has already been studied by Sevasti Triantaphyllou, with interesting results.<sup>61</sup> Most pottery types of the Prepalatial, and to a lesser degree the early Protopalatial, periods are represented in the ceramic material. Of great importance is the presence of pottery of the so-called Kampos group, similar to that of the neighboring

cemetery of Hagia Photia.<sup>62</sup> More finds from the Rock Shelter include silver and gold jewelry and EM III seals made of bone.

The Cycladic pottery and the silver jewels from the Rock Shelter are not the only evidence for a relationship between the Cyclades and EM Petras. In the disturbed surface levels of the cemetery, fragments from four marble Cycladic figurines came to light. One of them belonged to a figurine at least 0.58 m in height. Another one has lips in relief.

The cemetery of Petras was the diachronic centre of coherence for the community, not only during its period of use for burials, as the ceremonial areas connected with House Tomb 2 (and probably with other tombs as well), and the associated votive deposits (along with the rooms which were used for the storage of ceremonial vases) indicate, but also in later periods of time.<sup>63</sup>

### III. LM III settlement (Fig. 13)

In the same areas where the FN IV and EM settle-

<sup>59</sup> Krzyszkowska this volume.

<sup>60</sup> Tsipopoulou 2010b.

<sup>61</sup> Triantaphyllou 2010b.

<sup>62</sup> Nodarou this volume; Tsipopoulou 2012.

<sup>63</sup> Tsipopoulou this volume, 117–31.



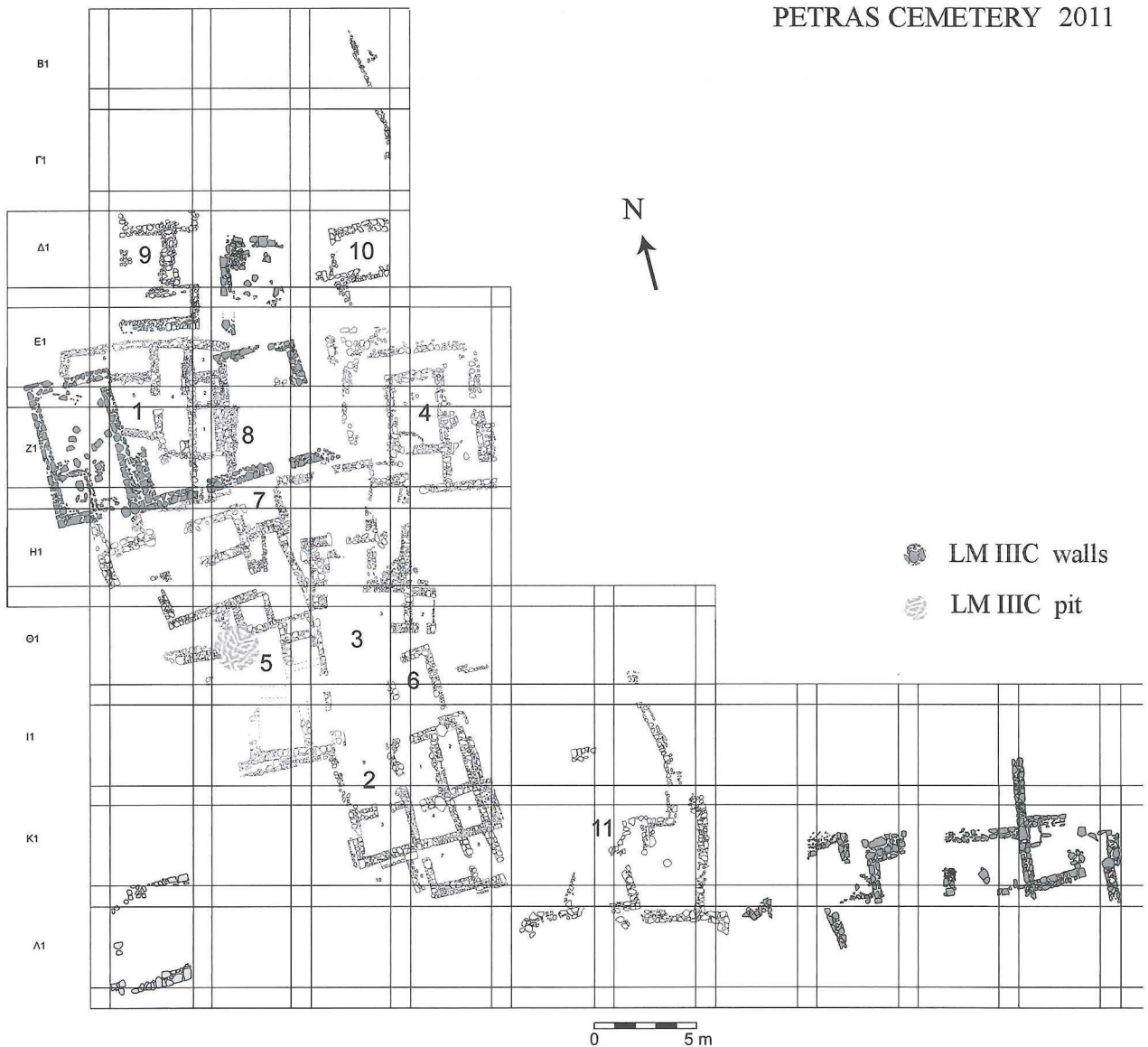


Fig. 13. Plan of the Prepalatial-early Protopalatial cemetery (2011).

ment and cemetery were discovered, a LM IIIC settlement was located and partially excavated.<sup>64</sup> The architectural remains are not well preserved and consist of rectangular or slightly irregular rooms. It is interesting that the inhabitants of that period avoided the cemetery, except for the north section, where a megaroid building was constructed together with an accompanying peribolos, probably a building of special function, possibly to honor their ancestors.

LM IIIC pottery came to light almost everywhere in the excavated area at Kephala. The character of the pottery and the rest of the movable

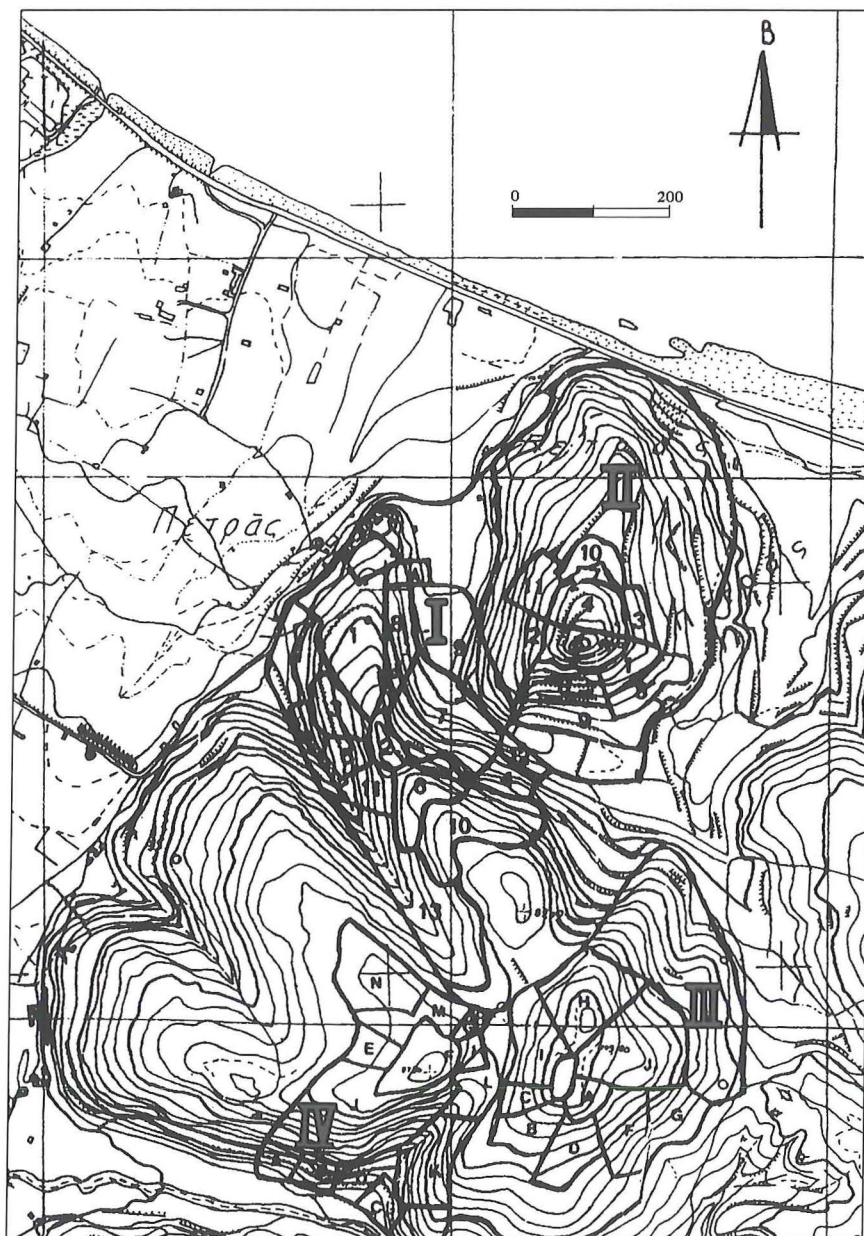
finds (stone and bronze tools, clay loom weights of Mycenaean type and obsidian blades) suggest an occupation of domestic character. It is estimated that the settlement covered *ca.* 5,000 m<sup>2</sup>.<sup>65</sup> The topographic and chronological situation is similar to that of Palaikastro-Kastri,<sup>66</sup> and it seems that after the destruction by fire of houses from the LM IIIB settlement on Hill I, the inhabitants moved to a more elevated and more naturally protected place.

<sup>64</sup> Tsipopoulou this volume, 117–31.

<sup>65</sup> Tsipopoulou 2011b.

<sup>66</sup> Sackett & Popham 1965.

Fig. 14. Topographic plan of the 1986 survey.



## The surface surveys (Fig. 14)

An intensive surface survey of the four hills that constitute the area of Petras was integrated from the beginning into the research strategy. The survey took place in 1986 and the sites were revisited in 1990. The Petras survey aimed at a better understanding of the surroundings of the urban settlement and also the movement of habitation places over various prehistoric and historic periods. Furthermore, the Petras survey was a continuation of the Hagia Photia intensive survey (1985), which had produced evidence for isolated farmhouses dated to the Neopala-

tial period. The site where the palace and the urban settlement are situated was named Hill I. Very interesting remains were located on Hill II, to the east of it, also known as Kephala. On the northeast and southeast slopes of Kephala, Final Neolithic remains were identified, consisting of sherds and a very large quantity of obsidian. Also, almost on top of the hill, many LM III (A-C) remains were located. From this area came a LM IIIA seal.

These Postpalatial surface remains were probably related to a cemetery, plundered on various occasions during the first half of the 20<sup>th</sup> century, which was originally situated on Hill III of the survey, also



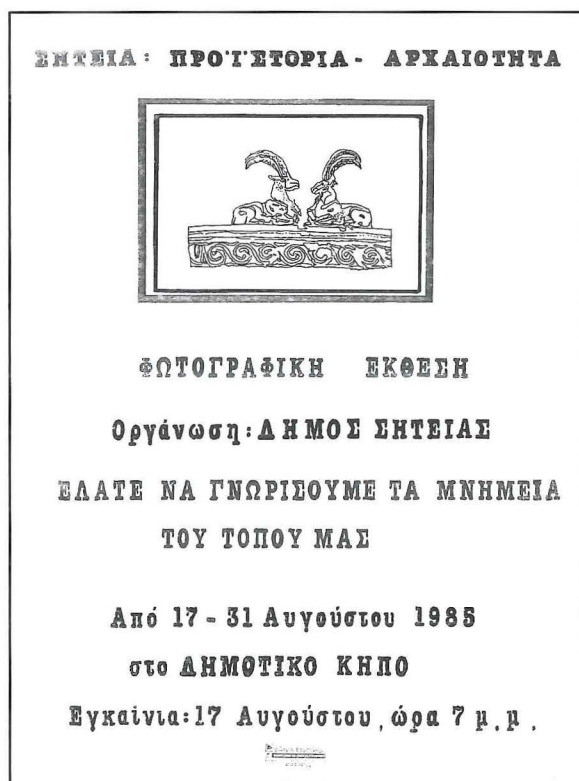


Fig. 15. The 1985 photographic exhibition: a) Poster; b) Nikos Petrakis, Mayor of Siteia and Metaxia Tsipopoulou at the opening.

known as Papoura. From these plundered tombs, various larnakes are preserved in the Museums of Hagios Nikolaos and Siteia and, unfortunately, also in private collections and museums abroad.<sup>67</sup>

In 1987–1990 various locations in the Siteia Bay, as well as the areas around the so-called “villas” in the hinterland were also surveyed. New sites were discovered at the Siteia airport, Analoukas and Cape Stavros close to the Toplou Monastery.<sup>68</sup> As for the “villas”, it was established that only Klimataria which is very close to Petras, and is in fact, an annex of the main settlement, was isolated, while there is enough evidence for the existence of a separate settlement connected with Hagios Georgios, Achladia-Riza and Zou respectively.<sup>69</sup>

## The presentation of Petras to the public

The Petras project from its outset was designed to include public outreach and educational programs, in collaboration with Universities and the Siteia Municipality. Thus, a photographic exhibition was

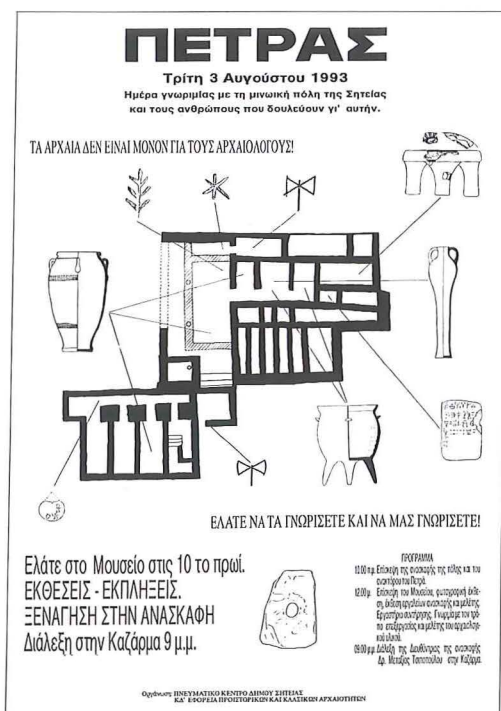
organized in 1985 (Fig. 15) and an Open Day for visitors at the Museum and the site, accompanied by public lectures, exhibitions in the Siteia Museum and guided tours in 1993 (Fig. 16).<sup>70</sup> Since the early 1990's at least, I was planning to make Petras accessible to the public, following the expropriation of 40,000 m<sup>2</sup> of land in the late 1980's and the fencing of the site in the early 1990's. In 2002 with Clio Zervaki, the conservator of the Petras project and museologist, we crafted the project, which was presented at the 2<sup>nd</sup> Museology Conference organized by the University of the Aegean in 2004. In collaboration with the Municipality of Siteia, the necessary funding was secured (program Leader Plus of the E.U.), and the project was realized in 2005–2006. Since September 2006 the site is open to the public (Fig. 17). The project aimed, along with the development for tourism an area lacking

<sup>67</sup> Tsipopoulou & Vagnetti 1997.

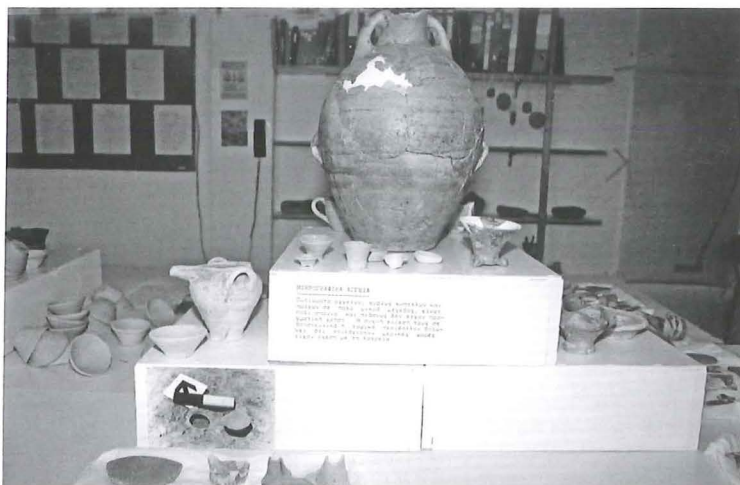
<sup>68</sup> Tsipopoulou 1991a.

<sup>69</sup> Tsipopoulou & Papacostopoulou 1997.

<sup>70</sup> For more details, see [www.petras-excavations.gr](http://www.petras-excavations.gr) under “Public outreach”.



a



b



c



d



e

Fig. 16. 1993 Open Day at the site and the Siteia Museum: a) Poster; b) Exhibition of pottery from Petras in the conservation lab of the Siteia Museum; c) Vassilis Tsiropoulos, aged five, in charge of the Educational Program; d) Loom weights and documentation of the Petras excavation in the conservation lab of the Siteia Museum; e) Metaxia Tsiropoulou guiding a group at the site.



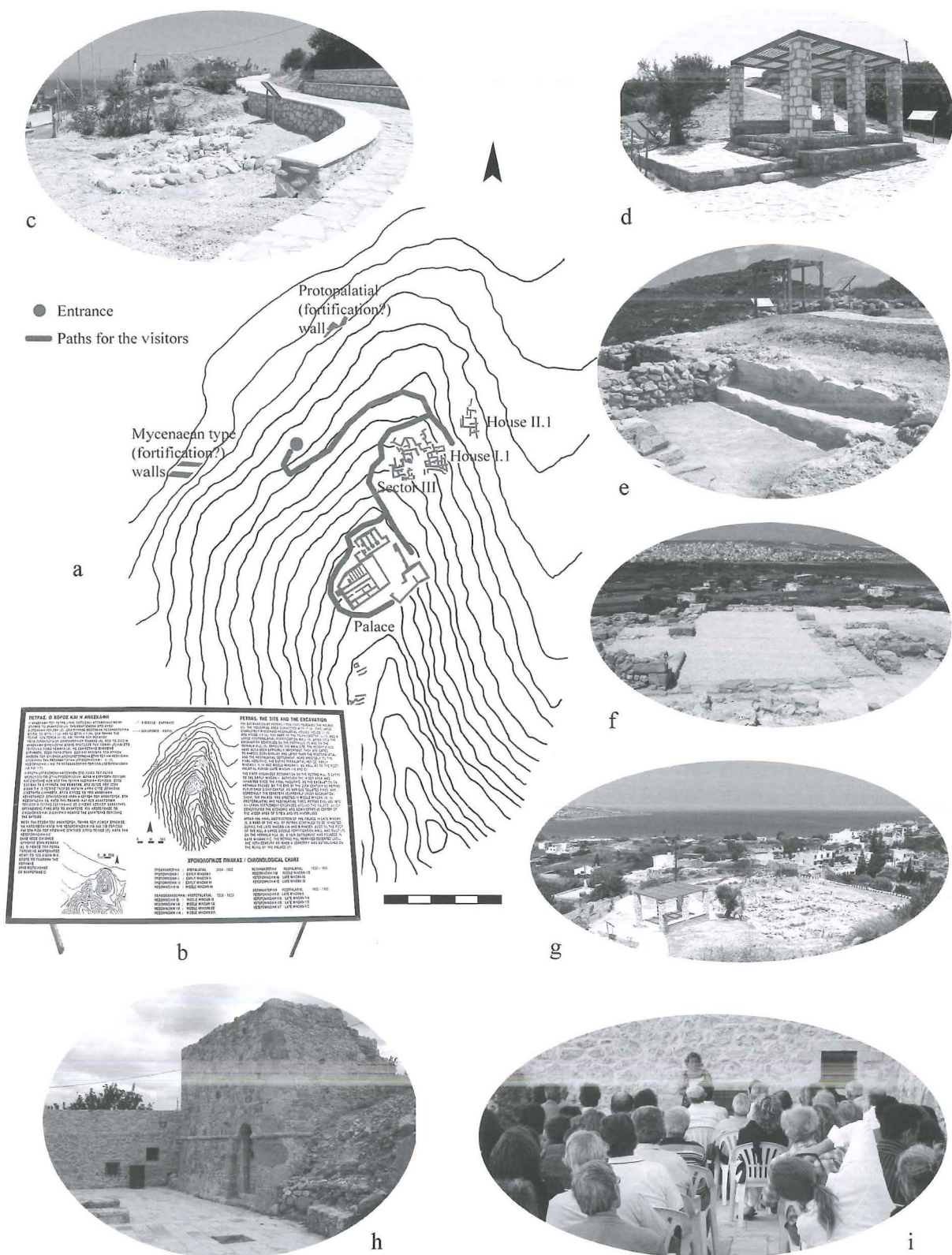


Fig. 17. a) Topographic map of the site with the paths for the visitors; b) Sign; c) Neopalatial remains near the gate from the west; d) Shaded station to the south of Sector III; e) Palace, the Protopalatial area with the plaster bench from the west; f) The central court of the palace from the south; g) View of Sectors III and I from the south; h) The restored Venetian tower at the entrance to the site from the southwest; i) The opening of the site, 6th September 2006.



Με πολλές ευχαριστίες σε όλους!!



Fig. 18. Poster by Garifalia Kostopoulou.



significant monuments, to attract visitors and also to promote the awareness of the local population. Also, it offered us the chance to excavate all the paths for the visitors to the bedrock, an operation which produced a significant amount of new data. As part of the same program in 2010 the Petras website was created.<sup>71</sup>

After 25+ years of excavations and studies at Petras, more and more questions are emerging (Fig. 18). Every new excavation and every new study shed new light and challenge previous hypotheses.

Petras is, fortunately, to be understood within a framework of intensive field activity, remarkable finds and important studies at other sites in eastern Crete, all complementary to each other. Central to this significant progress is the INSTAP Study Center for East Crete, without which much less would be achieved by all these projects.

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<sup>71</sup> Toghias this volume.

# Discussion

**MacGillivray** It is rather early to start congratulating, we will say that tomorrow evening, but I have a question about MM III.

**Tsipopoulou** That is a good question!

**MacGillivray** A difficult question?

**Tsipopoulou** No, it is not so difficult. The stratigraphical trenches in the palace did not offer any evidence about the date of the construction of the palace. The only thing we know is that the building integrated Protopalatial walls, dated to MM II, and that the building suffered a destruction in LM IA. So, sometime between MM IIB and LM IA the palace was built. This is what is known about the plateau. There is no other evidence. The only indication of a more or less clear layer of MM III date is in Sector III. Colin Macdonald had asked me to present that deposit at the MM III Symposium he organized, but I was too busy at the Ministry. There is a room, a basement space, cut in the bedrock, which contained a secondary deposit, a MM III fill, unfortunately not *in situ*. This deposit included a very interesting Linear A tablet that Erik Hallager will present in his paper later today. So, we have not found clear MM III, but I need to point out that Petras has not been excavated extensively as only a small part of the settlement has been unearthed. The settlement is very large. What we have revealed does not look like Gournia, Palaikastro or Zakros. As we have excavated a very small part, we do not know the exact situation. It is the same with House I.1, which was abandoned in LM IA; it contained Protopalatial walls, but we do not know the exact date of its foundation. It has two Neopalatial architectural phases, the latest one being LM IA. It has integrated Protopalatial walls of an earlier building, but we have not found MM III pottery. This is all I can tell you.

**Platon** First of all I would like to congratulate Dr Tsipopoulou, I believe this is the right chance, before we proceed to the papers dealing with particular subjects, to congratulate her on the amazing achievements at Petras in the last years, that offer us so much evidence and so many important finds. I have a question, again on chronology, and I believe this is related directly to the general history of the site. We have seen in LM IB that the modifications to the plan of the palace have reduced it, and have actually diminished it, having blocked the main access to it, and having created a picture of inferior occupation. I just wonder whether this picture represents a long or a short period of time. This is an important question, I believe, because if LM IB, as those who accept the absolute chronology suggest, lasts *ca.* 150 years, then the picture is, how to put it, like having squatters for a very long period of time.



**Tsipopoulou** It is obvious that we lack the necessary evidence, my feeling is, as important as my feeling can be, that the LM IB period was rather short, although I cannot prove that beyond any doubt.



# Back to the beginnings: the earliest habitation at Petras on the basis of the evidence from the FN–EM I settlement on Kephala\*

Yiannis Papadatos

## Abstract

The settlement on Kephala Hill, to the east of the Minoan town and the palace of Petras, is dated to the FN IV–EM IA period, providing the earliest evidence so far for habitation in the Siteia area. The excavation revealed only part of the settlement but provided enough new evidence to generate new archaeological questions and raise issues for further research. This presentation reviews the new evidence and focuses on issues raised from the study of the archaeological material, such as the organization and dating of the settlement, the relations with nearby sites, as well as the contacts with areas beyond Crete.

## Introduction

The aim of this paper is to provide an updated review of the material evidence that derived from the excavation of the settlement on Kephala Hill. The settlement was unearthed between 2002 and 2004 in the course of three successive excavation seasons, carried out by the 24th Ephorate of Prehistoric and Classical Antiquities in the area of Petras. Presentations and publications on specific issues have been made over the past few years, but this volume celebrating 25 years of Petras excavations provides an excellent occasion for a more general synthesis of the archaeological evidence, with particular focus on issues in which Kephala Petras provided new contributions.

The site is situated on the north slopes of Kephala Hill, 1,300 m northeast of the lower hill where the Minoan town and the palace of Petras are situated.<sup>2</sup> The location, although not naturally defensible, is not as easily accessible as the palace hill and has better visual control over the plain, the sea and the hinterland. The above factors were probably the primary criteria for establishing the first important settlement in the area, just before the end of the Neolithic. The excavation covered only an area of 360 m<sup>2</sup> but the quantity and distribution of the surface pottery indicate a significantly larger settle-

ment extending also to the southern slopes of the hill.<sup>3</sup>

## Architecture and organization of space

The architectural remains belong to three major phases of occupation (Fig. 1a).<sup>4</sup> The earliest are dated to the last phase of the Neolithic, FN IV, and consist of two rooms belonging to a partially preserved building. The next phase dates to the EM IA period and the architecture comprises a few partially preserved rectilinear and curvilinear walls belonging to two or three free-standing structures. On top of these, within the course of EM IA, a building complex of at least eight rooms was erected. There are no indications of violent destruction

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\* I would like to thank Dr Metaxia Tsipopoulou for entrusting me with the material from the excavation at Kephala Petras and for providing constant support through all the stages of my work at Petras.

<sup>1</sup> Papadatos 2008.

<sup>2</sup> Tsipopoulou 2002; Tsipopoulou this volume, Introduction, Fig. 10.

<sup>3</sup> Tsipopoulou 1990a, 321; Nowicki 2002, 28.

<sup>4</sup> Papadatos 2008.



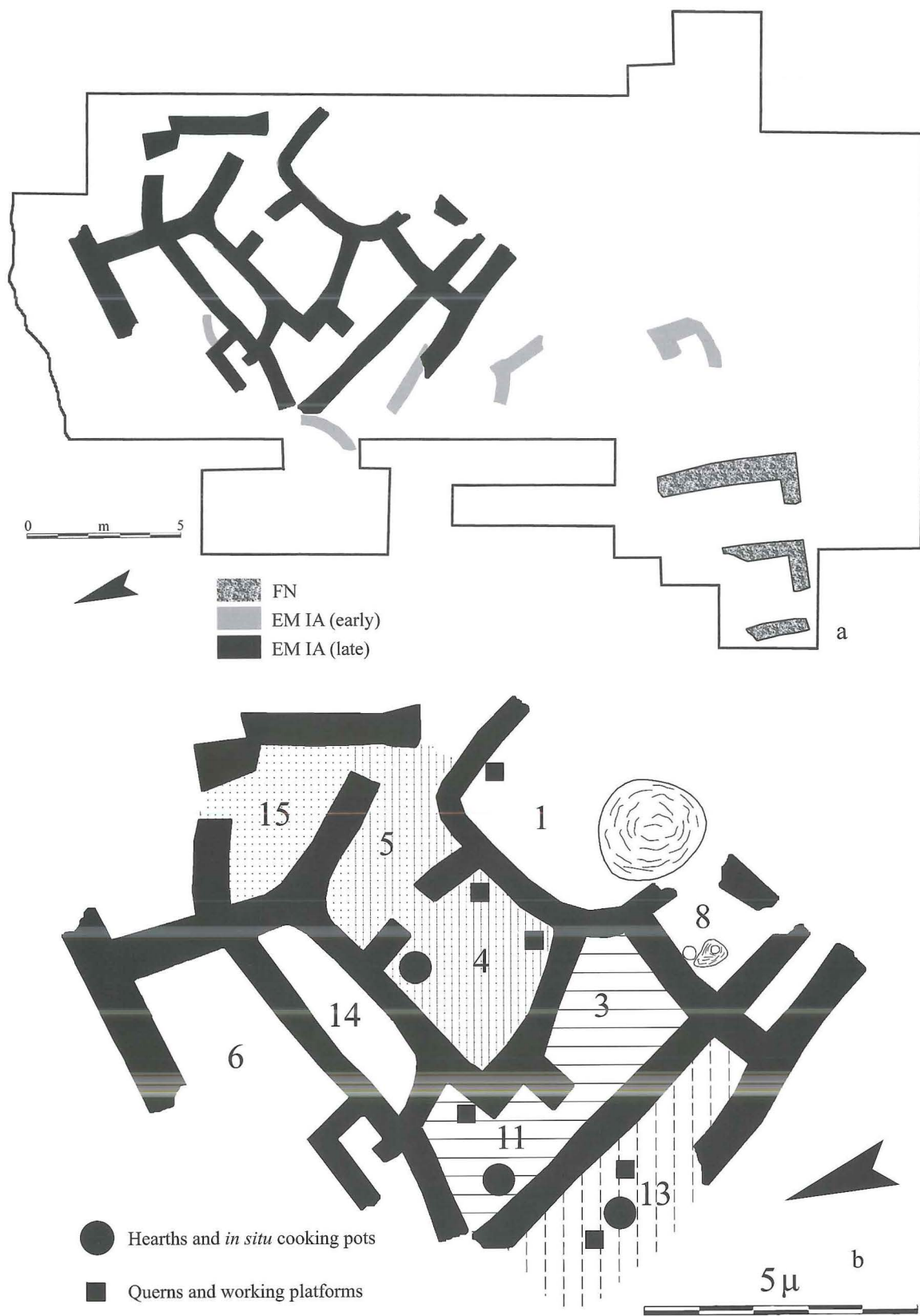


Fig. 1. a) Plan of the excavated area; b) Suggested domestic units.

in any of these phases or at the end of the occupation of the site. It seems that the settlement was abandoned peacefully and the population established a new settlement on top of the nearby lower hill, where the palatial building would be erected several centuries later.<sup>5</sup>

Since the abandonment of the Kephala settlement in EM IA was not caused by any sudden and/or violent event we do not have the “fossil” image of the activities taking place during the last days of occupation. However, in many cases the domestic equipment was preserved *in situ* where it was last used. The most characteristic examples comprise cooking pots with round bases fitted into shallow pits dug in the bedrock, grinders found on top of querns, and a fixed clay hearth with burnt animal bones, stone tools and clay pots found around it. All these indicate that the inhabitants left behind a great part of their household equipment, providing useful insights on the domestic activities, the organization and the use of space during the last phase of occupation. Moreover, the available evidence from EM IA Kephala acquires special importance considering the limited number of excavated Prepalatial settlements and the fact that any discussion on these issues starts with the settlement at Myrtos Phournou Koriphi, which dates several centuries later.

Although smaller, the EM IA building at Kephala is comparable in plan with the complicated, agglomerative, multi-roomed building complex at Myrtos. This architectural planning raises questions concerning not only the spatial, but also the social organization of the inhabiting communities. However, even for the excellently preserved settlement at Myrtos there is no consensus, with some scholars following the excavator’s interpretation that the settlement was organized at a community level,<sup>6</sup> whereas others support the view of social organization at the household level, which corresponded to small nuclear families.<sup>7</sup>

On the basis of the available evidence three separate domestic units can be identified within the Kephala building complex, possibly corresponding to three different households (Fig. 1b).<sup>8</sup> This suggestion takes into account door openings and the presence of installations for food preparation, which can be found only in three rooms, one in

each unit. One room (13) was equipped with an *in situ* circular clay hearth with flat base and low rim of square section. Traces of fire at the centre of the hearth, burnt bones, clay vases and stone tools found around it clearly show that the area was used for food preparation. In two other rooms (4 and 11) cooking jars with curved bases were found *in situ* inside circular hollows cut in the soft bedrock. The lack of traces of fire indicate that cooking was taking place in other, probably open, areas and the cooking pots were brought into the rooms for food consumption afterwards. The use of these three rooms for food preparation and consumption is reinforced by the fact that all were equipped with paved working platforms, querns and grinding stones. If this is valid, it seems that each domestic unit comprised two rooms, one for food preparation and consumption, and one room for other, non-specified functions.

On the other hand, two spaces are not connected to any of these three units, but serve specialized functions. The first space (6) produced 30% of the stone tools of the settlement, mostly pounders, grinders and rubbers, most of which bear use marks, according to the study carried out by Dr D. Evely.<sup>9</sup> Moreover, this space opens to an outdoor area with hollows cut in the bedrock, which were probably used as mortars for various grinding activities. It could, therefore, be a communal space dedicated to specific grinding activities or at least for the storage of the stone tools used in the adjacent open area of the settlement. The second space (joined 1 and 8) produced a large quantity of pithoid jar fragments,<sup>10</sup> probably originally placed next to a large cistern cut in the bedrock and lined with slabs. Both the space and the cistern did not produce any significant quantities of archaeobotanical remains, suggesting the storage of liquids rather than staple food. The above evidence may suggest that this space was

<sup>5</sup> Tsipopoulou & Wedde 2000.

<sup>6</sup> Warren 1972; Tenwolde 1992.

<sup>7</sup> Whitelaw 1983.

<sup>8</sup> Papadatos 2011.

<sup>9</sup> Evely, internal report.

<sup>10</sup> Papadatos 2008, fig. 15.6.d; for the shape, see Betancourt 2010, figs. 1.4 and 1.5.



also a communal area used for the storage of large quantities of liquids, perhaps water, in order to serve the needs of the entire community.

The analysis of pottery distribution within the households indicates that each space contained similar amounts of vessels intended for serving and food consumption as well as for small-scale storage.<sup>11</sup> Equally distributed are all the other classes of material, namely the animal bones, the shells and the archaeobotanical remains. Moreover, in most rooms there are indications of minor obsidian blade production and use. According to the study carried out by Cesare D'Annibale, obsidian technology did not constitute an intensive, but rather a small-scale activity, taking place when the need for it emerged.<sup>12</sup> Finally, the presence of spindle whorls in many rooms indicates weaving activity without any particular distribution pattern in the settlement.

Although fragmentary, the evidence from Kephala Petras indicates that buildings with complex plans, such as the one encountered at EM II Myrtos Phournou Koriphi, appear as early as EM IA. Moreover, the Kephala evidence may suggest a pattern in between the two expressed so far with regard to the organization of space. It seems that small domestic units (households) did exist, particularly for activities related to food preparation and consumption. However, certain activities went beyond the level of the unit and had a more collective character, namely grinding, storage of stone tools, and the large-scale storage of liquids. These activities were taking place in areas dedicated to specialized functions, which did not belong to any of the suggested households. It is also worth stressing here that there does not seem to have been any controlled access to these spaces.

## Population movement and the colonization of Crete

Another issue pertaining to Aegean studies is the transition from the Neolithic to the Early Bronze Age, and especially the historical conditions defining it. The demographic increase detected across the island, along with the emergence of new pottery types have led to theories of population move-

ments and colonization of the island by newcomers from Asia Minor and/or the rest of the Aegean.<sup>13</sup> However, there is no agreement on the date of these movements or the origin of the newcomers. The comparative study of the pottery from the two phases of Kephala provides an excellent opportunity to test these theories, focusing on the continuities and discontinuities of the ceramic record.

In the FN the majority of the pottery (*ca.* 80%) is manufactured in a local grog-tempered fabric.<sup>14</sup> The vessels have a brown burnished surface and have been fired in open pits, at low temperatures without good control of the firing atmosphere. The amount of local pottery is even higher in the EM IA phase (more than 95%), but there are some changes in the technology of manufacture. The same grog-tempered fabric was still used for the majority of the local pottery, with a change only in the amount of the added grog, which becomes significantly higher. The firing temperature also gets higher and there is better control over the atmosphere, resulting in a homogeneous grey or red vessel surface. It seems that the kiln has already been introduced.<sup>15</sup> These changes in pyrotechnology affect the visual appearance of the vessels, the color and the surface treatment. In contrast to the standardized brown burnished surface of FN pottery, in EM IA there are three major wares: the dark grey burnished, the wiped and washed, and the fine red slipped ware, and several minor ones, which are variants of the above, including the orange/buff and the brown burnished, the dark-on-light painted and the red slipped and polished.<sup>16</sup>

With regard to the shape repertoire of the locally made pottery, in the FN period there are two dominant shape categories comprising jars and bowls, with parallels in other contemporary sites such as Knossos, Phaistos, and Kastelli Phournis. In EM IA there is greater variety of shapes: many types of bowls, plates, jugs, pyxides, oval-mouthed jars, col-

<sup>11</sup> Papadatos 2011.

<sup>12</sup> D'Annibale 2008.

<sup>13</sup> Papadatos 2008 for full discussion.

<sup>14</sup> Papadatos *et al.* in press; Nodarou this volume.

<sup>15</sup> Betancourt 2008, 16–23.

<sup>16</sup> Papadatos 2008, 265–8.

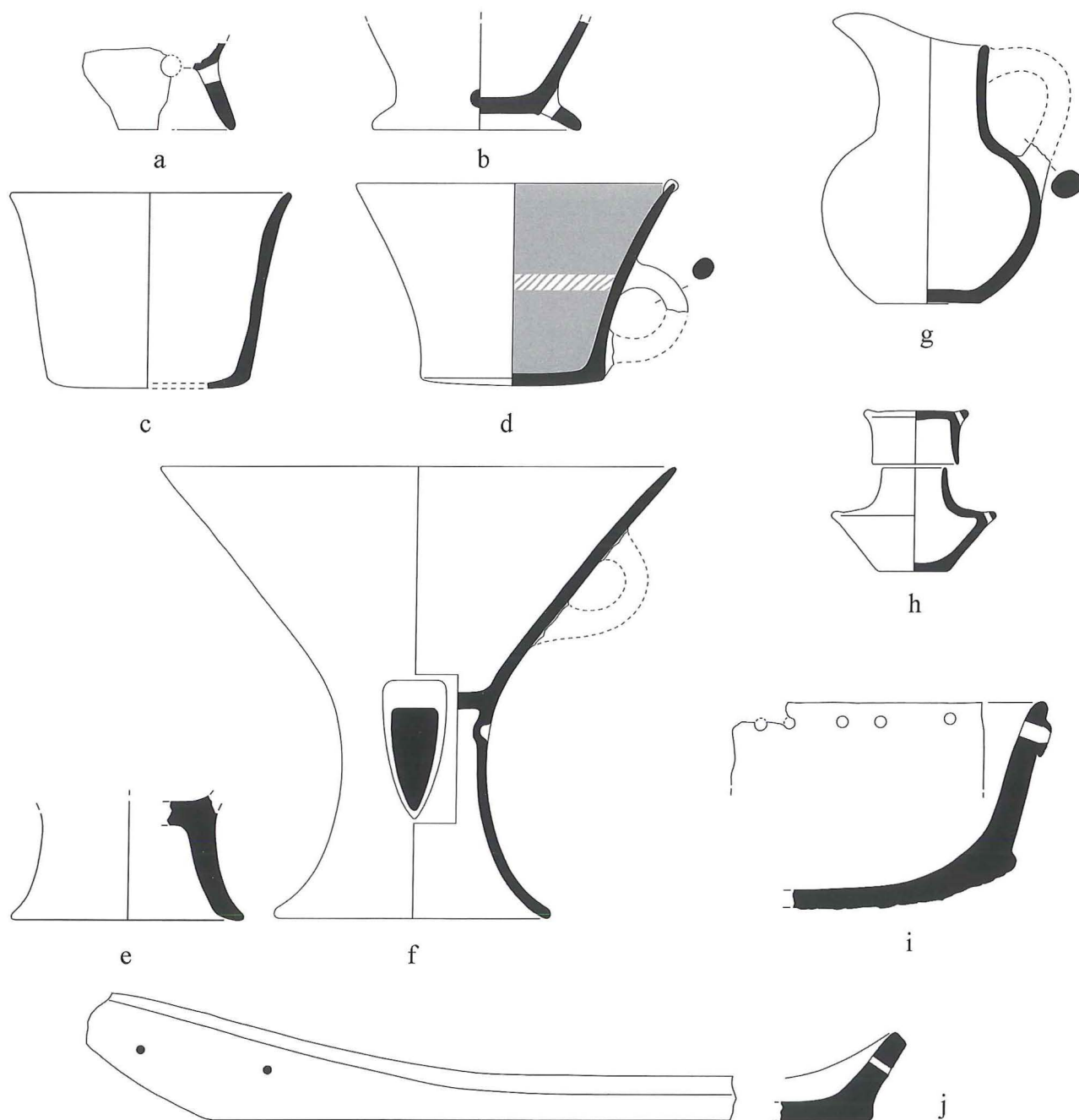


Fig. 2. Pottery of the FN IV and EM IA periods.

lar-necked jars, cooking trays and pithoi. Moreover, there is a connection between certain wares and the function of the vessels. Burnished or slipped vessels are used as table wares, whereas wiped and washed vessels are used for cooking and small-scale storage.<sup>17</sup>

The transition from the FN to the EM IA period is marked with both continuities and disconti-

nities.<sup>18</sup> The predominance of bowls is a common trait in both periods. Some Neolithic shapes, such as the ring-based (Fig. 2a) and the carinated bowl (Fig. 2c), continue in the EM period (Fig. 2b and

<sup>17</sup> Papadatos 2008; Papadatos *et al.* in press.

<sup>18</sup> Papadatos *et al.* in press.



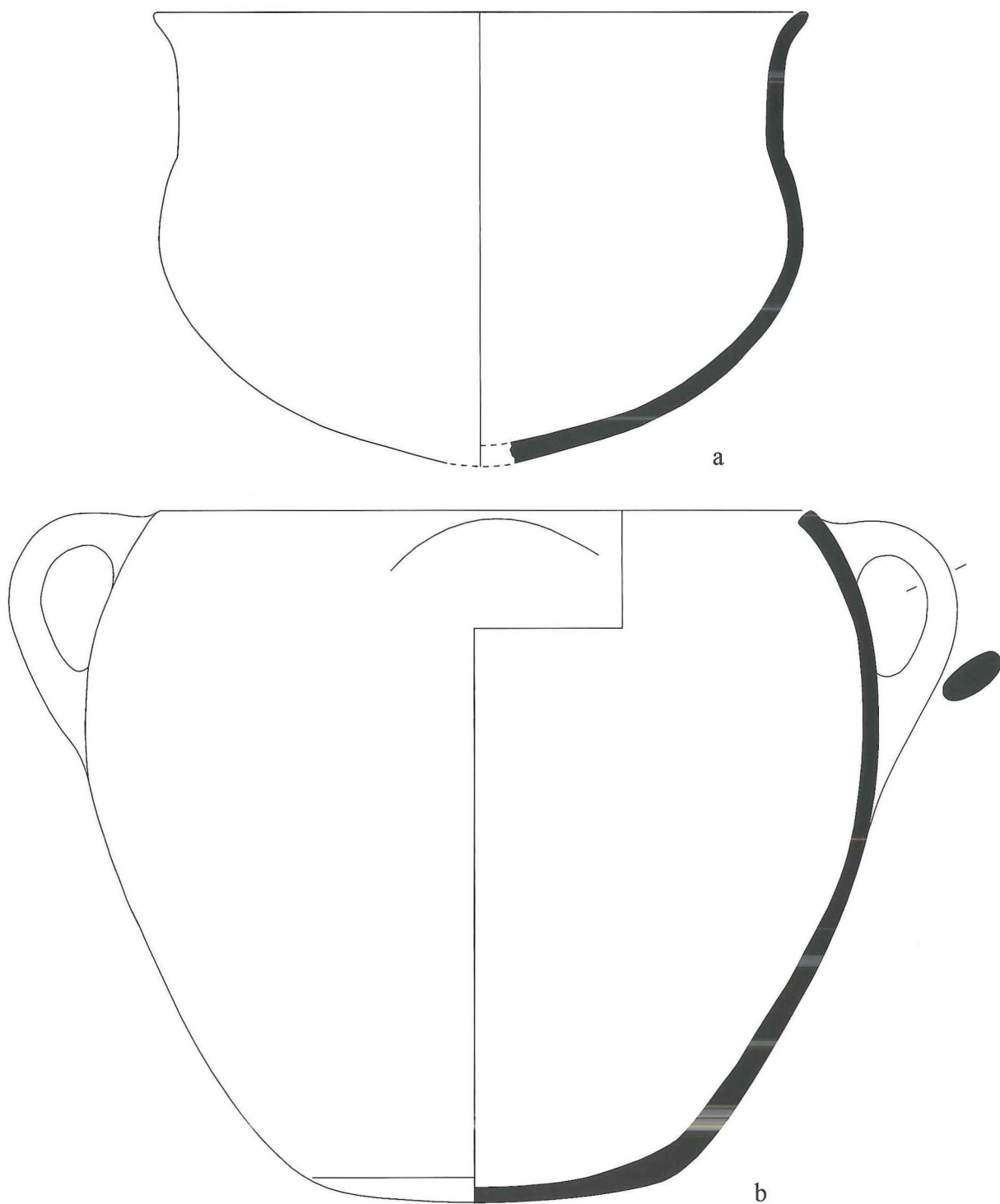


Fig. 3. Cooking shapes of the FN IV and EM IA periods.

2d respectively), while others disappear, such as the S-shaped bowl (Fig. 3a). The shape that emerges and dominates in the EM I period is the chalice (Fig. 2f), which has a precedent in the Neolithic period, the low-footed bowl (Fig. 2e). The main

cooking shape of the Neolithic period is the deep S-shaped bowl (Fig. 3a) which is replaced by the two-handled hole-mouthed jar in EM I (Fig. 3b). Moreover, the cheese pot (Fig. 2i), particularly common in FN, does not disappear but gets transformed

into the cooking tray with holes under the rim (Fig. 2j). There are very few new shapes, namely the jug and the pyxis (Fig. 2g and 2h). All these changes, although typologically important, do not constitute a groundbreaking change in the local pottery of the site, since they do not represent a substitution of the old repertoire by a radically new one.

To summarize, the locally made FN pottery of Kephala Petras has strong parallels with other Cretan sites. Furthermore, the changes of EM IA concern primarily the appearance, rather than the technology of manufacture and the function of the vessels, while typological changes are not so extensive as to suggest a cultural shift. Therefore, theories about major population movements and large-scale colonization of Crete in FN or EM IA cannot be substantiated, at least on the basis of the pottery record from Kephala Petras.

## Off-Cretan relations

The last issue concerns the off-island relations of the settlement. Although recent excavations at Aegean sites, such as Strophilas on Andros,<sup>19</sup> have shown that some FN settlements clearly exceed the size and organization of simple hamlets, in Crete the situation remains problematic. The few archaeological remains available are not sufficient to suggest any significant level of social complexity before the end of the Neolithic period, with the possible exceptions of Knossos and Phaistos,<sup>20</sup> though this is based on highly fragmentary evidence. Moreover, the lack for evidence of off-island contacts, particularly in the above major centers of Neolithic habitation, has created a picture of isolation from the rest of the Aegean world<sup>21</sup> contrasting with that of late EM I-EM II, which is characterized by the circulation of large quantities of raw materials and finished artifacts from the Cyclades to Crete,<sup>22</sup> a phenomenon often called “International Spirit”.<sup>23</sup>

The evidence from FN Kephala provides significant new information on this issue, since stylistic and petrographic analysis clearly suggest that about 10% of the pottery is imported from off-Cretan areas.<sup>24</sup> The vessels of this category have been manufactured with a base clay rich in muscovite mica,<sup>25</sup>

which is undoubtedly off-Cretan, possibly of Cycladic origin. Moreover, this ceramic group comprises vases with strong parallels from sites in the Cyclades (Hagia Eirene and Kephala on Keos, and Akrotiri on Thera) and the Dodecanese (Partheni on Leros, Archangelos on Rhodes, Gyalí and Alimnia). The most common of these shapes is the cheese-pot (Fig. 4a), the exotic character of which is accentuated by the fact that it is absent in the type-sites of the Cretan Neolithic, Knossos and Phaistos. Other off-island shapes comprise the biconical jar with pointed base (Fig. 4b), the bowl with horizontal tubular handle and low foot (Fig. 4c), vases with matt-impressed base, and vases with plastic decoration, particularly impressed pellets and cordons (Fig. 4d and 4e). In the same micaceous fabric have also been manufactured a few spindle whorls and four pendants of the FN period, suggesting that finished artifacts must have been imported to Kephala Petras alongside the micaceous pottery, possibly from the Cyclades. On the other hand, it is of particular interest that most of these off-Cretan shapes were also manufactured according to the local grog-tempering tradition. This indicates that foreign ceramic types were not only imported but also adopted and produced locally at Kephala.

In the EM IA period the amount of imported micaceous vessels falls significantly. However, there is another imported group comprising vessels made in calcite-tempered fabrics.<sup>26</sup> Their provenance remains unknown, but the parallels for these vessels are to be found in the Cyclades, such as the deep bowl with vertical tubular lugs (Fig. 4f), the serving plate (Fig. 4g), and the hole-mouthed jar (Fig. 4i), often with crescent-shaped, non-perforated lugs (Fig. 4h). It seems, therefore, that in EM IA Kephala continued to import pottery from the Cyclades.

Furthermore, the contacts of Kephala with the Aegean world are not limited to artifacts but extend

<sup>19</sup> Televantou 2008.

<sup>20</sup> Tomkins 2008; 2010; Todaro & Di Tonto 2008.

<sup>21</sup> Vagnetti 1996.

<sup>22</sup> Papadatos 2007; Wilson *et al.* 2008.

<sup>23</sup> Renfrew 1972, 444, 451; Broodbank 2000, 256–8.

<sup>24</sup> Papadatos *et al.* in press.

<sup>25</sup> Nodarou this volume.

<sup>26</sup> Papadatos *et al.* in press.



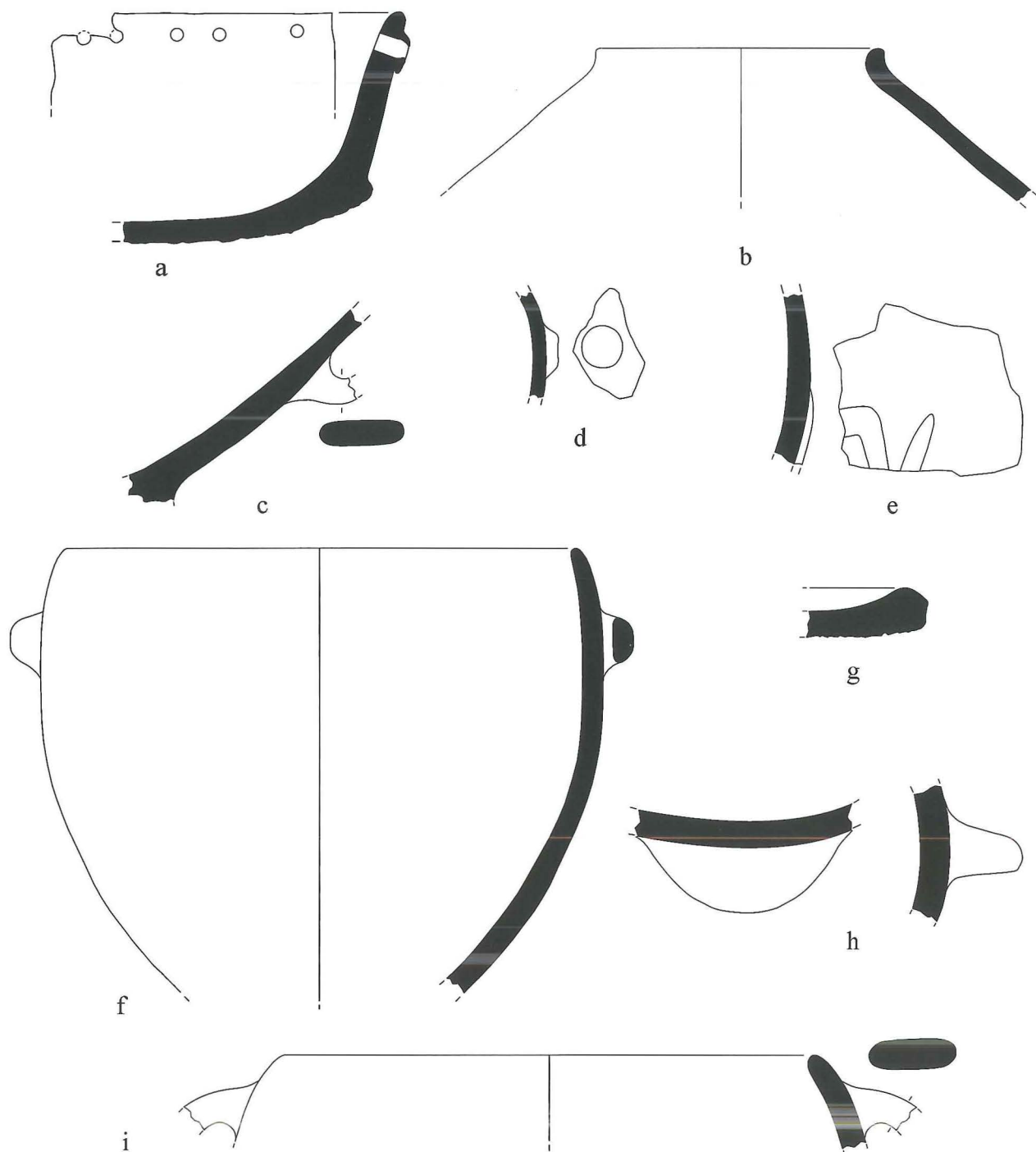


Fig. 4. Imported pottery of the FN IV and EM IA periods.

to raw materials. The entire chipped stone assemblage is made of Melian obsidian and includes all stages of production, namely blades, cores, flakes and chips.<sup>27</sup> Moreover, the excavation revealed direct evidence for copper smelting in the form of copper ores and slag.<sup>28</sup> The source of the raw material remains unknown, but the absence of copper

ores in Crete suggests import from other Aegean areas, possibly the Cyclades, as indicated by the pottery and the obsidian.

<sup>27</sup> Papadatos *et al.* in press.

<sup>28</sup> Papadatos 2007; Catapotis *et al.* 2011.

The above evidence demonstrates that Kephala Petras constituted a settlement that was well embedded in the Neolithic and Early Minoan cultural tradition of Crete but had also strong contacts with the rest of the Aegean as early as the FN period. The character of the material culture is obviously Cretan but the people of Kephala had access to off-Cretan networks of exchange and interaction, which also involved the movement of raw materials and finished artifacts. They imported pottery from off-island areas, probably the Cyclades, and manufactured similar vessels in local clays and with local manufacturing traditions. They also imported obsidian *nodules* and metal ores from the western Cyclades and transformed them into finished artifacts. Finally, they imported finished artifacts such as spindle whorls and pendants.

From this point of view the inhabitants of Kephala participated in maritime networks of interaction and exchange as early as the FN and EM IA phases, i.e. several centuries before other sites on the North Cretan coast such as Poros Katsambas,<sup>29</sup>

Gournes,<sup>30</sup> and Hagia Photia.<sup>31</sup> It is difficult at this point to evaluate the intensity, frequency and scale of this maritime activity, which is well illustrated by a small ceramic boat model found at the site and dated to the EM IA, being the earliest found in Crete.<sup>32</sup> Kephala Petras is the only site so far that has provided so ample and clear evidence, with the possible exception of Nerokourou in West Crete.<sup>33</sup> It seems, however, that the “International Spirit”, or at least some of its basic characteristics, appeared in the southern Aegean before the end of the Neolithic.

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<sup>29</sup> Wilson *et al.* 2008.

<sup>30</sup> Galanaki 2006.

<sup>31</sup> Davaras & Betancourt 2004.

<sup>32</sup> Papadatos 2012.

<sup>33</sup> Vagnetti *et al.* 1989; Vagnetti 1996.



# Discussion

- Muhly** It seems that there has been an increase in population in EM I. Would you agree?
- Papadatos** I think this increase in population starts already in the Final Neolithic. There are so many sites around, and Final Neolithic now seems a very long period. If we put dots on the map we will have many settlements of the FN in Crete. The problem is that it was a very long period, and it is very difficult to distinguish according to the surface pottery between FN I, II, III or IV, because now, according to Peter Tomkins we have four different phases. I think it is a very long period, and I do not know whether it is gradual, but we have population increase, so I do not think this increase in population is a sudden phenomenon, this is my feeling for the moment.
- MacGillivray** So, Yiannis, in that case you do not see this as a new population coming in. How do you comment on DNA studies that show Troadic population coming in around 3000 BC?
- Papadatos** I cannot comment on DNA analysis, of course, but I am not saying that people are not coming from elsewhere, what I am saying is that we do not have a sudden population movement at the end of the FN or in the EM I period, and that all these changes in pottery are connected to this population movement. I mean there are people living in Crete even before the FN, in many places, for example in Knossos, in the Middle Neolithic. I think, they identified imports from the Mirabello area, so there are Middle Neolithic settlements in the Mirabello area, but we need to search for them. So definitely people are coming to Crete, but I do not think there is a sudden increase of population at the very end of the FN or in EM I. What I see, at least based on the evidence from Kephala, is population that live by the sea and have very strong connections with the rest of the Aegean. So far I think only Kephala can provide this evidence, but definitely there are more sites of this type. Of course people are coming but not *en masse*.
- Vasilakis** The picture offered by Papadatos at Kephala, is further strengthened by what we have presented at the *First Ergon Kritis Symposium* in 2008 (*Αρχαιολογικό Έργο Κρήτης 1, Πρακτικά της 1<sup>ης</sup> Συνάντησης, Πέθυμνο, 28–30 Νοεμβρίου 2008*) on Gazi. There the two phases are found together, and we are trying to understand what their relationship is. I believe we need to be patient, and not rush into conclusions about movements of populations, as the site itself is not abandoned, but continues its life.
- Papadatos** To continue on this, the first architectural phase is FN IV, but there is some surface pottery or some pottery that we found in the trenches which is earlier within FN, so we have population even before, but since we cannot establish a connection of this

pottery with architectural remains, it is better just to say that perhaps we have some population living up there already before FN IV, perhaps in FN II or III.

**Haggis** I was just surprised that you mentioned that the cheesepots are not common in other excavated contexts. It seems that cheesepots are kind of chronological artifacts, in surveys they are very common, they are all over the place. Is this a FN IV phenomenon then?

**Papadatos** Yes, what I mean is that in the two sites that are well known, Knossos and Phaistos, in previous periods, they are lacking. I am not saying that we do not have cheesepots in the rest of Crete, definitely not, there are in many sites, particularly around the coastline, but I find very striking that after so many years of excavations at Phaistos and Knossos, I think there are one or two sherds of cheesepots from Knossos, and no sherds from Phaistos. I find this very peculiar. It is like the sites that have a long history before the FN in Crete, are lacking cheesepots. They were something very strange, very foreign, for them, they do not even import them from elsewhere.

**Haggis** So, this only emphasizes how small and focused our samples are.

### *Greek abstract*

Επιστροφή στις ρίζες: η πρωιμότερη κατοίκηση στην περιοχή του Πετρά: τα στοιχεία από τον οικισμό της Κεφάλας

Η αποκάλυψη τμήματος ενός μεγάλου οικισμού της Τελικής Νεολιθικής IV–Πρωτομινωικής ΙΑ περιόδου στο λόφο της Κεφάλας, σε κοντινή απόσταση από τη μεταγενέστερη μινωική πόλη και το ανάκτορο του Πετρά, από τη μια προσφέρει μια σειρά από νέα αρχαιολογικά δεδομένα μετατοπίζοντας προς τα πίσω τα χρονολογικά όρια της κατοίκησης στην περιοχή της Σητείας, από την άλλη όμως δημιουργεί μια σειρά από νέα αρχαιολογικά ερωτήματα και θέτει νέα προβλήματα στην έρευνα. Στην παρούσα ανακοίνωση δίδεται μια σύνοψη των νέων δεδομένων και εξετάζονται τα επιμέρους ζητήματα που εγείρονται από τη μελέτη αρχαιολογικού υλικού, με έμφαση στην οργάνωση και τη λειτουργία του οικισμού, τα χρονολογικά όρια της κατοίκησης, τη σχέση με γειτονικούς οικισμούς, αλλά και με τον εξωκρητικό κόσμο, με τον οποίο η Κεφάλα Πετρά φαίνεται να είχε στενές επαφές ήδη από την Νεολιθική περίοδο.







# Pottery fabrics and recipes in the Final Neolithic and Early Minoan I period: the analytical evidence from the settlement and the Rock Shelter of Kephala Petras\*

*Eleni Nodarou*

## *Abstract*

This presentation examines continuity and change in pottery fabrics and recipes on the basis of archaeometric analysis carried out on two ceramic assemblages from Kephala Petras, the FN IV–EM IA settlement and the EM IB burial Rock Shelter. The typological study of the pottery showed clear differences between the two periods and raised important questions concerning the technologies involved. The integrated application of thin section petrography and scanning electron microscopy provided valuable insight in identifying local and imported pottery, the technological characteristics of each period, and the changes from one period to the other.

## Introduction

The ceramic production of the Final Neolithic (FN) and Early Minoan I (EM I) periods has contributed greatly to the formation of the character of Minoan pottery<sup>1</sup> and has been traditionally connected with historical processes, namely population movements from other areas into Crete,<sup>2</sup> though not without disagreements.<sup>3</sup> However, it is only recently that sites with prolonged use such as Knossos<sup>4</sup> and Phaistos,<sup>5</sup> have produced stratified evidence for these periods, whereas in the rest of Crete the existing evidence derives from single-phased domestic assemblages (such as Nerokourou and Kastelli Phournis)<sup>6</sup> or from multi-period, unstratified and/or disturbed funerary assemblages (such as Partira, Trapeza and Lebena),<sup>7</sup> thus impeding a diachronic study of the transition from FN to the Early Bronze Age (EBA) in Crete.

Kephala Petras has provided valuable information in this respect, since excavations of the last decade have produced ceramic evidence from the end of the FN until the end of the EM I period.

The settlement located on top of the hill has continuous and undisturbed habitation from the FN IV to the EM IA period,<sup>8</sup> while the burial Rock Shelter excavated on the west slope produced pottery dated from the EM IB period onwards.<sup>9</sup> The analysis of the pottery from these three succeed-

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\* I would like to thank Dr Metaxia Tsipopoulou for the long-lasting collaboration which started 15 years ago at the excavation of the palace at Petras and continues to this day with the analysis of various pottery assemblages from the site. Sampling permits were provided by the 24th Ephorate of Prehistoric and Classical Antiquities and the Hellenic Ministry of Culture and Tourism.

<sup>1</sup> Betancourt 2008.

<sup>2</sup> Warren 1974, 41–3; Hood 1990a; 1990b; Nowicki 2002; Hayden 2003, 395.

<sup>3</sup> Branigan 1970a, 201; Evans 1974, 19–21; Vagnetti 1996, 39; Papadatos 2008; Papadatos *et al.* in press.

<sup>4</sup> Wilson 1994; Tomkins 2007.

<sup>5</sup> Todaro 2005.

<sup>6</sup> Vagnetti *et al.* 1989; Manteli 1992.

<sup>7</sup> Mortzos 1972; Pendlebury, Pendlebury & Money-Coutts 1935–6; Alexiou & Warren 2004, 117–8.

<sup>8</sup> Papadatos 2008.

<sup>9</sup> Tsipopoulou 2010b; Tsipopoulou 2012.



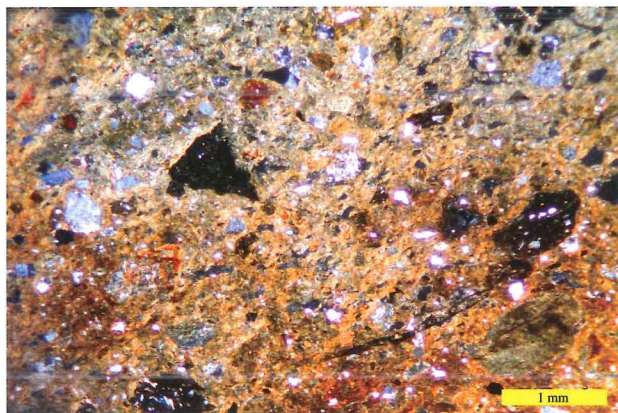


Fig. 1. FN grog-tempered fabric.

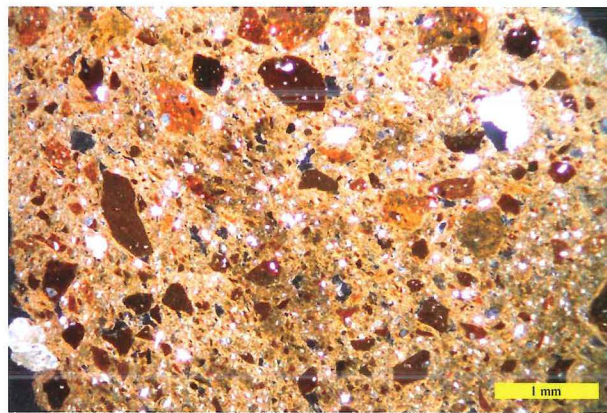


Fig. 2. EM IA grog-tempered fabric.

ing phases provides the opportunity to examine the ceramic sequence of the earliest Prepalatial at Petras and identify changes that may relate to particular historical conditions. This study forms part of a broader analytical program of ceramic analysis which started with the Neopalatial and Postpalatial pottery from House I.1<sup>10</sup> and continues with the Prepalatial assemblages from the settlement and the Rock Shelter at Kephala.

The aims of this project are: a) to identify the local fabrics and explore the presence of local workshops and/or ceramic traditions at Petras diachronically; b) to investigate the possibility of imports, both Cretan and off-island, and discuss their provenance; and c) to discuss the continuities and discontinuities detected in the technology of manufacture of the local and imported pottery.

## The analytical results

For the analytical program at Kephala Petras a number of pottery samples were selected for petrographic analysis representative of the shapes, wares and macroscopic fabric groups: 105 FN and 137 EM IA samples from the settlement (in collaboration with Drs P. Tomkins and Y. Papadatos respectively) and 45 EM IB samples from the Rock Shelter (in collaboration with Dr M. Tsipopoulou). The thin sections were manufactured at the INSTAP Study Center for East Crete and were examined under a LEICA DMLP polarizing mi-

croscope. The analysis identified four main ceramic fabrics according to their mineralogical compositions. Their compositional and textural characteristics are presented below with emphasis on their distribution and the changes observed from the FN IV to the EM IB period.

### *Fabric group 1: Grog-tempered*

This is the most frequent fabric in all three periods (FN IV–EM IB). It is characterized by a non-calcareous, red-firing base clay which is optically active, indicating a low firing temperature (below 750 °C) (Figs. 1, 2). The main non-plastic components are the angular red-brown grog fragments added intentionally as temper by the potter. Although this composition is not diagnostic of origin, the base clay is compatible with the red alluvial deposits of the area. Moreover, this fabric is encountered in high percentages: at the settlement it constitutes 80% of the FN IV and 98% of the EM IA assemblage.<sup>11</sup> At the EM IB Rock Shelter the frequency has not yet been estimated (as the study of the material is still in progress), but it seems to constitute the main local fabric used for typical Cretan wares, continuing from EM IA, such as the dark grey burnished and wiped and washed wares. It represents, therefore, a long-last-

<sup>10</sup> Part of the analysis was presented in Nodarou 2007.

<sup>11</sup> Papadatos *et al.* in press.





Fig. 3. EM IA cooking pot in a grog-tempered fabric.

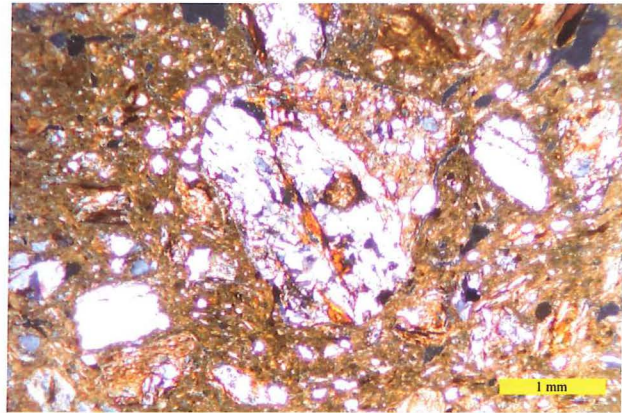


Fig. 4. FN white mica-schist fabric.



Fig. 5. FN IV cheese pot in a grog-tempered fabric.

ing tradition which is commonly practiced across Crete (e.g., Gournes in Central Crete and Aphrodite's Kephali in East Crete)<sup>12</sup> during the FN and EBA period.

The vessels represented belong to all kinds of shapes and sizes: bowls and jars in FN IV, cups, chalices, cooking vessels (Fig. 3) and pithoi in the EM IA, and cups and cooking vessels in EM IB. Almost all wares are represented including the burnished and polished wares of FN IV and the dark grey burnished, wiped and washed, red slipped and red painted wares of EM IA and EM IB. This continuity in the practice of grog-tempering is marked by a technological development detected in the transition from FN IV to EM IA: the amount of grog added in the clay mix increases significantly.

### *Fabric group 2: Semi-coarse with white mica-schist*

It is a rather rare fabric in the assemblages of Petras. It is characterized by a red non-calcareous base clay which ranges from optically active to moderately active. The non-plastic components consist of muscovite mica-schist and white mica laths giving the vessel a shiny appearance (Fig. 4). This fabric is encountered almost exclusively in the FN IV period at the settlement, in a percentage of *ca.* 10% of the assemblage. There are some rare examples in EM IA, and it disappears in EM IB. The rarity of this fabric and the incompatibility with the

Cretan geology indicate an off-island origin. The lack of comparative material impedes any secure provenance assignment. However, a Cycladic origin can be suggested on the basis of the typological similarity of the vessels with Cycladic prototypes, such as cheese pots, biconical jars, and bowls with tubular lugs,<sup>13</sup> and the occurrence of mica-schist deposits in the Cyclades. Similar (but not identical) fabrics have been reported from the FN site of Hagia Eirene on Keos and several EB I–II sites such as Akrotiri on Thera, Phylakopi on Melos, Markiani on Amorgos, and Keros.<sup>14</sup>

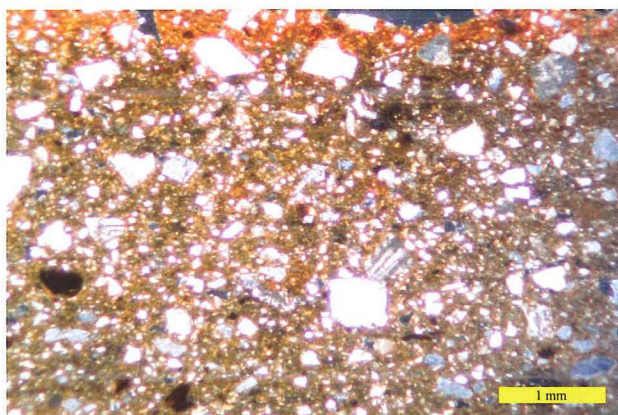
It seems, therefore, that the FN IV settlement of Kephala imported pottery from off-island sources,

<sup>12</sup> Betancourt 2008, 81; Nodarou forthcoming.

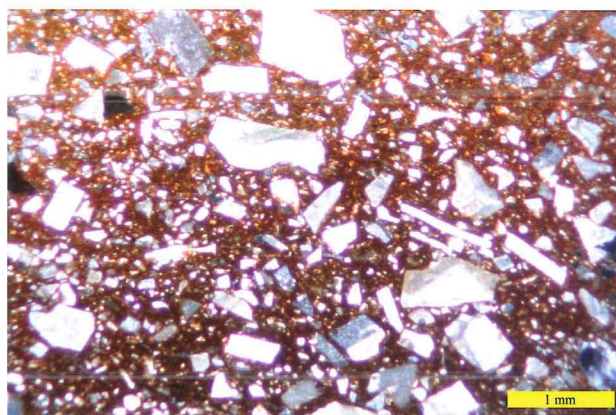
<sup>13</sup> Papadatos *et al.* in press.

<sup>14</sup> Vaughan 1990, 476–8; 2006, 99–100; 2007, 118; Hilditch 2007, 239, 242–3.





a



b



c



d

Fig. 6. a) FN calcite-tempered fabric; b) EM IA calcite-tempered fabric; c) EM IB calcite-tempered fabric with organic tempering; d) Fine calcareous fabric with small quartz fragments.

most likely from the Cyclades. However, petrographic analysis showed that some of these off-island shapes have been also manufactured in the local grog-tempered fabric. The most characteristic case is the cheesepot, which is encountered in both the imported micaceous and the local grog-tempered fabric (Fig. 5). This clearly suggests that in the FN IV period the inhabitants of Kephala Petras produced local imitations of foreign prototypes.

Although the white mica-schist fabric becomes extremely rare in the subsequent (EM IA) period, this does not mean that there are no contacts with the Cyclades, as indicated by the next fabric group.

### *Fabric group 3: Calcite-tempered*

This fabric is characterized by a fine, red-firing, non-calcareous base clay in which large angular fragments of calcite have been added as temper (Fig. 6a and 6b). The shape and the distribution of the calcite leave no doubt as to the intentional addition of the non-plastics. This practice is encountered in most sites of the North Cretan coast during the EBA, from Nopigeia in the far west<sup>15</sup> to Petras in the far east of the island. In the FN IV assemblage from Kephala, this fabric is rather rare

<sup>15</sup> Moody 1987; Nodarou 2011.



(5%) and seems to be imported. Because it occurs in vessels such as jars and bowls, which have typological parallels from many Cretan sites, it most probably represents pottery imported from other areas within Crete.<sup>16</sup>

Calcite-tempered pottery continues in the EM IA and IB periods but with a significant increase in the quantity and the density of the calcite fragments. With regard to the shape repertoire, the vessels of the earlier Prepalatial period have Cycladic parallels, namely chalices, pyxides and bowls.

In the EM IA period the percentage of calcite-tempered pottery in the settlement of Kephala is extremely limited, less than 2%, and comprises bowls with vertical tubular lugs, hole-mouthed jars, and plates.<sup>17</sup> In the EM IB Rock Shelter the amount of this pottery is significantly higher.<sup>18</sup> The shapes, namely bottles, pyxides and bowls, have parallels in the so-called Kampos-group of the Cyclades<sup>19</sup> but also in sites of the North Cretan coast, such as Hagia Photia,<sup>20</sup> Gournes<sup>21</sup> and Poros Katsambas.<sup>22</sup> The tradition of calcite tempering, often called marble ware in the bibliography, was particularly widespread in the Cyclades throughout the EBA, but the composition of the fabric is not diagnostic of origin. Compared to the Rock Shelter, the Kampos-group calcite tempered pottery from the neighboring Hagia Photia cemetery is more diverse in terms of shapes and constitutes more than 90% of the ceramic assemblage. From the above data it seems safe to conclude that these vases were imported to Petras. However, it is not possible to know if they were Cycladic products imported directly from the Cyclades or through the neighboring site of Hagia Photia, or even if they were produced in North Crete (e.g., at Hagia Photia) following a Cycladic manufacturing tradition.

Although it seems that in all phases the inhabitants of Kephala Petras had access to Cycladic-style imported pottery, the change from white mica-schist to calcite-tempered fabrics in the FN IV–EM IA transition may correspond to a real shift in the off-island networks in which the settlement participated immediately before and after the advent of the EBA. This shift is reinforced by the significant drop in the off-island fabrics from 10% in the FN IV period to less than 2% in EM IA. The percent-

age of Cycladic-style vessels increases again in EM IB, but this picture may be skewed by the fact that EM IA and EM IB are represented by two different assemblages, domestic and funerary respectively.

Finally, it is of interest that compared to the EM IA settlement pottery, the EM IB calcite-tempered vessels from the Rock Shelter display greater variation in terms of clay recipes. There is a higher-fired subgroup with densely packed calcite grains, a lower fired one with less calcite and other non-plastics, such as phyllite, occurring naturally in the raw material, a third subgroup with fewer non-plastics and a fourth with organic tempering (Fig. 6c). This difference may again be context-related, but it is equally possible that it represents a real shift in the character and/or the origin of the imported Cycladic-style calcite-tempered pottery from EM IA to EM IB.

#### *Fabric group 4: Fine calcareous with small quartz fragments*

This is a very homogenous group. It is characterized by a very fine calcareous base clay and a few non-plastic inclusions consisting of small quartz fragments, carbonates and clay pellets which are not diagnostic of origin (Fig. 6d). This fabric is rare and is encountered only in the EM IB period in the Rock Shelter. Moreover, calcareous fabrics were absent from the FN IV and EM IA assemblages of the Kephala settlement, suggesting that it constitutes an entirely new manufacturing tradition. The vessels of this group comprise pyxides and bottles in dark grey burnished ware. The bottles frequently have incised decoration<sup>23</sup> (Fig. 7) and they seem to be Cretan, if not local, imitations of the Cycladic-style bottles<sup>24</sup> that occur in the calcite-tempered fabric presented above.

<sup>16</sup> Papadatos *et al.* in press.

<sup>17</sup> Papadatos *et al.* in press.

<sup>18</sup> Tsipopoulou 2010b, 124; 2012.

<sup>19</sup> Zappeiropoulou 1984; 2008.

<sup>20</sup> Davaras & Betancourt 2004; Betancourt 2008.

<sup>21</sup> Galanaki 2006.

<sup>22</sup> Wilson *et al.* 2008.

<sup>23</sup> Tsipopoulou 2010b, fig. 11; 2012.

<sup>24</sup> Tsipopoulou 2010b, fig. 12; 2012.





Fig. 7. Cycladic-style bottle in a fine calcareous fabric with small quartz fragments.

## Discussion

The petrographic analysis of the pottery from the settlement and the Rock Shelter of Kephala Petras, extending from the FN IV to the EM IB period, indicate the presence of a strong local manufacturing tradition, which is encountered equally in the domestic and the funerary context. The selection of non-calcareous clays and the addition of grog in the clay paste constitute technological choices unaltered over time, though with slight variations from one period to the other. These technological parameters remain the same even when others change radically, such as the firing technology, the surface treatment and the visual appearance of the vessels. The local workshop(s) manufactured the same recipes for all types of vessels, from small tableware vessels to cooking pots, storage jars and pithoi. It seems that the specific recipe constituted a local tradition which had been tested over time with regard to the properties of the final products and probably relates to the identity of the local potters. It is only in the EM IB period that a major change may be observed, with the introduction of the first calcareous fabrics for the manufacture of small vases, but, since the evidence comes solely from the burial Rock Shelter, further sampling

from domestic contexts is needed in order to confirm this observation.

The identification of imported fabrics is revealing about the off-island relations and contacts of the people of Kephala. As early as the FN period there is a special relationship with the Cyclades, as indicated by the pottery in white mica-schist fabric and reinforced by additional evidence such as obsidian and copper metallurgy.<sup>25</sup> The Cycladic connection pertains to the EM IA and IB phases, but there is a change in the fabric of the foreign vessels. The mica-schist fabric disappears and the calcite-tempered becomes the main fabric of the Cycladic-style vessels. This may be related to changes in the origin of the imports or the character of the networks of interaction, but it is difficult to know more on the basis of the available evidence.

Finally, the analysis shed light on the issue of Cretan imitations of Cycladic shapes. In FN IV the imported mica-schist vessels were reproduced in the local grog-tempered fabric, whereas in the EM IB period the Cycladic-style vessels were reproduced in a fine calcareous fabric with quartz.

The analytical evidence suggests that despite developments and changes in the local pottery, the picture is not that of a clear break between the FN IV, EM IA and EM IB periods, but rather that of continuity. The same picture can be seen with the imported pottery. Despite differences in fabrics, wares and shapes from one phase to the other, there exists unfailing access to, or familiarity with, off-island areas, particularly with the Cyclades. This evidence reinforces the idea of an important coastal site that was well placed within the Cretan material culture, having roots in existing Cretan technological traditions, but also participating in wide networks of interaction with distant areas beyond Crete.

<sup>25</sup> Papadatos 2008.

# Discussion

- Haggis** That was very nice. This muscovite, this white mica tempered fabric, the patterns are very convincing, and I very much liked the presentation, it is just an impression, having spent my entire life working in a phyllite quartzite region, where there are white micas and they are intermingled with schist, and so on, is there any way that you can imagine controlling your samples, either on the Cycladic end or on the Cretan end, because Petras, and also the hinterland, is so rich in these local resources to make a convincing case that these are actually Cycladic imports?
- Nodarou** I know they are not Cretan, because I know how the muscovite mica looks in the Cretan phyllite quartzite series. Yes, you are right. It is not that it is lacking in Crete, but we know what it looks like, we know from Mochlos how the Cretan mica schist like. No, I cannot tell you for sure that this is from the Cyclades. It is mainly the archaeology and the general geology of the Cyclades that says that it must be from there. For example on Siphnos there is nothing but muscovite mica, wherever you go, even on the beach. At the beach there is sand which glitters, all over the place. But, unfortunately I do not have parallels, so, maybe, if somebody comes and says, it is from the Dodecanese, I will not argue. I know it is not Cretan, but it is mainly the archaeology that leads to the Cyclades, rather than the fabric, because I do not have the comparatives.
- Muhly** It seems to me that despite all the work that has been done over the past ten years, there is still a serious question about the relationship between Crete and the Cyclades in FN and EM I. It seemed to me that you were saying that the Cycladic influence, however it is to be explained, was a phenomenon of the EM I period, but now we are talking about Cycladic influence already in FN, whereas in the rest of your talk, you did not say anything about any Cycladic influence in the FN period.
- Nodarou** What I am saying is that in the FN we have Cycladic-style vessels in the local grog tempered fabric, although we have a very intense presence also of the real imports from the Cyclades in the mica-schist fabric, and this changes in EM IA and IB.
- Muhly** You would now say that there are real Cycladic imports in FN IV?
- Nodarou** Yes, all the mica-schist fabrics, and actually it is not one mica-schist fabric, it is a range of mica-schist fabrics. So it is more than one place of origin for these fabrics.



### *Greek abstract*

Κεραμικές ύλες και συνταγές στην Τελική Νεολιθική και Πρωτομινωική I περίοδο: η αρχαιομετρική έρευνα στον οικισμό και την Ταφική Βραχοσιεπή στην Κεφάλα Πετρά

Στην παρούσα ανακοίνωση εξετάζονται οι συνέχειες και αλλαγές που παρατηρούνται στις κεραμικές ύλες και την τεχνολογία κατασκευής κεραμικής, βάσει αρχαιομετρικών αναλύσεων που έγιναν στα κεραμικά σύνολα από τον οικισμό (TN IV – ΠΜ ΙΑ) και την Ταφική Βραχοσιεπή (ΠΜ ΙΒ) που αποκαλύφθηκαν στο λόφο της Κεφάλας Πετρά. Η τυπολογική μελέτη του υλικού έδειξε σημαντικές διαφορές μεταξύ των δύο περιόδων και προέκυψαν ερωτήματα σχετικά με τις αντίστοιχες τεχνολογίες κατασκευής. Ο συνδυασμός πετρογραφικής ανάλυσης και ηλεκτρονικού μικροσκοπίου σάρωσης έδωσε σημαντικά στοιχεία για την αναγνώριση τοπικής και εισηγμένης κεραμικής, τα τεχνολογικά χαρακτηριστικά κάθε περιόδου και τις τεχνολογικές αλλαγές από τη μια περίοδο στην άλλη.



# Neolithic and Minoan marine exploitation at Petras: diachronic trends and cultural shifts\*

*Tatiana Theodoropoulou*

## *Abstract*

The marine world has always fascinated people living at the edge of landscapes in close connection to the sea, such the island of Crete. Numerous are the examples of the influence of the marine element in the everyday life and artistic or symbolic expressions of the prehistoric populations of Crete. These latter are evident in both Neolithic and Minoan contexts, yet it is rare to find continuity in the behavior of the inhabitants of one region. The extensive excavations at the Neolithic settlement of Kephala and the Minoan palace at Petras provide one such marine record. Numerous marine animal remains, found at both Kephala and the Minoan palace, offer a unique opportunity for a detailed insight into marine animal utilisation in two different cultural and social contexts. This paper aims to explore the possible uses of fish and molluscs within the Neolithic settlement and the Minoan palace and to reveal the common trends and differential perceptions of the fruits of the sea by two distinct human groups.

## Introduction

The marine world has always fascinated people living at the fringe of landscapes in close proximity to the sea, such the island of Crete. Numerous are the examples of the influence of the marine element in the everyday life and artistic expressions of the prehistoric populations of Crete. Among various strands of evidence, the presence of marine animal remains in an increasing number of archaeological contexts from the island confirms what Vickery was one of the first scholars to pinpoint, as early as 1936, that fish and shellfish formed part of the diet and everyday life of Aegean populations.<sup>1</sup>

The lengthy excavations at the Neolithic settlement of Kephala and the Minoan palace at Petras provide one such marine record. Beyond the obvious interesting information on the exploitation of marine fauna that these remains may provide, the importance of these two marine assemblages lies in the fact that they offer a unique opportunity for a detailed insight into marine animal utilisation in

two different sociocultural contexts situated in the same environment. In this respect, this paper does not intend to cover detailed aspects of exploitation within either the Neolithic settlement or the Minoan palace. It rather aims to explore the relationship of the Neolithic and Minoan populations of Petras to the sea as a whole and to draw upon

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\* I would like to thank Dr Metaxia Tsipopoulou and Dr Yiannis Papadatos for entrusting me the study of the marine remains from Petras. My work at INSTAP was rendered easier and, above all, more pleasant thanks to the help and company of Garifalia Kostopoulou and Clio Zervaki. My thanks also to Dr Eleni Nodarou for providing help with geomorphological data for the region. The study was funded by INSTAP.

<sup>1</sup> Vickery 1936, 74: "The modern Cretans are fond of octopods and eat a great many of them. Neither do they fail to utilize squid, shellfish and vertebrate fish. What was the practice of their predecessors on the islands and elsewhere in the Aegean in the New Stone Age and in the various periods of the Bronze Age? Formerly, a ready partial answer was forthcoming: the Greeks rarely, if ever, ate fish. But more recent study of the remains of the homes and settlements of the early peoples has compelled a revision of this answer."



Table 1. Shell species representation at Kephala and Minoan Petras (NISP, MNI, %MNI).

Family	Species	Common name	Neolithic Petras*			Minoan Petras**		
			NISP	MNI	%MNI	NISP	MNI	%MNI
Patellidae	<i>Patella caerulea</i> , <i>P. ulyssiponensis</i> , <i>P. rustica</i>	Limpets	1111	937	78,9	636	585	50,4
Muricidae	<i>Hexaplex trunculus</i> , <i>Bolinus brandaris</i> , <i>Thais haemastoma</i>	Purple shells	10	8	0,7	1308	770	38,3
Trochidae	<i>Monodonta turbinata</i> , <i>Gibbula</i> sp.	Topshells	451	148	12,5	35	28	3,1
Cymatiidae	<i>Charonia tritonis</i>	Triton shells	48	13	1,1	60	15	1,8
Cardiidae**	<i>Cerastoderma glaucum</i> , <i>Acanthocardia tuberculata</i>	Cockles	17	16	1,3	11	7	1,8
Ostreidae**	<i>Ostrea edulis</i> , <i>Crassostrea gigas</i>	Oysters	24	6	0,5	55	28	1,0
Glycymeridae	<i>Glycymeris bimaculata</i> , <i>Glycymeris</i> sp.	Dog cockles	28	24	2,0	4	4	0,5
Buccinidae	<i>Buccinum corneum</i> , <i>Pisania striata</i>	Whelks	1	1	0,1	48	48	0,5
Spondylidae	<i>Spondylus gaederopus</i>	Spiny oysters	11	7	0,6	4	4	0,3
Cassidae	<i>Cassidaria</i> sp., <i>Phalium granulatum</i> , <i>Phalium saburon</i>	Helmet shells	1	1	0,1	8	7	0,5
Cypraeidae	<i>Luria lurida</i>	Cowries	3	3	0,3	4	4	0,3
Cerithiidae	<i>Cerithium vulgatum</i>	Horn shells	3	3	0,3	3	3	0,2
Arcidae	<i>Arca noae</i>	Ark shells	18	11	0,9	1	1	0,1
Pectinidae	<i>Chlamys varia</i> , <i>Aequipecten opercularis</i>	Scallops	3	3	0,3	5	4	0,3
Donacidae	<i>Donax trunculus</i> , <i>Donax semistriatus</i>	Wedge shells				4	3	0,2
Pinnidae	<i>Pinna nobilis</i>	Fan shells	2	2	0,2	1	1	0,1
Limidae	<i>Lima lima</i>	File shells	1	1	0,1			
Conidae	<i>Conus mediterraneus</i>	Cone shells	1	1	0,1			
Veneridae	<i>Chamelea gallina</i>	Carpet shells	1	1	0,1			
Mytilidae	<i>Mytilus galloprovincialis</i>	Mussels				11	5	0,3
Vermetidae	<i>Vermetus</i> sp.	Worm shells				1	1	0,1
Turbinidae	<i>Astrea rugosa</i>	Turban shells				1	1	0,1
Columbellidae	<i>Columbella rustica</i>	Dove shells				1	1	0,1
Tonnidae	<i>Tonna galea</i>	Barrel shells				1	1	0,1
Decapoda	Ind.	Crabs	2	2	0,2	4	4	0,3
Nephropidae	Ind.	Lobsters				1	1	0,1
Echinidae	Ind.	Sea-urchins				1	1	0,1
Sepiidae	<i>Sepia officinalis</i>	Cuttlefish				1	1	0,1
Sparidae	<i>Sparus aurata</i>	Gilthead breams				7	1	0,1
<b>Total marine remains</b>			<b>1737</b>	<b>1188</b>	<b>100%</b>	<b>2216</b>	<b>1529</b>	<b>100%</b>

conventional names for Kephala Petras and the area of the Minoan occupation\*  
fossil specimens not included in counts\*\*

potential converging trends regarding marine resources and the perception of the marine element by two different communities installed in the same coastal environment.

## Living by the sea in Neolithic and Minoan Petras

To understand cultural behavior related to a specific environment, the nature and boundaries of this en-

vironment need to be defined. Both Neolithic and Minoan Petras are situated on low coastal hills, in close proximity to the shore, and have visual contact with the Siteia Bay.<sup>2</sup> Geological evidence indicates that, at least during the Minoan period, the sea extended far into the present day valley west and southwest of Hill I at Petras, and the coastline lay at the base of the foothills, about 2 km to the

<sup>2</sup> Tsipopoulou this volume, Introduction, Fig. 10a and 10b.

south of the modern coastal front.<sup>3</sup> A small protected bay was formed between Hills I and II. Pandelis River lay at the deepest reaches of the bay.<sup>4</sup>

Although detailed information on the types of shores surrounding the Petras Hills is not available for the studied periods, the described environmental background as a whole would provide a potentially favourable setting for a coastal community to efficiently exploit marine resources.

## Shells and some methodological considerations

Although fishing for fish and shellfish may seem like the natural choice for communities living by the sea, it is not a straightforward one. Marine animal remains from Neolithic and Minoan Petras offer the possibility of testing this scenario on two different coastal communities. The Neolithic settlement of Kephala and the Minoan palace produced marine faunal assemblages, both of which were studied by the author. Although neither assemblage can be considered abundant, especially when considering the time span of use at both sites, they still offer a significant sample to work with. Kephala Petras yielded 1,739 shell remains, while the shell material from the palace of Petras includes 2,216 marine remains (invertebrates and fish).<sup>5</sup>

Although this is not a detailed study report on the marine faunal remains from these sites, a few methodological points need to be cleared up. Both materials underwent the same zooarchaeological analysis, consisting of species identification, quantification and recording of primary data, environmental reconstruction and zooarchaeological interpretations. The study of fishbones and shells from archaeological contexts may contribute to the reconstruction of ancient coastal environments and help define specific coastal or marine zones of ancient human gathering, as well as provide information on the collecting methods and equipment involved. These aspects of marine exploitation become even more interesting when comparisons between two communities that shared the same areas at different periods of time can be conducted. With respect to the latter, counts and estimates are

given in minimum numbers of individuals (MNI).<sup>6</sup> This type of count, closer to the original number of animals used at a site, was preferred against NISP (number of identifiable specimens), so as to set a common ground for inter-site comparisons (Table 1).<sup>7</sup>

## Reconstructing Neolithic and Minoan shellfish exploitation

Primary analysis and environmental reconstruction of the Petras marine assemblages offer the possibility of shedding light on different periods of coastal exploitation in the Siteia Bay. Species identification and relative frequencies of *taxa* reveal common features as well as several differences between the two sites.

Both assemblages share a common core group of *taxa*, even if significant differences in the frequencies of species can be observed from one period to another (Fig. 1, Table 1). This group comprises limpets, murex shells, top shells and tritons, and occasionally oysters, dog cockles and cockles, whelks, spiny oysters, cowries, horns and crabs. On the other hand, there are certain shellfish solely present either in the Kephala (arks, scallops, fan shells, helmets, file shells, cone shells and carpet clams) or in the Minoan material (mussels, worm shells, wedge shells, turbans, dove shells and barrel shells, as well as a lobster fragment). Although the respective numbers of these species are too low to allow any secure interpretation of this diverging pattern, an overall evaluation of the shellfish material puts forward two distinct exploitation patterns.

The identification of marine remains from Kephala

<sup>3</sup> At least 5 m lower from the base of the wall to the west, as well as very close to the villa of Klimataria to the east (Tsipopoulou 1991a; Tsipopoulou 2003).

<sup>4</sup> Tsipopoulou 2003.

<sup>5</sup> The Minoan palace also produced a number of fossil oysters and cockles. Their presence within the Miocene marly limestones of the region (according to the 1959 geological map issued by the Institute for Geology and Subsurface Research) would point to a non-cultural presence. We thus decided not to include them in the counts. See also n. 27.

<sup>6</sup> Reitz & Wing 1999, 191–9; Claassen 1998, 106–7.

<sup>7</sup> Peres 2010.



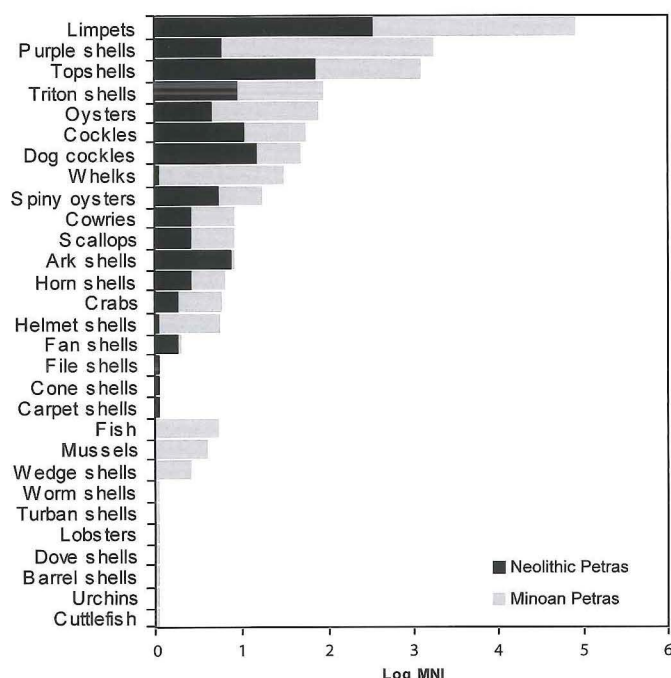


Fig. 1. Shell species representation at Kephala and Minoan Petras (log MNI).

Petras revealed quite a focused pattern of collection. Limpets are the prevailing species in the Neolithic settlement, accounting for nearly 80% of the collected shellfish (MNI). They are accompanied by a fair number of topshells (14%). A few other species are present in limited numbers, such as dog cockles, tritons, ark shells and murex shells. A different situation

is observed in the Minoan material. Although limpets are still collected, their numbers decrease (38%) in favour of murex shells (50%), while top shells and other shellfish are only occasionally present (Fig. 2). Despite these differences, both sites show a similar pattern of exploitation of a relatively rich but not quite diversified spectrum.<sup>8</sup> In other words, it may be suggested that Neolithic Petras exhibits quite a specialised strategy towards coastal resources. This is an expected pattern in coastal sites, where a wide range of *taxa* are present, yet only few substantially contribute to the diet.<sup>9</sup> Although this tendency is maintained in subsequent Minoan occupation, the focus of collection is rather divided into two major resources, limpets and murex, with a range of other minor species present.

In light of these two diverging situations regarding shell and fish exploitation by the two coastal communities, the question of differential behavior towards marine resources needs to be addressed both on an environmental and a cultural level.

<sup>8</sup> These terms, borrowed from biology, are used in zooarchaeology to describe the composition of an assemblage. Taxonomic richness is the number of taxa in an assemblage, while diversity refers to the relative importance of the species present (number of individuals of the identified taxa); Reitz & Wing 1999, 233–4; Claassen 1998, 117–20; Peres 2010.

<sup>9</sup> Reitz & Wing 1999, 234.

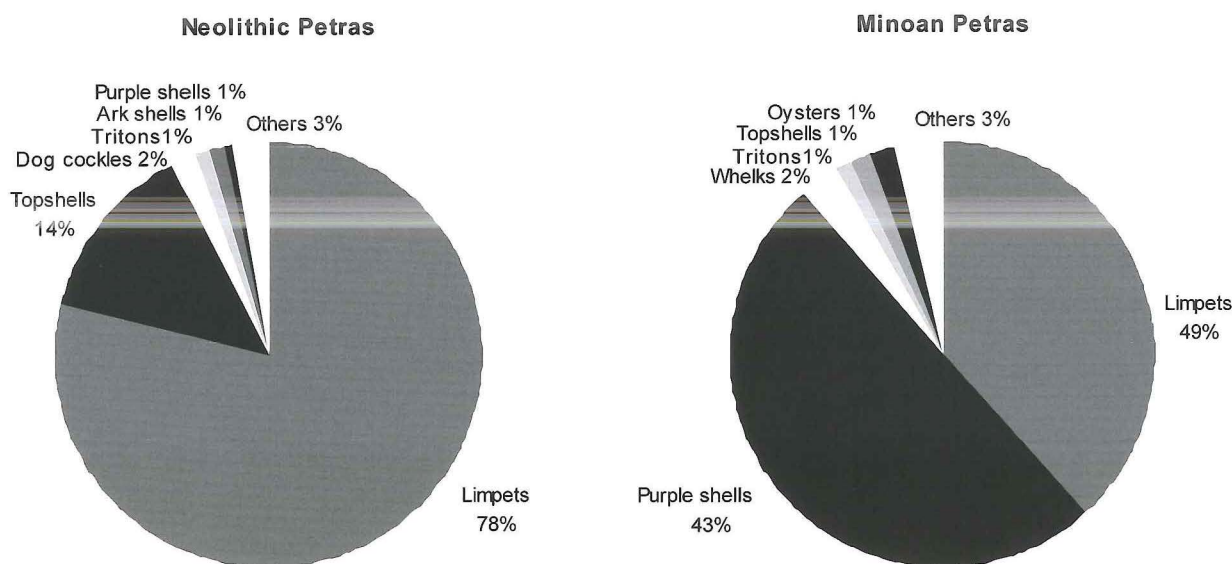


Fig. 2. Relative frequencies of marine fauna at Kephala and Minoan Petras (%MNI).

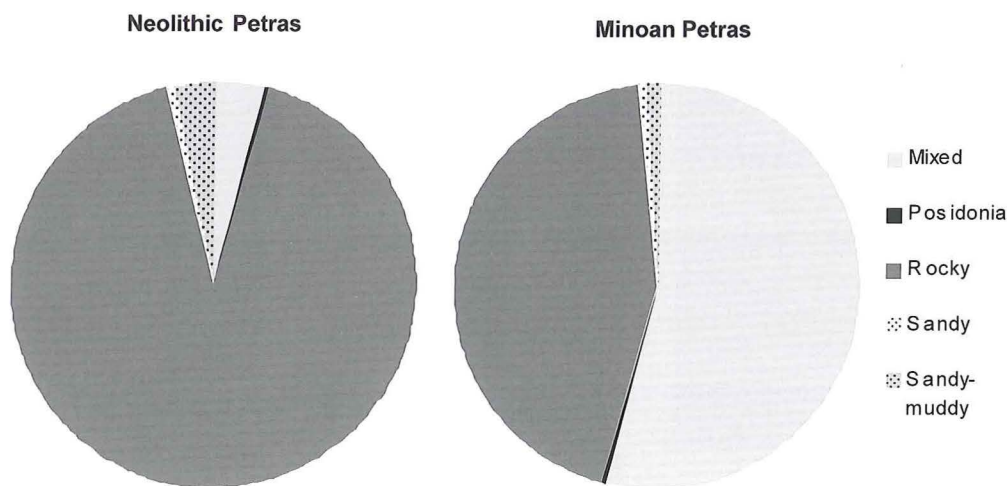


Fig. 3. Exploitation of marine substrates at Kephala and Minoan Petras.

## Changing environments, changing strategies

The change observed from the Late Neolithic/EM I to the MM II/LM IIIB material is principally illustrated by the shift from one almost ubiquitous species, namely limpets, to a more evenly distributed collection of limpets and murex shells, accentuated by the presence of two other groups of shells occasionally present in either the one or the other assemblage. The nature of the two major species as well as any possible relation between them, thus needs to be explored.

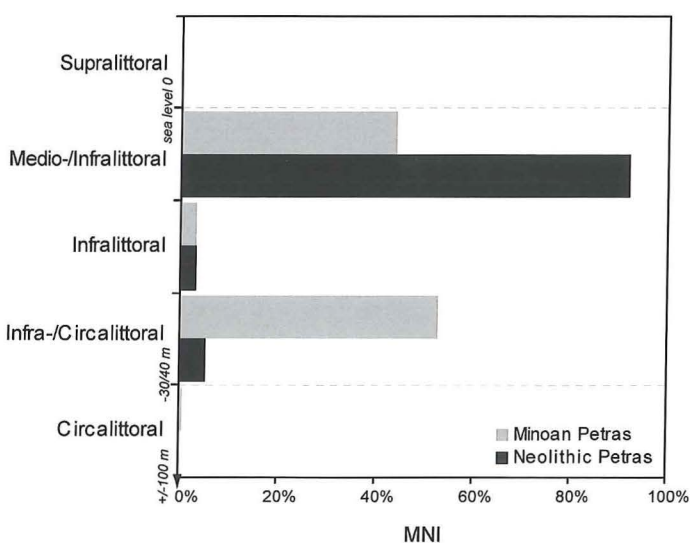


Fig. 4. Exploitation of marine depths at Kephala and Minoan Petras.

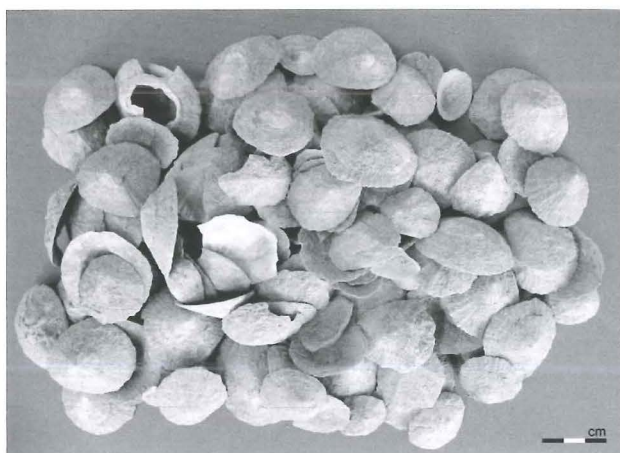
Limpets are a common conical gastropod found attached to rocky shores or other hard substrates, usually in colonies.<sup>10</sup> They may share the same habitat with top shells and other species tolerant of periods of exposure to the air. Murex shells, on the other hand, are larger, spined gastropods that live in the intertidal or shallow subtidal zone, among rocks, corals, or detritic substrates.<sup>11</sup> The description of the environmental parameters of the prevailing species that form the bulk of the material in the archaeozoological assemblages of Petras highlights the exploitation of two different marine zones at two different periods: a collection on the upper levels of rocky shores at Kephala, and a more diversified collection in either rocky or mixed substrates from the intertidal zone to deeper waters at Minoan Petras (Figs. 3, 4). Furthermore, the contribution of sandy-muddy environments, somewhat important during the Kephala occupation, becomes almost negligible in the Minoan assemblage.

The environmental profile provided by represented marine organisms needs to be viewed in a foraging perspective with regard to both Late Neolithic and Middle/Late Minoan communities of the Petras Hills. In general, it is accepted that archaeo-

<sup>10</sup> Fischer *et al.* 1987, 608–11. The term *colony* in biology refers to several individual organisms of the same species living closely together.

<sup>11</sup> Fischer *et al.* 1987, 588.





	Neolithic	Minoan
MNI	865	395
Min (mm)	9,5	10,0
Max	50	52,0
AVER (mm)	23,8	31,4
STDEV	6,5	8,0

Fig. 5. Typical limpet hip and shell size measurements (expressed in mm) for Kephala and Minoan Petras.

logical shell remains are the result of what has been chosen and collected by humans. In this respect, they primarily reflect a human choice among other potentially available resources. On the other hand, human choices can be driven by environmental conditions, such as availability and abundance. In the following section, both cultural and environmental factors affecting the change in species composition in the two Petras materials are considered.

Change in species representation in archaeomalacology may in fact be related to either environmental or cultural reasons. Environmental pressure, namely sudden changes of environmental or climatic nature, concurrence between species, and extensive human foraging in the upper and more easily reached levels of the shore feature among most common reasons for changes of species representation through time. The impact of coastal foraging is often related to the decrease or depletion of natural stocks of marine organisms or even the reduction or extinction of the larger age classes.<sup>12</sup>

Based solely on quantitative criteria from both sites, it is not possible to speak in favour of large-scale shellfish exploitation capable of bringing about

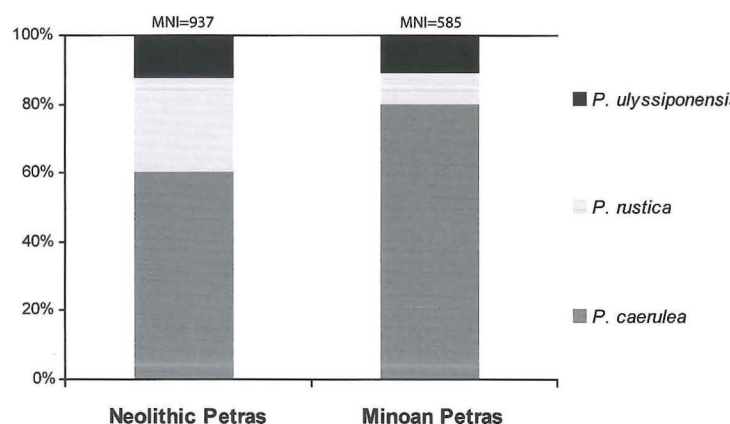


Fig. 6. Relative frequencies (%MNI) of limpets in Kephala and Minoan Petras.

significant changes to the coastal environment near Petras. On the other hand, information on possible environmentally-derived coastal changes at the period of time between the Kephala settlement and the Minoan occupation is lacking. However, such a scenario might be reflected in shells from archaeological contexts. It was thus decided to test the hypothesis of a change in species representation in these two assemblages due to depletion of limpet populations. Measurements of limpet length were taken on complete shells of limpets using an electronic vernier calliper ( $>0.1$  mm, Fig. 5). It was possible to measure 865 and 395 specimens from Kephala and Minoan Petras, respectively.<sup>13</sup> The average lengths and standard deviations of the two samples have been calculated in order to provide a reliable comparison between the two sites. The results not only negate the hypothesis of size reduction from the older to the more recent assemblage, but they suggest a slight increase in average limpet length from the Late Neolithic to the MM/LM periods. On the other hand, it is interesting to note a more generalised pattern of collection at Kephala, with a preference for rather small individuals (around 2 cm long). This observation correlates well with the pattern of a more intensive collection of one type of shellfish. The latter is further

<sup>12</sup> Mannino & Thomas 2002; Milner *et al.* 2007.

<sup>13</sup> For the purposes of this study, it was decided to include all three limpet species, since they share common habitats.

supported by the relative frequencies of the three limpet species present in both sites, *Patella caerulea*, *P. rustica* and *P. ulyssiponensis* (Fig. 6). Although the common limpet (*P. caerulea*) is the dominant species in both assemblages (60% and 89% MNI, respectively), the two other species are better represented in the Kephala material (28% for *P. rustica* and 13% for *P. ulyssiponensis*) than at Minoan Petras, possibly indicating an omni-harvesting strategy in the first case compared to a more selective choice (one species, larger individuals) in later times. However, there is also the possibility that shellfish were being gathered from different areas of the shoreline during the FM/EM and MM/LM periods. More detailed geological data may allow for refinement of the reconstructed image of the ancient shoreline in the Siteia Bay.

The scenario suggesting two different collection grounds may be supported by the general increase of a more mixed, less rocky environment. However, available archaeomalacological or geological data do not offer any clear answer as to whether this shift occurred following a gradual environmental change in the Petras Bay or whether different marine environments were selected on the basis of what shellfish were desired. It is possible that the coastal environment surrounding the Petras Hills underwent some change in the time between the FN/EM and the MM/LM occupations, through either sea-level fluctuations or geomorphological changes related to the flow of the Pandelis River. In either case, the collectors would have adjusted their collecting strategies and methods to the newly exploited resources. Alternatively, the introduction of different tools and new methods of collection as a determining factor for exploited grounds should also be considered. The ethological behavior of rock-dwelling limpets allows for easier location and collection with simple procurement methods and tools, either by hand or with a sharp instrument (a knife or a stick picked up on the beach) for detaching the animal from the hard surface. On the other hand, epifaunal carnivore molluscs living in deeper waters,<sup>14</sup> such as murex shells, may require more elaborate methods of collection.<sup>15</sup> This observation also points to a deliberate effort to collect this mollusc



Fig. 7. Typical food waste assemblage from Kephala (limpets and top shells).

despite a higher level of difficulty in acquiring it. In order to explain why this and other shellfish were collected by these two coastal communities, it is necessary to consider their uses.

## Using shells at Neolithic and Minoan Petras

Shellfish have been used by the Aegean populations both as a food resource and as a raw material (both hard and soft tissue) for a variety of objects and substances. One basic distinction to be made is between food and non-food uses. Both assemblages from Petras offer evidence for the consumption of shellfish as well as for the use of their hard shell for other purposes. These various uses thus need to be presented.

Shellfish constituted a food resource for both Petras communities (Fig. 7). The marine diet of the Kephala inhabitants consisted chiefly of limpets and top shells, occasionally diversified by cockles and dog cockles, arks, spiny oysters, oysters and murex shells, rarely by fan shells, clams, file shells, tritons, horns and crabs. Minoan in-

<sup>14</sup> Epifaunal organisms live, either fixed or mobile, on the surface of the hard substrate.

<sup>15</sup> Ruscillo 2005.



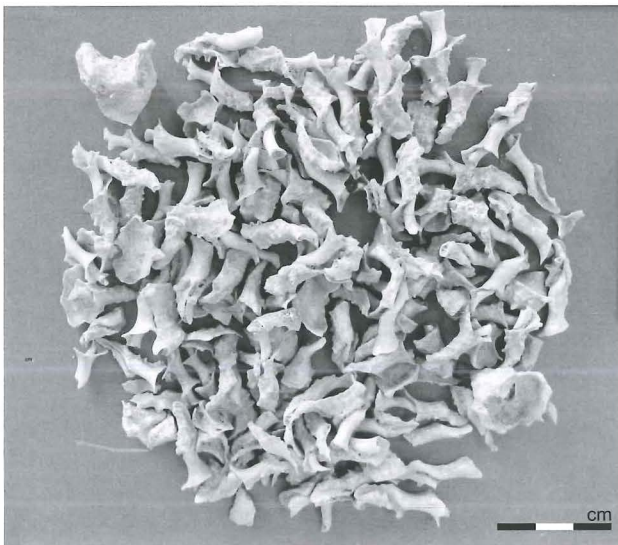


Fig. 8. Murex hip from Sector III in Minoan Petras.

habitants maintained a taste for limpets, although they also turned to the consumption of murex and whelks, and rarely top shells, crabs and lobsters. The question of fish consumption also needs to be addressed. Although soil sampling and dry sieving (Minoan) or water flotation (Kephala) was conducted on both digs, only the Minoan site produced six severely burnt caudal vertebrae and one cranial bone of a gilthead seabream (*Sparus aurata*).<sup>16</sup> The relative absence of fish from the Petras sites is striking, especially in light of the abundant fish assemblages from other sites on Crete.<sup>17</sup> Although soil acidity might be in part responsible for this lack, cultural aspects related to taste, consumption or food waste management need to be studied in detail for every site. Turning to shellfish, their consumption usually did not require any preparation or cooking at either site. Most *taxa* can be eaten raw by simply detaching the shell from its surface and extracting the animal from its shell, or by crushing the shell of the mollusc. Traces of tool use and crushing are left on several specimens from both sites, including limpets, top shells and horn shells. The cooking of molluscs, crabs and lobsters is also possible, but it is extremely difficult to distinguish such procedures on archaeological specimens. Several burnt invertebrate fragments have been found in both assemblages, especially the palace and settlement area, however their pres-

ence must be related to post-consumption contact with fire, as they all exhibit traces of heavy burning, which would have rendered the flesh of the molluscs inedible.<sup>18</sup> The detailed contextual study of shell samples from Kephala and Minoan Petras may reveal specific areas related to shell preparation, storage and consumption. Preliminary observations point to a rather scattered distribution of shell remains, with a few exceptions, such as the presence of a concentration of murex shells in the area of the Minoan occupation.

The latter observation brings the discussion to the use of this mollusc for purple-dye production during the palace period of Petras. Although murex fragments have been found scattered in all areas of the Minoan occupation, including the palace, houses and other areas, one substantial deposit came from the so-called Lakkos in Sector III, to the west of House I.1, which contained several fragments of *Hexaplex trunculus* attributed to more than 120 individuals (Fig. 8). These concentrations were recovered from the fill of a sizable dump that contained large quantities of fine-quality tableware, nearly 60 loom weights, stone tools and several ritual objects.<sup>19</sup> The archaeological debris from the Lakkos has been associated with MM IB–IIA cultural material used in elite buildings on the upper plateau that were destroyed during the modification of the hill to accommodate the palace. An industrial installation has been identified in the same sector, dated to the EM II–III period.<sup>20</sup> If this murex concentration from Minoan Petras represents

<sup>16</sup> Three *Sparus* bones have also been identified in the hieroglyphic archive of Petras (Mylona 2010). Rose (1994, 344) notes the presence of one caudal vertebra of a fairly large barracuda (*Sphyraena sphyraena*), reported by David Reese.

<sup>17</sup> Several examples in Rose 1994 and Mylona 2003.

<sup>18</sup> Theodoropoulou 2007a.

<sup>19</sup> Tsipopoulou 2001; Haggis 2007.

<sup>20</sup> House II.1 at Petras is also associated with cloth production, as it preserves some of the best evidence for this activity in eastern Crete, including tools, installations and inscriptions associated with the textile industry (Burke 2006). However, there are no significant murex shell concentrations suggesting purple-dye production in this house. It is possible that this would have been an unpleasant, and thus unwanted activity, for the owners of the house staying on the first storey, as production of purple usually releases a strong pungent smell (Ruscillo 2005).



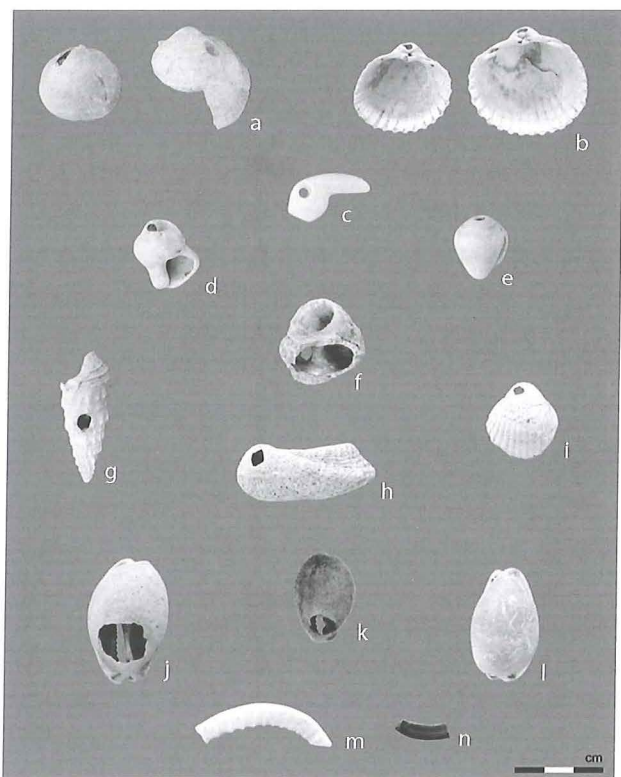


Fig. 9. Shell ornaments from Kephala (a, b, c, d, e, i, j, l, m, n) and Minoan Petras (f, g, h, k).

purple dye production debris, it would support the hypothesis that purple-dyeing was concentrated at palatial centers, further suggested by the study of marks and stamps on the loom weights from this deposit.<sup>21</sup> However, the preserved quantities are far from the numbers, as suggested by Spanier and Karmon (1987), needed for an industrial-scale production, although a few hundred individuals would suffice to produce a fine colour on light garments.<sup>22</sup> If, on the other hand, this murex deposit represents food debris, it would be interesting to define its association with the high-quality tableware and ritual vessels found in the Lakkos and the role of murex in elite feasting.<sup>23</sup>

The role of shells in ritual and other symbolic acts, as well as in everyday life, is to be seen on a number of specimens from both sites. It seems that marine animals played an important role in the aesthetics and symbolic sphere of both communities. Several shells with holes, either naturally occurring or deliberately pierced, are found both in the Kephala and the Minoan material (Fig. 9). The study of the

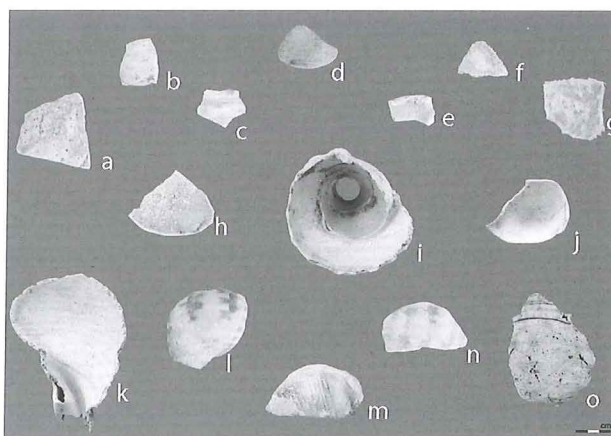


Fig. 10. Triton shell fragments from Kephala (i, j, k, m) and Minoan Petras (a, b, c, d, e, f, g, h, l, n, o).

holes and the state of preservation of the shells suggest that people from the Neolithic settlement and the later Minoan occupation acted in a similar way, either collecting worn shells of simple shapes on the shore to wear as ornaments (cockles, dog cockles, cone shells, dove shells) or intentionally transforming shells into objects of adornment (cockles, dog cockles, horn shells, turban shells, helmet shells). A higher degree of elaboration may be found in the Neolithic settlement, which has produced a number of singular items, including pendants and other possible objects of adornment, comparable to similar Neolithic objects from the Aegean.<sup>24</sup> Several other shell specimens occur at both sites either in an unmodified or in a modified state, yet their use remains unclear. This is, for instance, the case of whole or fragmented cowries found at Kephala and at the Minoan site. Their association to female fer-

<sup>21</sup> Tsipopoulou 1990b; Burke 2006. Purple-dye production in Crete has been identified during the MM IB period (Ruscillo 2005; 2006) and purple, as well as possibly female purple dyes, are also mentioned in the Knossos tablets (*po-pu-ro*, *po-pu-re-ja*, Palmer 1963, 292, 297, 447). It is suggested that the production may have begun even in the third millennium bc (Bruin 1970).

<sup>22</sup> Ruscillo 2005.

<sup>23</sup> According to Haggis 2007. The same author notes that other faunal remains (animal bones) are found scattered throughout the assemblage but not in amounts suggesting a concentration of food debris or discard.

<sup>24</sup> For example, Vialou 1974; 1981, pl. L; Jacobsen 1973, pl. 48d.



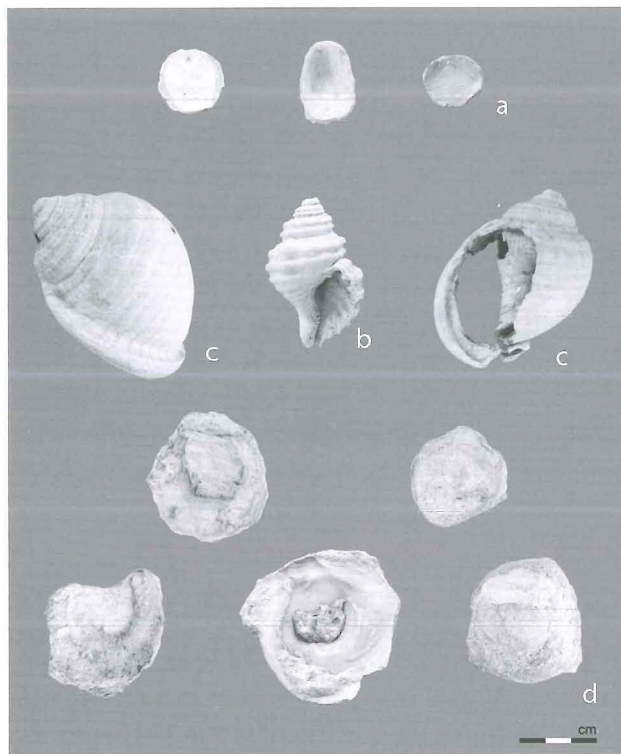


Fig. 11. Various shells from Kephala (a, b, c) and Minoan Petras (d).

tility in various cultures around the world raises the question of the symbolic use of shells in Neolithic and Minoan Petras.<sup>25</sup>

Distinguishing the function of shells, whether practical or more symbolic or ritual is not always straightforward. The case of triton shells from the Petras excavations is worth mentioning. A range of modified triton fragments has been recovered from Kephala (Fig. 10). The shape of these fragments resembles a spool, cup or other receptable.<sup>26</sup> Neolithic Petras also provides one of the oldest Cretan modified examples of hollow tritons, often interpreted as drinking cups.<sup>27</sup> However, it is not clear whether these modified fragments or the hollow triton fulfilled a secular or a ritual need. Intentionally fragmented triton shells, such as those found in Neolithic Petras, seem to survive in the Minoan occupation, but their presence in the Minoan period is generalized and covers a number of new uses as well, such as scrapers or polishers. On the contrary, although hollow tritons are found in Minoan contexts, the Minoan levels of Petras did not yield any such example. However, other large gastro-

pod shells might have fulfilled similar uses, such as the helmet shells from Kephala and Minoan Petras (both with stringing holes, Fig. 11:c), as well as the modified limpets (Fig. 11:a) from the Neolithic site or even some of the numerous fossil oysters (Fig. 11:d) found at Minoan Petras.<sup>28</sup>

In any case, the boundaries between practical and symbolic are difficult to draw. More refined contextual analysis may shed light on the various uses and meanings of shells in the Petras sites.

## Summary and conclusions

The Petras excavations offer a unique opportunity for a comparative approach to marine acquisition behavior towards marine environments by two chronologically distinct yet geographically identical sites. Moreover, the material from the two sites covers a unique time span for the Cretan record, shedding light on well-documented, as well as on less known, cultural horizons.

The preliminary study of these two marine assemblages highlighted various cultural responses towards the adjacent marine environment and revealed divergent choices regarding the same type of resources. As a whole, the Neolithic occupants developed a more focused collection of limpets on the upper levels of the shore, possibly with more rudimentary tools and less time involved. Although later Minoan inhabitants maintained a taste for the main molluscan resource, they turned to other resources as well, and expanded collection to deeper waters, possibly enabled by technological advances. This diverging pattern may be in part related to the differential use of marine resources by the two coastal communities, namely an intensive collec-

<sup>25</sup> Germain 1924; Fischer 1949; Becker 1996; Claassen 1998, 20.

<sup>26</sup> Some examples in Karali 1999, 95.

<sup>27</sup> Baurain & Darcque 1983; Åström & Reese 1990.

<sup>28</sup> Karali 1999, 20; Theodoropoulou 2007b, 529–30. With regard to fossil oysters, their presence within the Miocene marly limestones of the region would point to a non-cultural presence (see n. 4). However, some of the specimens seem to be roughly cut.

tion for consumption during the Kephala period versus more occasional food exploitation of molluscs during the Minoan one. The use of marine shell as raw material is also well exemplified at both sites, in similar ways but also with quite a few differences. Shells are used in both periods as ornaments or receptacles of some sort, using a range of techniques, occasionally very elaborate in the Kephala collection, while somewhat simpler in the Minoan specimens, and often making use of the natural shapes and breakages. Although common shapes and utilitarian uses are to be found at both sites, a few singular pieces from Kephala remind one of similar examples from the Neolithic Aegean. Finally, the possibility of purple-dye pro-

duction within the limits of the Minoan palace of Petras needs to be further explored in conjunction with other strands of evidence, such as relevant installations and related material culture.

Future research will focus on spatial distributions within each context and a more refined contextual approach bringing together various archaeological and bioarchaeological evidence. The coastal character of these two communities living at the coastal fringe needs to be viewed both in light of the cultural spheres they represent and the environmental background they make use of. In this respect, any common responses as well as different interactions with the sea, are extremely useful for a better understanding of communities living by the sea.



# Discussion

**Haggis** That was very nice, a brilliant contrast. An issue of wider interest. If we were to reconstruct an inland environment as opposed to an estuary, I wonder whether these were also a technical selection decision in the Minoan period.

**Theodoropoulou** I have not identified any brackish species, which might have been indicative of an estuary environment, but still mixed substrates can also be found in this type of environment. So, yes.

**Haggis** My other question is about the food consumption, the boiling and all, is there an indication on the surface of the shells?

**Theodoropoulou** No, it does not leave remains.

**Rupp** Metaxia knows about the coring that was done in what once was an estuary. If you go to the Richardson plot, where the two Mycenaean type walls were excavated, toward the west, there was a beach there. There is clear evidence from that excavation of the beach level there. I think it went up to reach, what was the level?

**Tsipopoulou** The Minoan sea level was proved to be 4 m higher than the present one.

**Theodoropoulou** So this is evidence about the ancient seashore.

**Rupp** So that your reconstruction was rather timid, only what would have been possibly in the last phase.

**Theodoropoulou** Thank you.

**Betancourt** Is there a direct indication about murex exploitation?

**Theodoropoulou** I deliberately choose not to include this in my presentation because the remains of purple shells, although they are crushed and they might have been used for purple, were not concentrated in one place, and also it is difficult to imagine how they would have proceeded in this activity within a habitation area, not to mention the palace, because we all know that this exploitation is very smelly. They usually would want to do this close to the water and out of the settlement.

**Muhly** It seems to me that what your evidence indicates is that there is no purple dyeing industry in the Final Neolithic. I think this is confirmed by other sources. This is definitely not a fourth millennium industry.

- Theodoropoulou** At least not in Petras.
- Alberti** I want to ask you about purple uses. I want to tell you that in many cases in the Neolithic period we do find ritually crushed shells reused in buildings. So you do not need to find the proper context for dyeing.
- Theodoropoulou** Not necessarily, but at least you need some shells to do so. But I would be interested to know a little bit more about this house where dyeing and wool spinning were found, I cannot remember if there were any significant concentrations of murex, from this area, but this is something to work on.
- Triantaphyllou** Thank you for your very good presentation, Tatiana. I have a question: Can you estimate population units and how many people were fed from the remains you have from Kephala Petras, because this would be very interesting.
- Theodoropoulou** Of course what we can have in zooarchaeology is minimum numbers of individuals, so we have a very small proportion of what would have been the total, but we can test this hypothesis. Then there are ways to estimate life flesh from molluscs eaten, but then again it would be very vague and we would also have to take into account the other resources' input, not just marine ones, to have it. It is an idea and actually there used to be a whole school, back in the '1960s and 70's, with reconstructions of protein and other marine input from shells.
- Papadatos** I would like to intervene on that. It is very important, the deposition, at least at Kephala Petras, because the settlement was used for many decades, perhaps for more than one century, and what we have excavated is only what was left at the very end, in the final phase.
- Theodoropoulou** We can only have this if we have a closed context, a very precise context, and then we know for sure that this was one deposition event.
- Brogan** I think you have seen some of the stuff that has been found in House A at Papadi-okamos. We had tremendous evidence for limpets. In many cases they were cooking them, definitely they were heating them. My question to you is: Did you say that they were heating them to clean them, to take the sand out of them, or did I misunderstand you? Did you say that one of the reasons that they might have chosen to heat them rather than eat them raw was to clean them?
- Theodoropoulou** No, actually what I said was that in the palace we have burnt shells, a few burnt shells, but these are burnt deliberately or accidentally once the flesh was removed, once they have eaten the mollusk, and then they deliberately or accidentally have thrown the debris into the fire. This is something we find also today in several tribes around the world. Maori would dump shells into the fire, in order to clean out the space, etc. This has nothing to do with food consumption.
- Brogan** Yes, we found the same thing, the exact same thing.



- Hallager** I am going back to the purple dyeing. I want to give an example from my excavations in Khania. In several rooms we found a lot of crushed murex shells as floor packing, indicating that purple dyeing might have happened elsewhere and then they reused the crushed shells in the architecture. Metaxia do you have any evidence for that at Petras?
- Theodoropoulou** Yes, this is a possibility, but then you have to have large quantities of shell. This is something that has been found in Akrotiri; there was an underlying layer of crushed shells that had been used, isolating material underneath, I cannot remember which house it was. This is not the case at Petras, we have very few shells, they are all over, but they are not concentrated in one area.
- Tsipopoulou** I would like to bring into the conversation the evidence from the recent excavations at the cemetery, and there we also have lots of limpets. Since all the soil is water sieved, we have practically every remain collected and we have hardly any fish bone. This is, I think, very interesting. In many areas of the cemetery we have concentrations of shells and limpets in particular.
- Theodoropoulou** So you have shells inside the tombs?
- Tsipopoulou** Mostly outside of the tombs, in the so-called votive deposits.
- MacGillivray** I just want to go on from Metaxia's point. I am not sure how many other people here were a bit startled, but to look at a community level at Petras sitting at the mouth of a river on the Aegean sea and not having any fish bones, do not you find this strange?
- Theodoropoulou** Yes it is strange. On the other hand we do not know if they were dumping, throwing away food debris outside of the settlement, or in some other areas, although we would have found some anyhow, and conditions are not unfavorable for preservation of fish bones in Crete. This is what is usually put forward when we do not find anything that they are very fragile, that they are small, but this is not true, not all, we have found them on several other occasions in Crete, in Minoan contexts, so this is an issue to explore further.
- MacGillivray** We found a lot at Palaikastro.
- Theodoropoulou** Yes.
- Wedde** Since we have reached the bottom of the page, I would like to add a footnote. You showed a seal *CMS* VII, no. 17 a man with an object, that consists of a bar, three or four round objects and some ligatures attaching the round object to the bar, it is an interesting comment on how we do, what we do, when we do archaeology, because if you speak to textile people, Brendan Burke for example, it is obvious that this is a shorthand for a loom with the loom weights and if you speak to people from my area of specialization, the ship crowd, then that is obviously a proper raft and you call it a raft.

### *Greek abstract*

Εκμετάλλευση των υδάτινων πόρων κατά τη Νεολιθική και την Μινωική περίοδο στον Πετρά. Διαχρονικές τάσεις και πολιτισμικές αλλαγές.

Ο θαλάσσιος κόσμος πάντα γοήτευε τους ανθρώπους που ζούσαν στα άκρα τοπίων συνδεδεμένων με τη θάλασσα, όπως ήταν το νησί της Κρήτης. Πολυάριθμα είναι τα παραδείγματα της επίδρασης του θαλάσσιου στοιχείου στην καθημερινή ζωή και στις καλλιτεχνικές και συμβολικές εκφράσεις των προϊστορικών οικισμών της Κρήτης. Οι τελευταίες είναι φανερές τόσο σε Νεολιθικές, όσον και σε Μινωικές αποθέσεις, αν και είναι σπάνιο να βρεθεί συνέχεια στη συμπεριφορά των κατοίκων μιας περιοχής. Οι μακροχρόνιες ανασκαφές στο νεολιθικό οικισμό της Κεφάλας και το μινωικό ανάκτορο του Πετρά προσφέρουν μια ανάλογη θαλάσσια μαρτυρία. Πολυάριθμα λείψανα θαλάσσιων ζώων, τα οποία βρέθηκαν τόσο στην Κεφάλα, όσο και στο Μινωικό ανάκτορο, προσφέρουν μοναδική ευκαιρία για μια λεπτομερειακή ματιά στη χρήση των θαλάσσιων ζώων σε διαφορετικά πολιτιστικά και κοινωνικά περιβάλλοντα. Η ανακοίνωση σκοπεύει να εξερευνήσει τις πιθανές χρήσεις των ψαριών και των μαλακίων σε ένα Νεολιθικό οικισμό και στο Μινωικό ανάκτορο, και να χαράξει τις κοινές τάσεις και τις διαφορετικές αντιλήψεις σχετικά με τους καρπούς της θάλασσας εις μέρους δύο διαφορετικών ανθρωπίνων ομάδων.







# Obsidian modes of production and consumption from a diachronic perspective as seen from Petras and the Siteia Bay environs

*Cesare D'Annibale*

## *Abstract*

The sites of Petras, Petras Kephala and Hagia Photia as a whole present a virtually uninterrupted sequence of occupation spanning the Final Neolithic through the Late Minoan periods. Various parts of these sites have produced obsidian assemblages that offer a basis for tracking changes in reduction technology and the patterns of consumption of that material. Obsidian is consistently represented at these sites thus attesting to its vitality as a tool source. A drastic change in obsidian technology occurs between the Final Neolithic and Early Minoan periods. The transition from the Neolithic blade industry to the standardized production of prismatic bladelets in the later Minoan periods is highlighted by the Final Neolithic and EM I components of Kephala Petras. The Early Minoan II occupation on the hill at Hagia Photia and that of the house at Petras offer a glimpse of the production of standardized bladelets from the perspective of domestic contexts. In contrast, the enigmatic MM I site of Hagia Photia presents an obsidian assemblage that hints at the emergence of a restricted role for this commodity.

Finally, the obsidian assemblages from the palatial site of Petras reveal distinct patterns of consumption across the site in association with a centralized authority. It is in that context that obsidian demonstrates its resiliency as an adaptable commodity, which was indispensable in both social and ritual functions.

## *Greek abstract*

Τρόποι παραγωγής και κατανάλωσης οψιανών από διαχρονική προοπτική από τον Πετρά και το σύνολο του κόλπου της Σητείας

Οι αρχαιολογικές θέσεις του Λόφου Ι του Πετρά, της Κεφάλας Πετρά και της Αγίας Φωτιάς παρουσιάζουν συνολικά ουσιαστικά αδιάλειπτη συνέχεια κατοίκησης από την Τελική Νεολιθική, ως το τέλος της Μινωικής περιόδου. Έχουν προσφέρει σύνολα οψιανών, τα οποία αποτελούν τη βάση για την ανίχνευση αλλαγών στην τεχνολογία, την αφαίρεση από τους πυρήνες και τους τρόπους κατανάλωσης του υλικού. Ο οψιανός εκπροσωπείται συνεχώς σε αυτές τις θέσεις ως πρώτη ύλη για την παραγωγή εργαλείων. Η διατήρηση αυτού του ρόλου υπέστη δραστική τεχνολογική αναδιάρθρωση μεταξύ της Τελικής Νεολιθικής και της Πρωτομινωικής περιόδου. Η μετάβαση από την παραγωγή των Νεολιθικών λεπίδων, στην εξειδικευμένη παραγωγή μικρών πρισματικών λεπίδων των μεταγενέστερων Μινωικών περιόδων υπογραμμίζεται από δεδομένα της Τελικής Νεολιθικής και της ΠΜ Ι της Κεφάλας Πετρά. Η ΠΜ ΙΙ κατάληψη στο λόφο της Αγίας Φωτιάς και στο Λόφο Ι του Πετρά προσφέρει μια ματιά στην παραγωγή τυποποιημένων μικρών λεπίδων, από την άποψη των οικιακών συνόλων. Αντίθετα, η αινιγματική θέση της ΜΜ Ι στην Αγία Φωτιά παρουσιάζει ένα σύνολο οψιανών που υποδηλώνει ότι η χρήση του υλικού ήταν πλέον περιορισμένη.

Τέλος τα σύνολα οψιανών από το ανάκτορο του Πετρά φανερώνουν διαφορετικές μεθόδους κατανάλωσης σε σχέση με τη συγκέντρωση εξουσίας. Εδώ ο οψιανός αποδεικνύει τη διαχρονικότητα του ως προσαρμοσίμο αγαθό, το οποίο ήταν απαραίτητο σε ρόλους φορτισμένους με κοινωνικά όσο και θρησκευτικά νοήματα.







# The architecture of the house tombs at Petras<sup>\*</sup>

Philip P. Betancourt

## Abstract

The cemetery at Petras has two types of tombs, rock shelters and house tombs. The one excavated Rock Shelter is typical of this class of burial place in eastern Crete, with an overhanging ledge that protected the human bones and associated artifacts. The house tombs are more unusual for this part of the island because of their large size, many rooms, and careful construction. The best parallels come from the palatial site of Malia where the *Maison des Morts* and Chrysolakkos I and II were large rectangular burial buildings with many rooms and fixed benches for offerings. House Tomb 2, which has been completely excavated, provides a good example of this type at Petras. It contains eight rectangular rooms. Room 9 has an open north side that provides access to the tomb from an unroofed courtyard. Most of the interior spaces contained secondary deposits of disarticulated human bones, along with pottery and other artifacts moved from an earlier location. Room 8 held pottery that was stored for use in ceremonies, and a series of built benches along the exterior walls suggest repeated visits to the tomb for the placing of offerings.

The cemetery at Petras is located on Hill II, or Kephala between the settlement and the sea. The burial chambers are spread across the upper part of a ridge, slightly downhill and to the north of the Final Neolithic to EM I settlement called Petras Kephala.<sup>1</sup>

This early site preceded the population movement to the adjacent hill to the south where the town and palace were constructed later at a lower elevation.<sup>2</sup> The cemetery can be seen both from Kephala Petras and from the later habitation site.

Excavations began at the cemetery in 2004 under the direction of Metaxia Tsipopoulou, and they have not yet been completed. Eleven tombs have been assigned numbers, but the local topography suggests that several others are likely to have been present. Two types of tombs have been excavated from this site, a rock shelter and several house tombs. All of the built tombs are different from one another, and several of them are large complexes with spaces for many burials. Both the Rock Shelter and the house tombs are mostly ossuaries, and the primary burials are few. The date of the pot-

tery in these tombs ranges from EM I to Middle Minoan II, with only a few later vases in the Rock Shelter.<sup>3</sup>

The plan of the cemetery shows the major tombs that have been excavated.<sup>4</sup> The walls of one of them, Tomb 2, are completely exposed. The others are either only partly preserved or they are still under excavation.

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<sup>\*</sup> Thanks are extended to Metaxia Tsipopoulou for inviting the author to study the architecture from this cemetery. I would also like to thank the many staff members who participated in this project, including Yiannis Papadatos, who supervised the excavation in the early years, area supervisors Garifalia Kostopoulou and Susan C. Ferrence, trench supervisors Rachael Fowler, Sarah Linn, Judith Papit, Sarah Peterson, and Maria Relaki, assistant trench supervisors Amy Anderson, Jeannine Beckman and Gillian Robbins, survey specialists Doug Faulmann and Antonia Stamos, and photographer Chronis Papanikolopoulos.

<sup>1</sup> Papadatos 2007; 2008.

<sup>2</sup> Tsipopoulou 1989; 1991a; 1991c; 1991d; 1999a; Tsipopoulou & Wedde 2000.

<sup>3</sup> Tsipopoulou this volume, 117–31.

<sup>4</sup> Tsipopoulou this volume, Introduction, Fig. 13.



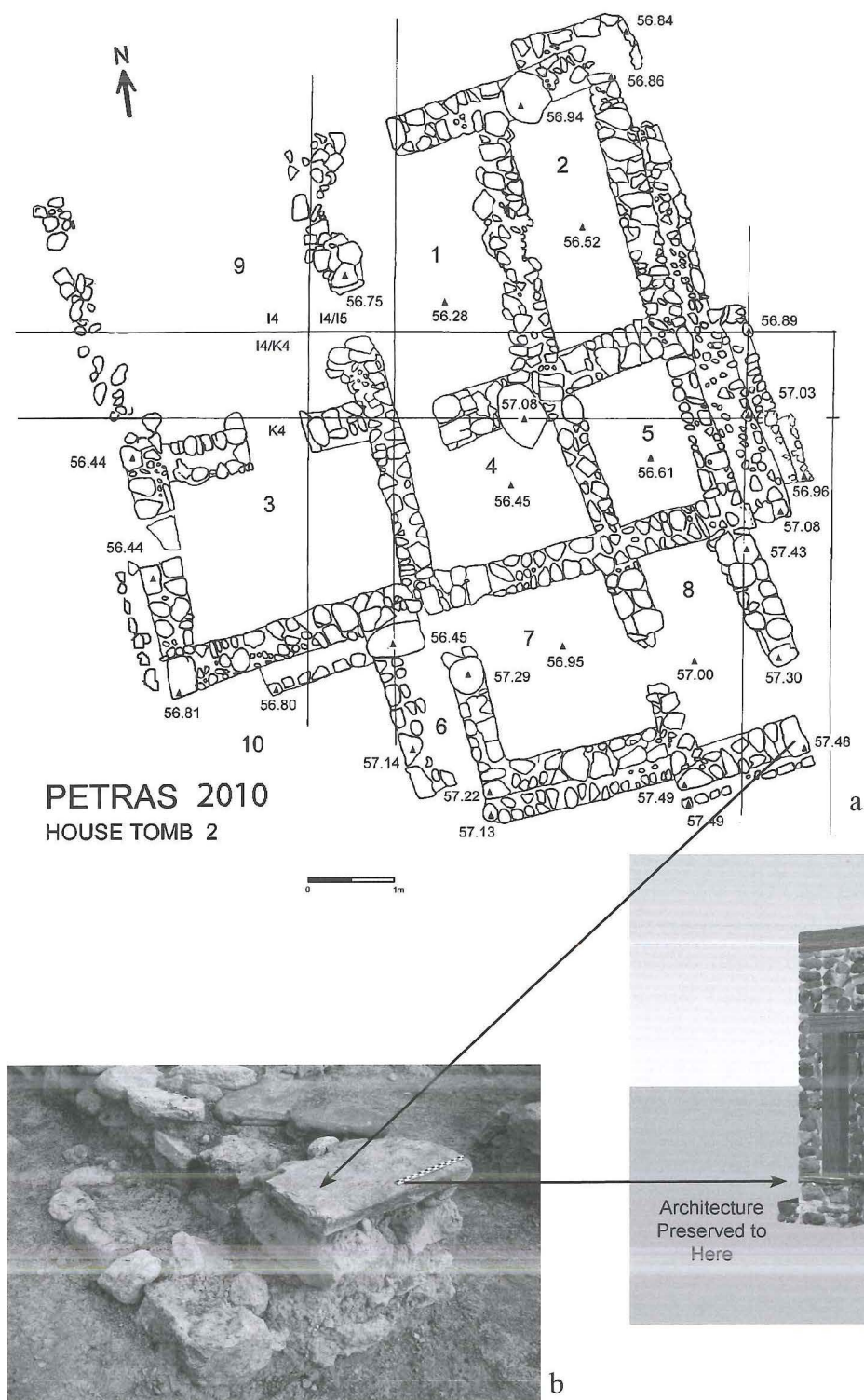


Fig. 1. a) Plan of Petras House Tomb 2, in 2010. Plan by Sarah Peterson, Susan C. Ferrence and Philip Betancourt; b) The southeast corner of Petras House Tomb 2 showing Bench 3 (at lower left) and a flat chlorite slab used as the base for a vertical wooden frame to the south of the doorway into Room 8. Photograph by Philip Betancourt in 2010; c) Reconstruction of the entrance into Room 8 in House Tomb 2. Reconstruction by Judith Papit, Jeannine Beckman, Kostas Chalikias, Florence Hsu and Marie Nicole Pareja, Archaeological Digital Library, Tyler School of Art of Temple University.

## House Tomb 2

House Tomb 2 was used until MM II. Its date of construction is not completely certain, but it was most likely built during EM III. It was placed at the south part of the cemetery (Fig. 1a). It had eight rooms, and its area covers about 60 m<sup>2</sup>. The structure was built on relatively level ground that had been partly occupied by an earlier building (Tomb 6), most of which had been removed before the construction of Tomb 2. The walls were constructed of rubble masonry with mud mortar between them. Some of the stones were large enough to extend across the entire thickness of the walls, a technique that resulted in a solid and durable construction.

The tomb had eight rectangular rooms. Room 9, a porch-like space with no north wall, faced an open court. This court was an integral part of the tomb's design. It provided an open space to the north of the structure with access to the partially open space established by Room 9. The east side of Tomb 5 closed off the court on the west. The east side was bounded by what remained of Tomb 6, the earlier tomb that was destroyed before Tomb 2 was built. Tomb 3 was at the north. The entrance to the court was at the east and it provided access to a small bench that seems to be the remains of an early wall from Tomb 6, as well as to Room 9 within the tomb itself.

The manner in which the walls butt against one another provides a record of the tomb's construction sequence. The earliest part was the long east-west wall between Rooms 3–4–5 and 7–8. It extended 7.21 m and established the width of the construction. The north-south walls were then added by butting them up against this first wall. The shorter east-west cross walls were added next. Finally, Rooms 7 and 8 were added at the south. Although the internal sequence of the walls can be established, no evidence survives to establish the time frame for this construction, and it may have all occurred within a relatively short space of time.

The walls were built by bonding the stones with mud mortar. The only modifications to the blocks were made with a hammer, and many of the stones were rounded or partly rounded from natural ero-

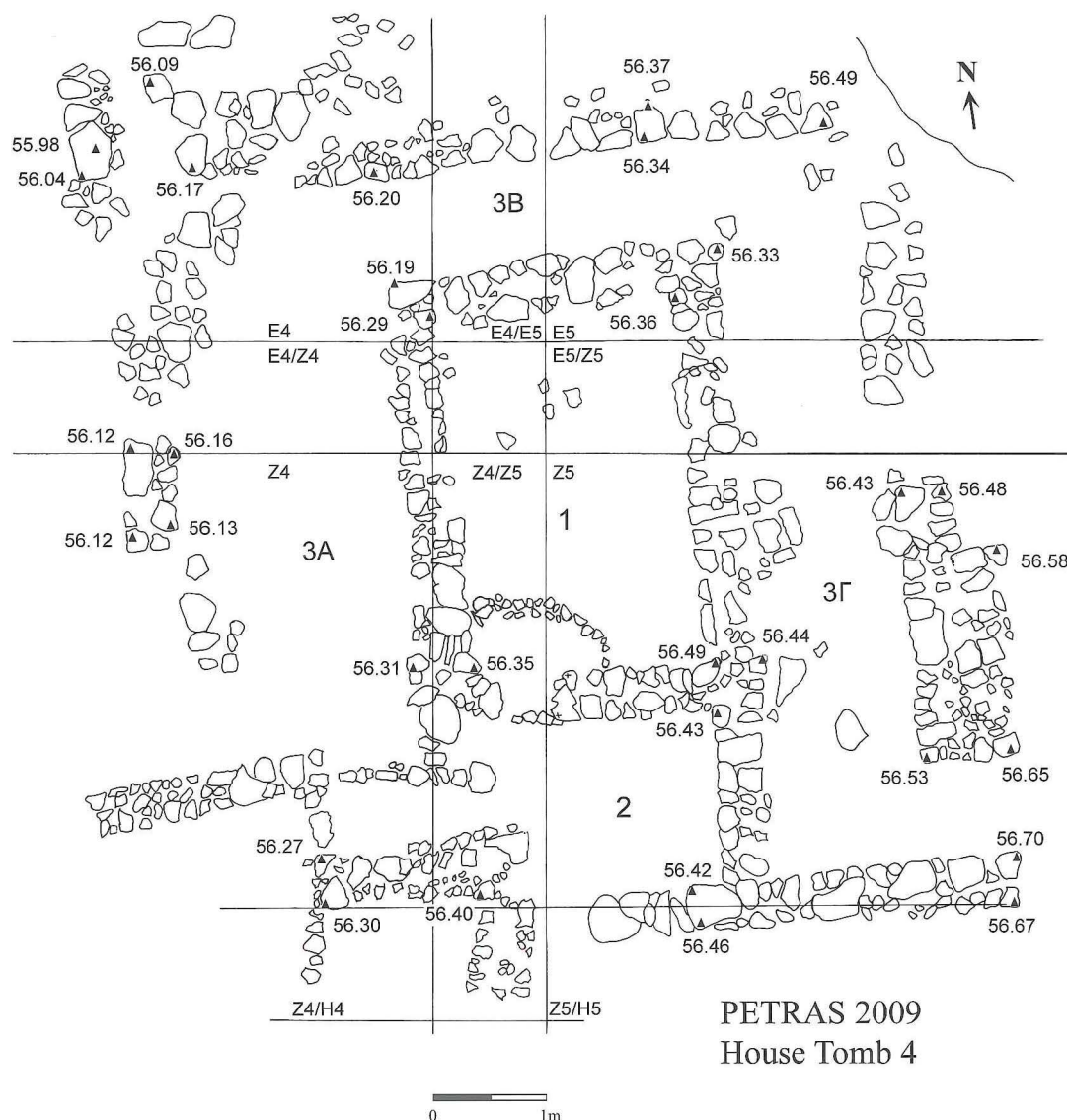
sion. The tomb was only a single story high. It had a flat roof. Rooms 2 and 5 had no means of entrance at floor level, and the only way to enter them would have been by ladders that descended from the ceiling. All the floors were of earth except for Room 9, which had a partial paving of beach pebbles along the east side.

Some of the rooms were used for different purposes. Rooms 7 and 8 were used for storage, and they contained only pottery, including large numbers of shallow plates. Room 9, whose open side faced the court, only had human bones at the back. It seems to have been a transitional space between the court and the tomb's interior, because it had doors to allow access to Rooms 1 and 3. Rooms 1 to 5 contained human bones, most of which were secondary depositions, along with grave offerings of various types. In order to provide more space inside the tomb, after the walls were constructed, the floor at the south of Room 9 and all of the floor of Room 3 were excavated below ground level, and the soil was removed, providing extra height inside these rooms and resulting in chambers that were partly above ground and partly sunk into the earth. Benches were constructed outside the building, around its exterior walls. They were built of small fieldstones, carefully laid to form flat upper surfaces that were completed with mud mortar. They are all under 20 cm high. The benches are too low and too narrow to have been used as seats, and they must have been for offerings. This building did not adjoin any other tomb, so an open space existed in front of every bench. The benches have been numbered from 1 to 7.

House Tomb 2 provides important information on the wooden carpentry that was used, along with the stone masonry for the walls of the building. Wooden doorframes were seated on flat stone bases that were hammer-dressed to size. Fig. 1b shows the green chlorite schist slab used for the doorframe at the entrance to Room 8, a space with its own outside entrance located at the southeast corner of House Tomb 2. Its restoration in Fig. 1c illustrates how this end of the House Tomb would have looked when it was complete.



Fig. 2. Plan of Petras House Tomb 4, in 2009. Plan by Susan C. Ferrence and Philip Betancourt.



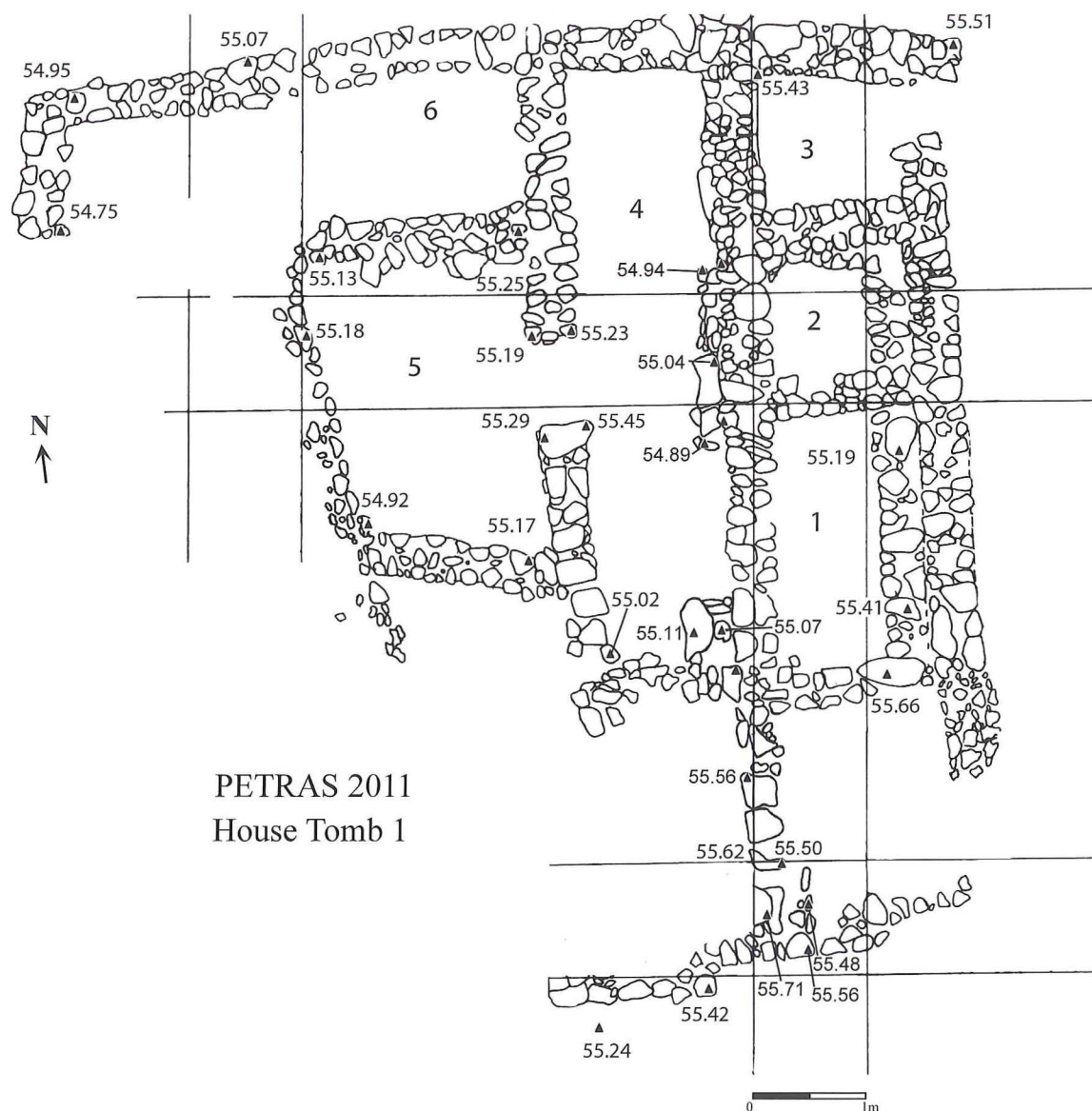
## House Tomb 4

Tomb 4, at the north of the excavated part of the cemetery, is very different from Tomb 2 (Fig. 2). Like Tomb 2, it is one of the later constructions in the cemetery, and its southwest corner is built over the corner of Tomb 3. The building's plan consists of a continuous U-shaped corridor (Room 3) that extends around the west, north, and east sides of a two room complex at the center of the building. The large central complex consists of a rectangular room oriented north-south (Room 1) which is adjacent to an almost square chamber at the south side of the tomb (Room 2).

Doors lead into Room 2 from the south and into the southeast end of the corridor (Space 3Γ) from the east. However, there is no door that leads into the central Room 1, and the only way to enter it would have been by a ladder that came down through the ceiling from the roof. In other words, there was no direct access from the U-shaped corridor into this central chamber.

The north and the west parts of the building are not well preserved, and the evidence is unclear about access to the interior from these directions, particularly on the west. Like other tombs in this cemetery, many of Tomb 4's stones were removed at the end of the Bronze Age when a LM IIIC

Fig. 3. Plan of Petras House Tomb 1 by Yiannis Papadatos (2005) with additions by Garifalia Kostopoulou (2009, 2010), Susan C. Ferrence and Philip Betancourt (2011).



PETRAS 2011  
House Tomb 1

complex was constructed on this hill, and additional blocks were pried up for use in agricultural retaining walls later.

The rubble masonry techniques used in Tomb 4 were similar to those in Tomb 2 and in the rest of the cemetery. The walls used only unworked or hammer-dressed blocks, set in mud mortar. No attempt was made to have regular courses. Many of the stones were irregular in shape, and the mud played a major role in bonding them together. No evidence for placing timbers within the walls was visible. The tomb was only one story high, and the roof was flat.

## House Tomb 1

Tomb 1 was located to the west of Tomb 4. Its plan was very different (Fig. 3). It consisted of at least nine rooms, some of which are beneath a large LM IIIC complex.<sup>5</sup> It was built over the remains of an earlier structure whose walls are visible at the northwest corner of the tomb, as well as elsewhere. The eastern and the northern parts of this tomb are well preserved. At the east, a group of three rooms extends across the length of the tomb from

<sup>5</sup> Tsipopoulou this volume, 127, Fig. 13.



north to south. None of these rooms has any access at ground level, and they must have been entered from the ceiling. Next to them was a long corridor-like space that extended across the tomb from north to south. Another long room was at the northwest.

The sequence of the visible walls could be determined from the butted joins between them. The north-south room at the west of Rooms 1–2–3 was built first, then the north wall of Room 3 was added, and the north-south wall at the east side of the building was added next. Cross-walls were then added to delineate individual rooms.

Like the other tombs in the cemetery, Tomb 1 was constructed of rubble masonry.

## The other tombs

Other tombs in the cemetery are only partly excavated or are poorly preserved.<sup>6</sup> Tomb 3, south of Tomb 4, is only partly excavated. Tomb 5, south of Tomb 1, is very poorly preserved because of erosion damage in antiquity and because many of its stones were removed before excavation began. Tomb 6 was destroyed before Tomb 2 was built. Tomb 7 was an open space between Tombs 1 and 5 that was covered over and used for burials. The excavation of Tombs 8–11 is in progress.

## Discussion

Crete used an extremely large number of different tomb designs.<sup>7</sup> Burials in the eastern part of the island employed house tombs, natural caverns, small overhanging ledges, shallow caves (sometimes made artificially), cist graves constructed of vertical slabs or of blocks of stone, built tombs of Cycladic style, and simple pits with no architecture of any type. Most tombs were ossuaries used for secondary burial. Where the evidence survives, it indicates that the body was often placed somewhere to allow the flesh to decay before the bones were placed in the ossuary, and complex practices consisting of sorting the bones or moving them to other places were not unusual.<sup>8</sup> Because in addition to practic-

es at the time of burial, the cemeteries were also the focus of ceremonies that took place long after the funeral, the builders made architectural arrangements for cult practices in the form of courts, benches, altars, and access routes to move between the various spaces. Many of these characteristics are present at Petras.

The closest parallels for the situation at Petras come from the Minoan house tomb tradition.<sup>9</sup> Minoan house tombs sometimes had many rooms, and they were used along with unroofed areas to provide places for funerary ceremonies. Most house tombs were small, consisting of either a single chamber or only a few rooms, in contrast with the larger size of most of the tombs at Petras. Although all known house tombs have unique features, they all consist of chambers constructed partly or completely above ground. Large house tombs with many rooms occur at several sites, including Archanes in Central Crete,<sup>10</sup> Malia in East-Central Crete,<sup>11</sup> and in two cemeteries near Palaikastro in East Crete.<sup>12</sup> Every burial building has its own plan, indicating that no general tradition existed for Minoan builders, and they were free to adapt each structure to the topography and their own individual needs and preferences. In eastern Crete, the only buildings that may have been on the same scale as Petras are at Palaikastro. Tomb 3 in the Ellenika cemetery was only partly preserved, but it had more than six rooms. Tomb 5 at the Patema cemetery, also at Palaikastro, was too poorly preserved to understand the complete plan, but it was also large. The plans are different from those at Petras.

Occasional tendencies and preferences can be recognized within the eclectic Minoan tradition. Although it is smaller and it is backed against a cliff, Tomb IV–V–VI at Mochlos provides a good com-

<sup>6</sup> Tsipopoulou this volume, Introduction, Fig. 13.

<sup>7</sup> Pini 1968; Branigan 1970b; 1993; Soles 1992.

<sup>8</sup> Branigan 1987.

<sup>9</sup> Soles 1992.

<sup>10</sup> Sakellarakis & Sakellarakis 1982, pl. 128.

<sup>11</sup> Van Effenterre & Van Effenterre 1963, plan 2; Van Effenterre 1980, 214–47; Soles 1992, 160–76.

<sup>12</sup> Bosanquet 1901–1902; Dawkins 1903–1904; Dawkins, Hawes & Bosanquet 1904–1905; Soles 1992, 179–93.

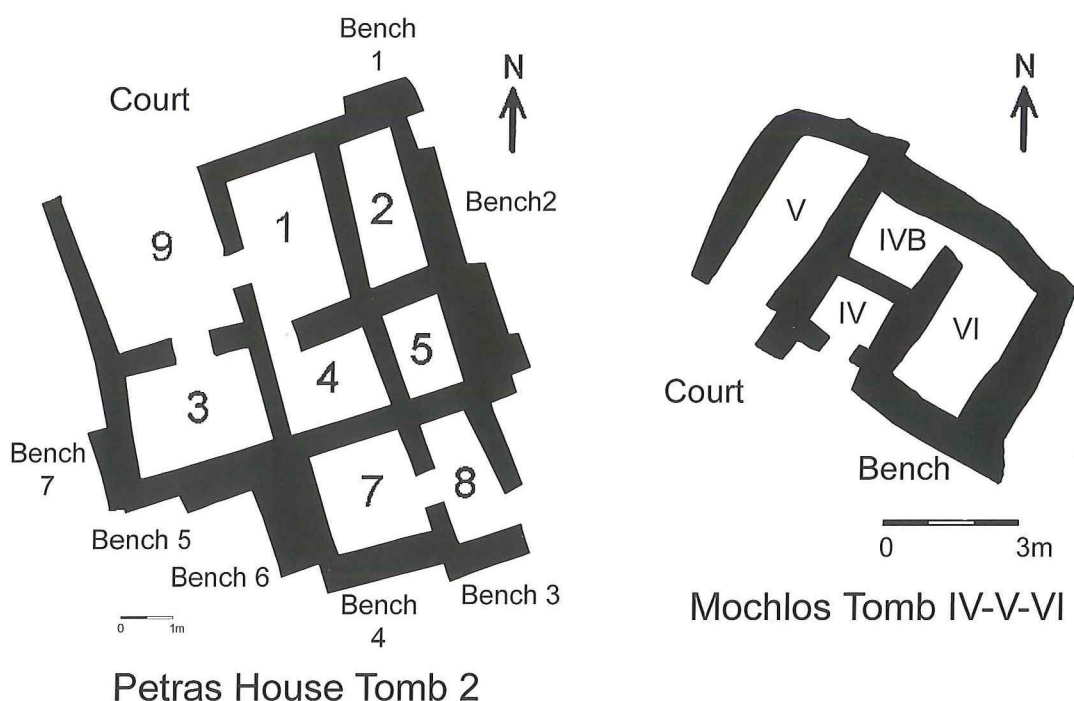


Fig. 4. Comparison between Petras House Tomb 2 and Mochlos House Tomb IV-V-VI. Petras drawing by Philip Betancourt. Mochlos drawing adapted from Soles 1992, 52, fig. 20.

parison with Tomb 2 at Petras (Fig. 4).<sup>13</sup> The complex of rooms at Mochlos consists of four rooms plus a small porch-like anteroom at the entrance to Room IVA. The tomb fronts onto an open space that would have provided access to the chamber with no front wall. Both Mochlos IV-V-VI and Petras House Tomb 2 have an open room facing a court and a series of chambers to hold the secondary burials and their offerings. In both cases, some rooms have no doorway, and they would have been entered from above, through an opening in

the roof. Both tombs have spaces entered through other rooms. These similarities suggest a clear relationship between some of the architecture at the Petras cemetery and earlier Cretan practices. The building at Petras can be regarded as a larger and more monumental version of a plan that was already present in Minoan funerary architecture.

<sup>13</sup> Seager 1912, 14-5, 40-56, figs. 15, 17; Soles 1992, 51-62.



# Discussion

- Schmidt** I would like to ask you about the rooms without an entrance. Perhaps the entrance was 50 cm higher, and the wall is not preserved at that height?
- Betancourt** Some of our walls are preserved at 50 cm height and still there is no entrance, so they would have to be well above the floor, we are not sure how high the room was, but surely not much higher than that, so we think it is probably likely that they were simply entered from above, but one does not know without the complete height.
- Schmidt** From above, as there is no first floor, you come from the terrace down, and it is difficult to close it again.
- Betancourt** Well, there is no terrace to enter them.
- Haggis** The pebbles in Room 9 are interesting; there are two traceable patterns which are not uniform elsewhere, one is cobbles used for services and the other is of course pebble paving and it is easy to finding a number of pebble paved strata, so Room 9 is the only indication of any kind of formalized surface that is stone paved?
- Betancourt** Yes, Metaxia Tsipopoulou will respond to that.
- Tsipopoulou** There is evidence of small pebbles scattered around, but the only organized area with pebbles is Room 9. Maybe there were more initially.
- Betancourt** And these are pebbles, not cobbles. They were no more than 1-2 cm in size.
- Muhly** Could it be that this lack of entrance in the rooms was a technique to protect the burials inside the room?
- Betancourt** I would not be surprised, especially from animals, you would want them to be protected.
- Papadatos** I am speaking about Room 3 in HT 2; do you think this deep deposit beneath the foundations of the walls belongs to the same phase or is it the remain of an earlier building?
- Betancourt** The question is about the deep level inside Room 3, in HT 2. It cannot be an earlier phase, because it follows the walls directly and could only have been excavated after the walls were in place, and there is a slightly less deep but slanting surface in the adjacent Room 9, so that it led down into that lower area very gradually, there is no mistake about that. So this is definitely an attempt, I think, to give more space inside the tomb.

- Papadatos** So they buried their older burials, they covered them with soil?
- Betancourt** Well, we do not know that. We know that they placed them in there, we do not know how much soil they put in. I am not sure.
- Tsipopoulou** This year we excavated HT 1, and especially Room 6, and we observed the same thing, burials continued underneath the foundation of the wall and in no case, whatsoever, have we found any bones or skulls being cut by the construction of the walls. If it was an earlier phase of an previous building, I think there would have been some bones going below the walls, but no, they were all within the room, but below the foundations.
- Macdonald** Is the phenomenon of the destruction of tombs at a cemetery like that common in Crete? What do you think its significance is, because you mentioned that one HT has been destroyed, before another had been built.
- Betancourt** I don't think it is very common. I am not aware of any parallels for building across a destroyed tomb, except certainly at places like Archanes, where there are multiple levels within a very circumscribed place. The difference here is that this is not a circumscribed small place there is plenty of room there, and that tomb could have been a little bit off to the side, or stop before it went across the corner, I do not have an explanation for it sociologically.
- Haggis** It just occurred to me thinking about what Schmidt just said about the height of the sills and the preservation of the walls – and some of these walls look like substantial walls – but a lot of them in East Crete are not terribly substantial. I just wonder whether there might have been a ritual process of actually taking down the walls, putting in subsequent burials and rebuilding the building as part of the whole process of a burial.
- Betancourt** We find both circumstances happening. In some parts of the cemetery they rebuilt at slightly different orientations above earlier tombs. HT 2, that I showed you, is just north of a great inclination leading down from the Neolithic and EM I levels, and the erosion came down much more extensively there, and that probably contributed to its good preservation.
- Yiannouli** Do we have any clear evidence about roof construction material, and whether the entirety of the buildings were roofed? Is there any chance that some of it was left open so that we can explain the absence of doorways maybe, or the feeble structure of some of the buildings?
- Betancourt** No, we do not have much evidence for the roofs.
- Stamos** Do you have anything in regards to the chronology of the building of the tombs? Because some tombs are oriented in specific ways.
- Betancourt** We are still working on the chronology, and Metaxia will have some comments on the chronology of the pottery in her next paper, so I wanted to defer to her on that.



**MacGillivray** What happens during MM IIA? Do they walk away from these buildings? And if so what they were doing with their dead after this? It is beyond your paper Phil?

**Betancourt** It is beyond my paper, but yes, they do walk away from them.

**Tsipopoulou** All we know is that early in MM IIA they constructed the palace and it is probable that they stopped using the cemetery at about the same time. Maybe they have other Protopalatial tombs of the same or of other types, we do not know yet. The big change is connected with the construction of the palace.

### *Greek abstract*

#### Η αρχιτεκτονική του νεκροταφείου του Πετρά

Το νεκροταφείο του Πετρά έχει δύο τύπους τάφων, βραχοσκεπές και τάφους-οικίες. Η μια ανασκαμμένη βραχοσκεπή είναι τυπική αυτής της κατηγορίας της Ανατολικής Κρήτης, με ένα προεξέχοντα βράχο στην οροφή, ο οποίος προστάτευε τα ανθρώπινα οστά και τα σχετικά κτερίσματα. Οι τάφοι-οικίες είναι πιο ασυνήθιστοι για αυτό το τμήμα του νησιού, εξαιτίας του μεγάλου τους μεγέθους, των πολλών δωματίων και της προσεγγμένης τους κατασκευής. Τα καλύτερα παράλληλα προέρχονται από την ανατολική θέση των Μαλίων, όπου η Οικία των Νεκρών και ο Χρυσόλακκος I και II ήταν μεγάλα ορθογώνια ταφικά κτίσματα με πολλά δωμάτια και θρανία για τις προσφορές. Το Ταφικό Κτίριο 2, το οποίο έχει ανασκαφεί πλήρως, προσφέρει ένα καλό παράδειγμα αυτής της κατηγορίας στον Πετρά. Περιέχει οκτώ ορθογώνια δωμάτια. Το Δωμάτιο 9 ήταν ανοικτό στη βόρεια πλευρά και προσφέρει είσοδο στον τάφο από μια αστέγαστη αυλή. Οι περισσότεροι από τους εσωτερικούς χώρους περιείχαν δευτερογενείς αποθέσεις μη αρθρωμένων ανθρώπινων οστών μαζί με κεραμική και άλλα τέχνεργα, τα οποία είχαν μετακινηθεί εδώ από τον τόπο της προτέρας τους απόθεσης. Το Δωμάτιο 8 περιείχε κεραμική που είχε αποθηκευθεί για να χρησιμοποιηθεί σε τελετουργίες. Μια σειρά ιτιστών θρανίων κατά μήκος των εξωτερικών τοίχων δηλώνουν επαναλαμβανόμενες επισκέψεις στον τάφο για την κατάθεση προσφορών.



# The Prepalatial-early Protopalatial cemetery at Petras, Siteia: a diachronic symbol of social coherence\*

*Metaxia Tsipopoulou*

## *Abstract*

The excavation of the unlooted cemetery of Petras, consisting of house tombs with complex plans, started in 2004. To date, eleven such buildings have been located and partially or totally excavated, the total number, as well as the actual size of the necropolis, being still unspecified. Also a rock shelter was excavated near the house tombs, which contained secondary burials, probably coming from the cleaning of a particular building in MM IB/IIA. The present paper deals with the evidence for the use of the Petras cemetery as an area of diachronic activity and a symbolic monument of social coherence for the community, many centuries after the end of its use as a burial place. House Tomb 2, completely excavated, is, to date, the most important building of the Petras cemetery, for its architecture, the movable finds and its date. It comprises nine spaces and included primary burials, both on the floor and in clay containers, along with many secondary burials. It is situated at the south limit of the cemetery, was constructed in EM III and used until MM IIA. The special interest of its date and also the very important movable finds (a large quantity of pottery, gold bands, unique seals, well preserved palaeoanthropological material), in combination with the evidence, offered by the architecture and by various classes of artifacts, for organized rituals in honor of the dead, show the significance of this monument for a better understanding of social evolution in the critical period of the transition from the Prepalatial to the Protopalatial period. In the Rock Shelter were found on the surface two Neopalatial vases, a ceremonial jug and a conical cup. Of particular importance for the continuity of use of the space as a symbol for the social coherence of the Petras community is a large LM IIIC megaroid building, accompanied by a peribolos, built partially on top of HT 1. This building was probably connected to special ritual activities in honor of the dead ancestors, showing a continuity at Petras of at least two millennia.

## Introduction

Various studies, since the beginning of the 20th century when Xanthoudides excavated the first Mesara tholoi,<sup>1</sup> and even more since 1970, with Branigan<sup>2</sup> and Soles<sup>3</sup> as the major contributors, have dealt with Prepalatial cemeteries of different architectural types, both in central and in eastern Crete. The aim was to understand the relationships between the communities of the living and the physical and symbolic areas of the dead. These studies were initially based on evidence from the

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\* The conservation of the finds is by Clio Zervaki; the drawings by Doug Faulmann and Jerolyn Morrison; the excavation photos by Yiannis Papadatos and Garifalia Kostopoulou; the aerial photos by Chronis Papanikolopoulos and Kostas Chalikias; the photos of the finds by C. Papanikolopoulos and G. Kostopoulou, who is also responsible for the plates. David Rupp checked my English text. To all of them my warmest thanks.

<sup>1</sup> Xanthoudides 1924.

<sup>2</sup> Branigan 1970a; 1988; 1993; 1998a.

<sup>3</sup> Soles 1992.





Fig. 1. Panoramic view of the Kephala Petras cemetery from the south.

tholoi in the Mesara, and subsequently the important burial complexes of North-Central Crete, especially that of Archanes,<sup>4</sup> and also the house tombs at Malia,<sup>5</sup> Mochlos,<sup>6</sup> Gournia,<sup>7</sup> Palaikastro<sup>8</sup> and Zakros.<sup>9</sup> Concurrently the organization of many Pre- and Protopalatial cemeteries of different architectural types, such as those at Malia,<sup>10</sup> Sphoungaras,<sup>11</sup> and Pacheia Ammos<sup>12</sup> has been examined.

All these studies have identified certain repetitive models of behavior and practices that do not seem to be connected to specific types of tombs, but rather to the social and administrative organization of the societies who built and used the cemeteries, and perceived them as social arenas for creating strategies for establishing roles and power.<sup>13</sup> For these purposes, in the archaeological record one of the most important features is the presence of specialized areas within the cemeteries for the gathering of groups of people during the burial ceremonies, and probably on other occasions as well.<sup>14</sup> Based on the movable finds, as well as on the arrangement of open spaces and the presence of storage areas for pottery, one can assume that these ceremonies involved food and drink consumption, and probably also dancing.<sup>15</sup> Furthermore, it has been pointed out that mortuary feasting constitutes a mode of generalized consumption, where food, bodies, persons and memories are consumed, and even the cultural logic of eating is close to the cultural logic of death.<sup>16</sup>

## The Prepalatial-early Protopalatial cemetery of Petras

The excavation, at the beginning of the 21<sup>st</sup> century, of a new, practically un plundered, Prepalatial

and early Protopalatial cemetery at Petras,<sup>17</sup> connected to a long-lived urban settlement (excavated since 1985<sup>18</sup>) which became palatial in MM II, is revealing significant amount of new evidence, both for tomb architecture, as well as for the social organization and the radical changes that occurred in the 20<sup>th</sup> century BC, leading to the construction of the palaces (Fig. 1).

The present paper will present some preliminary results and thoughts on the role and the importance

<sup>4</sup> Maggidis 1994; Panagiotopoulos 2002; Papadatos 2005 with earlier bibliography.

<sup>5</sup> Soles 1992, 160–72; Demargne 1945; Van Effenterre 1980, on the Malia cemeteries in general, 229–52; for Chrysosolakkos in particular, 231, 241–5, figs. 316, 338–342, 344–349, 351; cf. also Baurain 1987.

<sup>6</sup> Seager 1912; Soles 1988, 41–113.

<sup>7</sup> Boyd 1905; Soles 1988, 1–35.

<sup>8</sup> Bosanquet 1901–1902; Bosanquet & Dawkins 1902–1903; Dawkins 1903–1904; Dawkins *et al.* 1904–1905; Soles 1988, 179–92.

<sup>9</sup> Platon 1967a, 190–4; 1967b, 113–5; Soles 1988, 195–200; Becker 1975.

<sup>10</sup> Demargne 1945; Van Effenterre & Van Effenterre 1963.

<sup>11</sup> Hall 1912.

<sup>12</sup> Seager 1916.

<sup>13</sup> Murphy 2011b, 8.

<sup>14</sup> Branigan (1998b, 22), suggested two annual festivals to celebrate the death and the resurrection of Ariadne, one in autumn (harvest) and the other in the spring.

<sup>15</sup> Branigan 1991; 1993; 1994; 1995; 1998b, 19–23; Relaki 2003; 2004; Sbonias 1999.

<sup>16</sup> Hamilakis 1998, 117.

<sup>17</sup> For the Petras cemetery, Tsipopoulou 2010b; in press a; in press b; Triantaphyllou 2009; 2010b; in press; this volume; Triantaphyllou *et al.* forthcoming; Betancourt this volume; Ferrence *et al.* this volume.

<sup>18</sup> For the complete bibliography on Petras, [www.petras-excavations.gr](http://www.petras-excavations.gr).



of the Petras cemetery for the social coherence of the community, not only during its period of use, but, as was the case with other cemeteries of the same period,<sup>19</sup> in other – later – times as well. The central idea was the preservation of the memory of the ancestral burial place, and the respect for its highly symbolic character, diachronically, as a reference point for the community of the living. The interaction with the landscape played a critical role in this case, as will be discussed below.

The area of Petras presents a remarkable continuity of occupation, starting in the Final Neolithic<sup>20</sup> and proceeding uninterrupted to the end of the Bronze Age, in LM IIIC. In EM IB the first settlement on Kephala Hill was abandoned in favor of the lower and more easily accessible Hill I, where the palace was to be erected later.<sup>21</sup> The inhabitants of Petras at that time constructed a cemetery of house tombs on Kephala Hill, adjacent to the FN–EM I settlement, thus returning to the ancestral place, the area of the most ancient habitation of the living. The position of the cemetery on the large elevated plateau of the Kephala Hill is strategic for the whole of the Siteia Bay area, and for Petras in particular. The cemetery was destined, by its mere topography and visibility, to constitute a place of special significance diachronically. Furthermore, it was, at the time of its use, very clearly isolated from the every day life of the community of the living, as Kephala Hill was not inhabited then.

All house tombs investigated to date belonged to elite groups of the society, as suggested by the architecture<sup>22</sup> (they have complex plans and occupy more than 60 m<sup>2</sup> each), as well as by the movable finds, i.e. gold and other metal jewelry and beauty implements,<sup>23</sup> seals,<sup>24</sup> imported objects and stone vases. House Tomb 2 in particular (Fig. 2), the only one fully excavated, excels all others for many reasons:

- Because of its position: it is situated at the south end of the large plateau in an area relatively protected from the strong winds and the erosion.<sup>25</sup>

- Because of its date: House Tomb 2 shows clearly the transition from the group burials to the individual ones in clay containers, two larnakes and a pithos. These burials, in Rooms 1 and 3, directly



Fig. 2. Aerial photo of House Tomb 2.

accessible from the exterior, were among the latest deposited in the House Tomb, while Rooms 2, 4, and 5 contained only secondary burials.

- The third reason making House Tomb 2 unique is the finding of exceptional seals, some of which had hieroglyphic inscriptions,<sup>26</sup> that belong to the Protopalatial period and were undoubtedly connected with palatial administration. It is characteristic that these seals were found very close to a broken larnax.

<sup>19</sup> Branigan 1970a, 23.

<sup>20</sup> Tsiopoulou this volume, Introduction; Papadatos this volume with bibliography.

<sup>21</sup> Tsiopoulou in press b.

<sup>22</sup> Cf. also Betancourt this volume.

<sup>23</sup> Ferrence *et al.* this volume.

<sup>24</sup> Krzyszkowska this volume.

<sup>25</sup> It should be noted, however, that all the house tombs of the Petras cemetery belonged to elite groups and, as they are all placed on a large plateau, their position is not as significant as at Mochlos (cf. Murphy 2011c, 34) to mark pronounced social differences.

<sup>26</sup> Krzyszkowska this volume.



# House Tomb 2

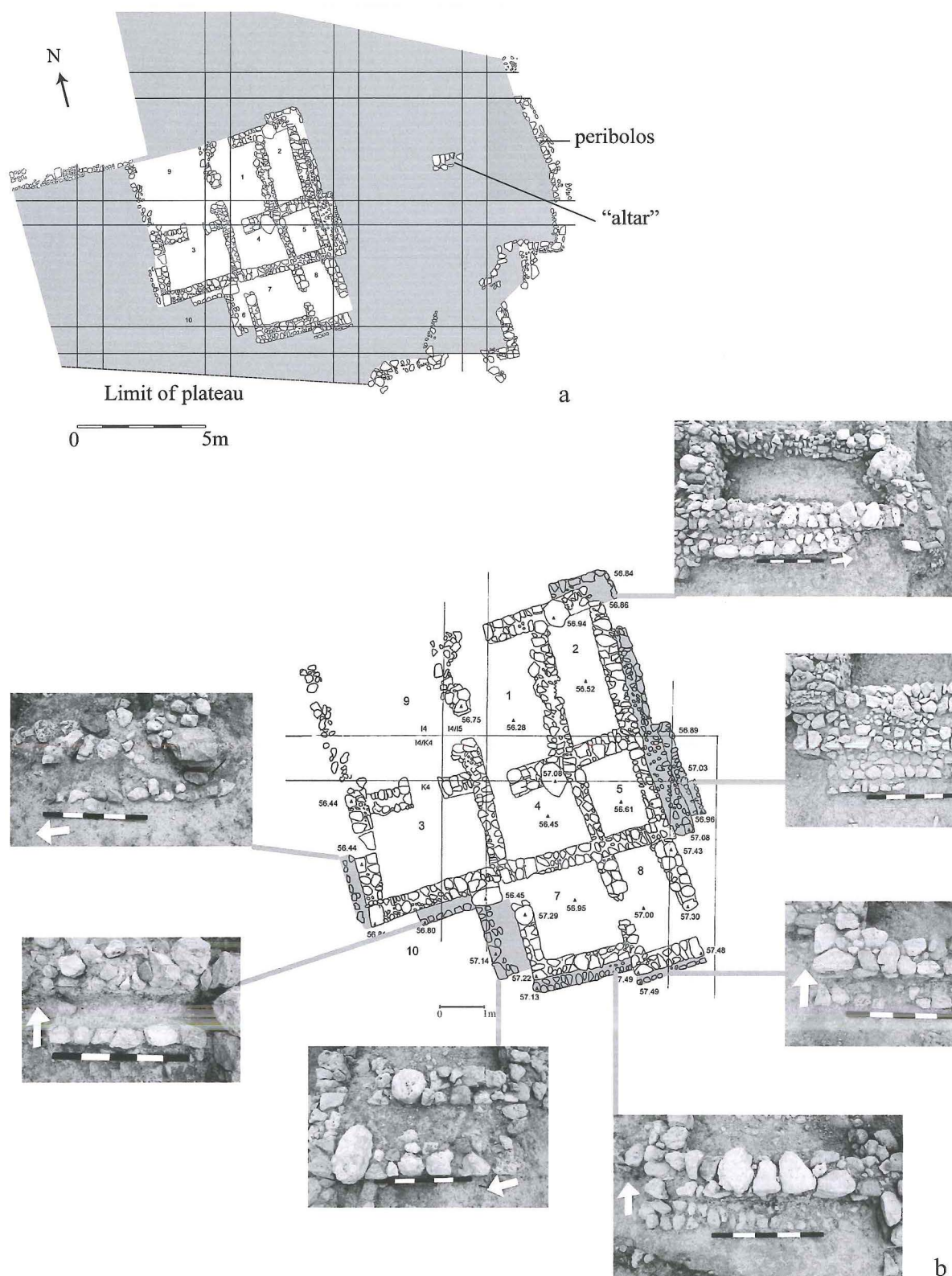


Fig. 3. a) House Tomb 2 and hypothetical reconstruction of open space around it; b) Plan of House Tomb 2 with the benches.

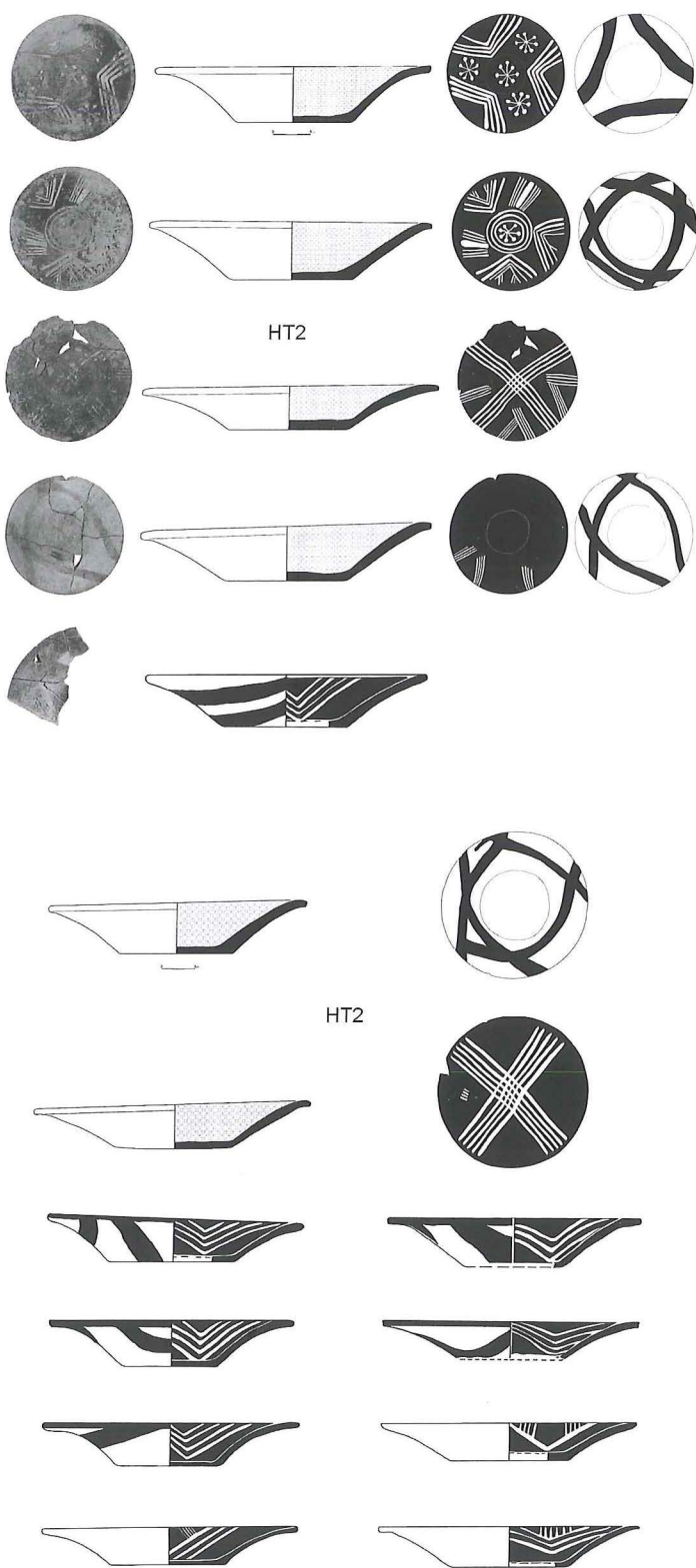


Fig. 4. Plates fallen in front of the benches and plates stored in Room 7 of House Tomb 2 (pictures not to scale).

The space around House Tomb 2 is organized to be used for ceremonies (Fig. 3a), at the time of the burials or in other instances, as it is probable that this important funerary monument was a reference point for a group of the population larger than the one that had used it for the burials of its members. The preliminary analysis of the skeletal material by S. Triantaphyllou has shown that the social unit represented in the house tombs at Petras was the family.<sup>27</sup> The same was probably true for other cemeteries of similar type in eastern Crete, such as that on Mochlos.<sup>28</sup> Yet, both the architectural features connected with rituals in House Tomb 2, such as the benches, as well as the movable finds, especially the pottery, show that they served a substantial number of people.

Built benches were constructed around all external rooms of the building (Fig. 3b), while there is no certainty about benches in other excavated tombs of the Petras cemetery. These benches are too low to seat people; rather they were used for offerings. Although no offerings were found *in situ* on the benches, there were many fallen in front of them, especially plates. At the eastern part of the building, apparently for symbolic purposes, there are a very long bench, which turns and continues after the north-eastern corner, and also a large stepped platform in the middle of the east side of the tomb. Close to this feature there were three complete and twelve fragmentary plates, while a further three were fallen in front of the long bench on the east side. Another three plates were found fallen in front of the wide bench at the west side of Room 7 (Fig. 4).

A free space, or courtyard, covering at least 230 m<sup>2</sup>, was arranged around House Tomb 2 on all four sides, and was initially defined by a peribolos, partially preserved today, which closes the whole cemetery to the east (Fig. 3a).<sup>29</sup> In this open space a large deposit of Protopalatial pottery has been excavated, including Kamares wares (Fig. 5a-e). This votive deposit (Votive Deposit 1) also contained animal bones and many marine shells, especially

<sup>27</sup> Triantaphyllou in press.

<sup>28</sup> Murphy 2011b, 28–34, esp. 30.

<sup>29</sup> Also Tsiopoulou this volume, Introduction, Fig. 13.





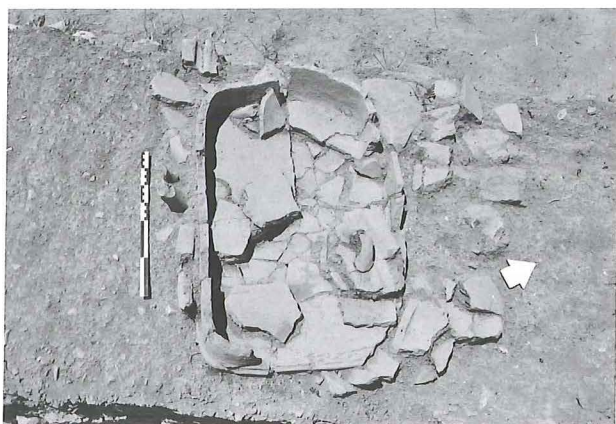


Fig. 6. LM IIIC larnax in the southern part of Votive Deposit 1 of House Tomb 2.

limpets, and to a lesser degree, murex shells. It is notable that there seems to be a consistency in the dimensions of several of the finds, such as the deep-water shells, and many of the open dishes or shallow bowls, which may imply the relevance of standardized rations in the ceremonies taking place in this area. Especially significant was the presence of lamps, most of which were pedestalled, probably suggesting nocturnal cult activities, although the possibility of being discarded after their use in the interior of the tombs should not be excluded.

## Discussion

Funerary rituals are of particular importance as well as being standardized throughout the world, practically in all human societies, because they are considered a rite of passage between life and death. Their principal function is to facilitate the separation.<sup>30</sup> The importance of sharing food and drink during these ceremonies has been also stressed, as communal eating and drinking is considered a strong experience to be remembered, and therefore important for social cohesion. If this strong communal experience is combined with the emotions involved with death and separation, the experience is further enhanced both on an individual and on a social level. Also, through these rituals “social forgetting” is achieved as the living need to realize that the dead person does not belong with them anymore and has lost his social persona. Thus the mortuary feasting, as was rightly pointed out, constitutes a mode

of generalized consumption “where food, bodies, persons and memories are consumed” at the same time.<sup>31</sup> Eating and digestion are diachronically and interculturally considered as a metaphor for death, and this explains their intimate connection with rites at the time of burial or in honor of the dead. Hamilakis has explained the connection between the cultural logic of eating and that of death, both being related to control over bodies.<sup>32</sup>

In the southern part of this votive deposit, at a distance of approximately 4 m from the southeast corner of the tomb, an almost complete LM IIIC larnax, broken but *in situ*, decorated with fish in the interior and octopuses on the exterior surfaces,<sup>33</sup> was revealed resting on a layer of flat stones (Figs. 5a, 6, 7). The larnax did not contain any human remains or other finds, and was located at a level considerably higher than the “floor” level of the votive deposit to the east. It is not easy to explain the presence of this later artifact, apparently not used for a burial, as it was so close to the LM IIIC settlement. Between the larnax and the east side of the tomb there is a rectangular, elevated, free-standing construction, probably similar to the so-called “altars” connected with some of the Mesara tholoi (Figs. 5a, 7).<sup>34</sup>

Another important indication of ritual activities in connection with House Tomb 2 is the fact that two of its Rooms, 7 and 8, added at the east side of the original plan during a second architectural phase,<sup>35</sup> did not contain any burials, but were storage areas for dining equipment. These rooms are adjacent to the open space, the stepped platform and the peribolos, and have access to all of them. Also, as already mentioned, they are equipped with external benches. In Room 7 were stored 30 plates, and another two were found in Room 8, together with vessels of other types (Fig. 8).

<sup>30</sup> Murphy 1998, 32.

<sup>31</sup> Hamilakis 1998, 117.

<sup>32</sup> Hamilakis 1998, 115.

<sup>33</sup> Cf. Tsipopoulou & Vagnetti 1997.

<sup>34</sup> Branigan 1970a, 101, 132, 134, 160; cf. pl. 13 for the “altar” outside the Kamilari tholos.

<sup>35</sup> This second phase, although very clear in the architecture, cannot be differentiated from the previous one on ceramic evidence.



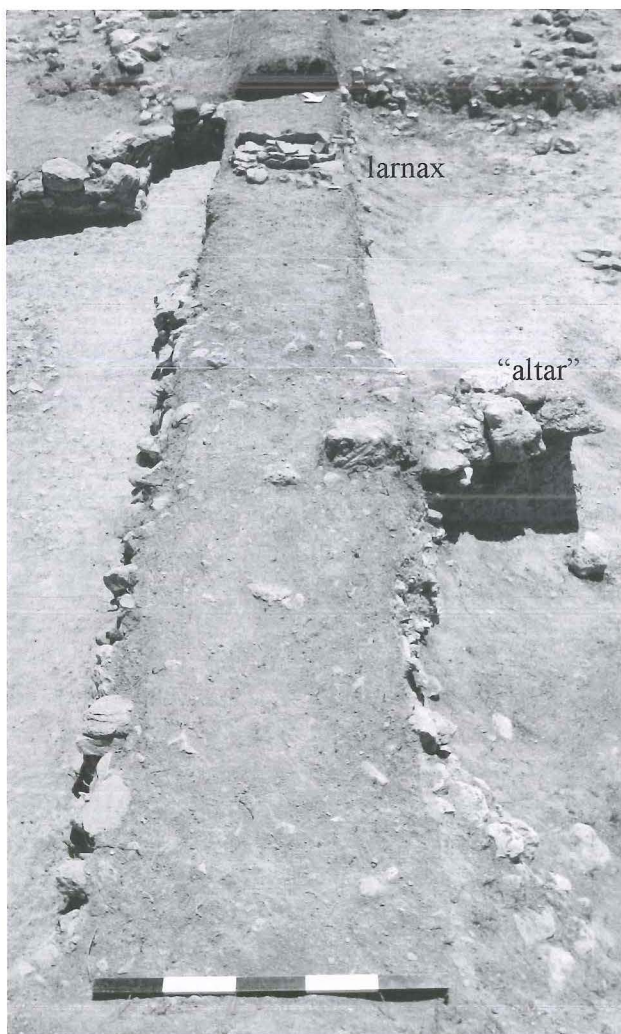


Fig. 7. Larnax and “altar”.

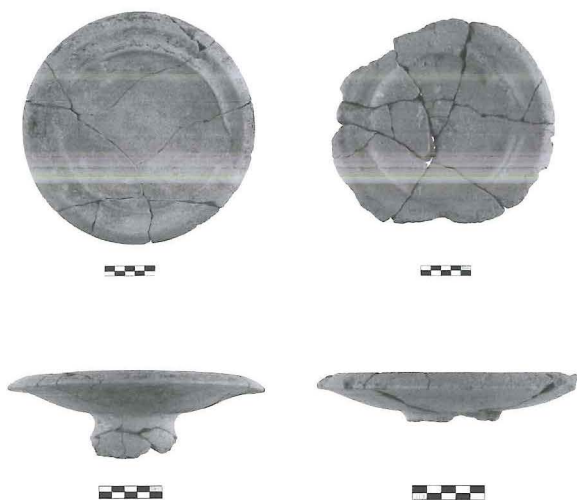


Fig. 8. Lamps from Room 7 of House Tomb 2.



Fig. 9. Votive Deposit 2 from the west.

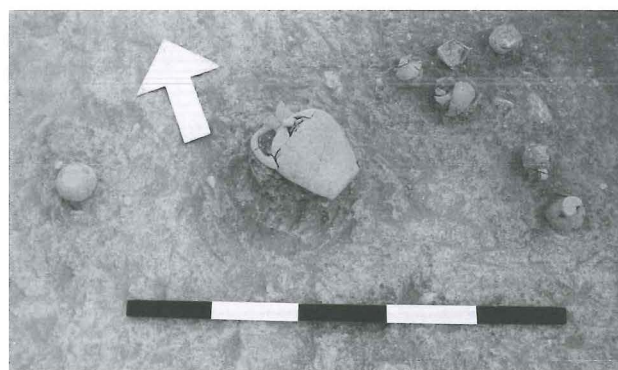


Fig. 10. Detail of Votive Deposit 2 from the south.

The 2011 campaign at the Petras cemetery produced significant evidence for the presence of at least one more similar votive deposit (Votive Deposit 2) at the northeastern part of the cemetery, apparently connected to another House Tomb, not yet excavated. This deposit, itself not completely investigated as of yet, contained a large amount of good quality Protopalatial pottery, hundreds of marine shells, and, for the first time, fragments of clay figurines very similar to those found at the peak sanctuaries of eastern Crete, two of which, Piskokephalo<sup>36</sup> and Prinias<sup>37</sup> are connected to Petras (Figs. 9–11).<sup>38</sup>

It is very significant that ritual activity at the cemetery continued during the Protopalatial peri-

<sup>36</sup> Platon 1952a.

<sup>37</sup> Davaras 1988 with earlier bibliography.

<sup>38</sup> For Prinias and its importance for the wider area of the Sitia Bay, see also Sofianou & Brogan this volume.

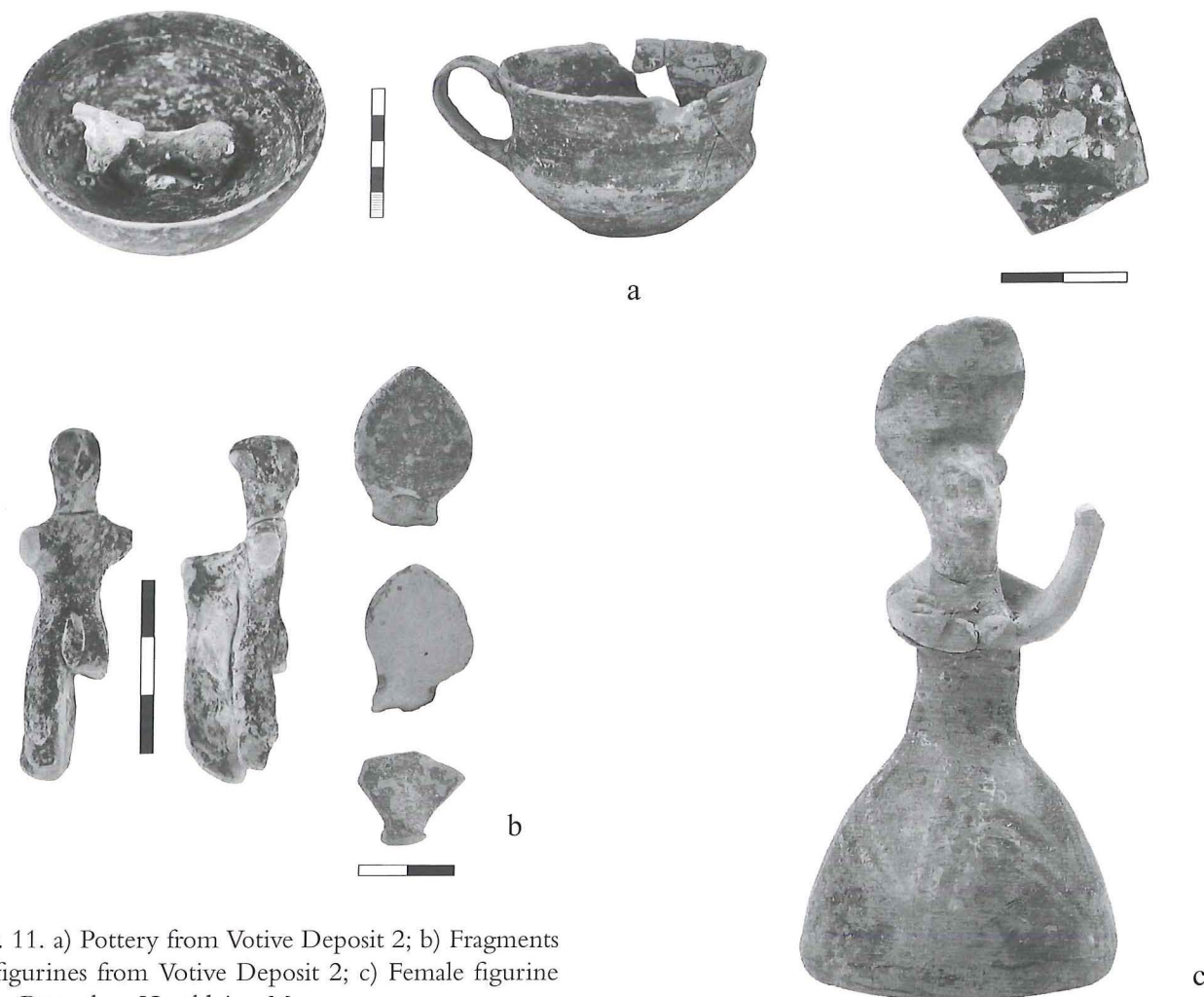


Fig. 11. a) Pottery from Votive Deposit 2; b) Fragments of figurines from Votive Deposit 2; c) Female figurine from Petsophas, Herakleion Museum.

od, when the Petras palace was already functioning as a center of communal gatherings aiming at consolidating the social coherence, and also as a center of state authority.<sup>39</sup>

Within the Petras cemetery, very close to the house tombs, a burial rock shelter was excavated, situated high on the west side of Kephala Hill.<sup>40</sup> It has a wide entrance facing the settlement and the palace. The Rock Shelter contained a secondary deposit, probably coming from the cleaning of a particular House Tomb on one specific occasion, as indicated by the inverted stratigraphy and the joins of the skeletal material.<sup>41</sup>

For the present discussion it is noteworthy that a clay LM IB high-spouted jug, imitating a metallic prototype,<sup>42</sup> was found on the surface of the Rock

Shelter accompanied by a conical cup (Fig. 12a-b). These two vases, of a clear ritual character, indicate that the place of the ancient (at the time) cemetery was always known to the inhabitants of Petras, even

<sup>39</sup> For the Petras palace and its Protopalatial background, Tsiopoulou 2002.

<sup>40</sup> Tsiopoulou 2010b; 2012.

<sup>41</sup> Triantaphyllou this volume.

<sup>42</sup> This undecorated example, somewhat coarsely executed, has no exact parallels, as far as I know, among the published material from eastern Crete, although its upper part (neck and rim) is very common in LM IB jugs throughout Crete but combined with a much more slender body. For the globular depressed body of the Petras example, cf. an ewer from Khania, which has an identical handle, Andreadaki-Vlazaki 2011, fig. 15a.





Fig. 12. a) Rock Shelter: LM IB beaked jug and conical cup as excavated from the west; b) Jug and conical cup.

in the Neopalatial period, or else that at that time the Rock Shelter was rediscovered. What is certain is that in Neopalatial times there has been at least once cult activity in the Rock Shelter in honor of the ancestors.<sup>43</sup>

The LM I destructions had devastating effects on the settlement of Petras. Following the LM IA destruction, a large part of the settlement was destroyed and never rebuilt. Also the palace, after the destruction, although it maintained its administrative and symbolic character, underwent various im-

portant modifications to its plan. Finally, the LM IB destruction caused the abandonment of the palace, and probably of the settlement too. The libation in the Rock Shelter happened exactly in this unsettling period.

In a much later period, namely LM IIIC, a new settlement was established on Kephala Hill.<sup>44</sup> In a period of insecurity, the inhabitants decided to leave Hill I and move to a higher and more naturally protected place, as was a common practice throughout Crete. The choice of Kephala probably meant that they were still aware that this hill had been a place of habitation for their ancestors, and therefore a sacred place. Even though this hypothesis cannot be proven, it is highly probable that the relative sense of security was not the only criterion for this choice. Furthermore, it is significant that they avoided placing the LM IIIC buildings of the settlement on top of the remains of the ancient tombs, which might have been still visible on the surface (Fig. 13). It seems that they respected the taboo of the avoidance of contact with the dead, even though, at the same time, they sought their protection.

Despite the fact that no LM IIIC house was placed on the remains of the house tombs, there is an exception to this rule at the northern part of the cemetery. Partially on top of House Tomb 1 a large megaron was erected, accompanied by a well-built peribolos. It is quite possible that this megaron had a special function, as the different plan and its isolation suggest, being perhaps an early *temenos* (Fig. 13).

The megaron, measuring 8 x 5 m is not well preserved. The entrance is to the south, opposite the sea. It preserves a complete plan and three column bases in its interior. In front of its entrance there is a paved square platform of almost 4 m<sup>2</sup>. Although no evidence for a ritual function of this building is available, one should point out that no other build-

<sup>43</sup> Interestingly enough the two Neopalatial vases were found very close to an articulated leg, although this fact does not imply a burial in the LM I period, as first no other part of the same skeleton was preserved *in situ*, and an MM IB cup was found together with the LM I vases.

<sup>44</sup> Tsipopoulou 2011b.

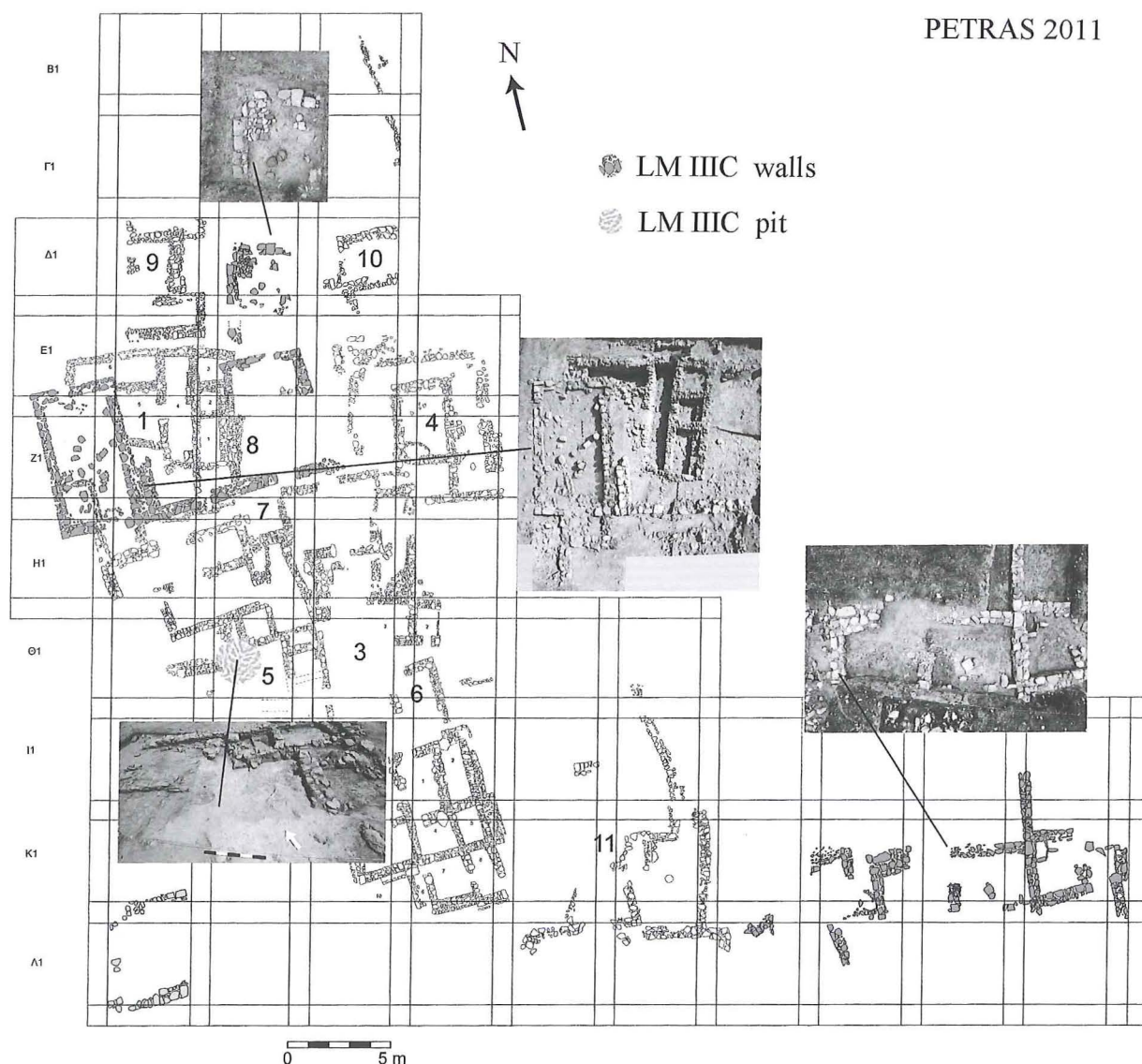


Fig. 13. LM IIIIC remains: megaron and peribolos, paved area, pit and houses.

ing in the settlement was of similar plan or size.<sup>45</sup> A second paved area, also LM IIIIC in date, lies to the northeast of the megaron, but its excavation has not been completed (Fig. 13). Megaroid plans in Crete indicate probably Mycenaean presence,<sup>46</sup> which has already been identified at Petras. The presence of the large double fortification wall on the lower slope of Hill I<sup>47</sup> and also the Mycenaean type fusi-form loom weights, which were unknown in Crete prior to the arrival of people from the Mainland, as well as the so-called cooking amphorae, again a typical Mainland vessel type,<sup>48</sup> should be noted

here. Finally, reference should be made to another particularly interesting LM IIIIC deposit connected

<sup>45</sup> At Halasmenos, a settlement of the same period (middle LMIIIIC) excavated by the author, there are a series of buildings with megaroid plans that all seem to have had special functions, one of them being a sanctuary of the “Goddesses with up-raised arms” and another three probably having served as meeting and dining places for parts of the community, Tsiopoulou 2009; 2011a.

<sup>46</sup> Tsiopoulou 2005b.

<sup>47</sup> Tsiopoulou 2005b, 312–4, figs. 7–9.

<sup>48</sup> Tsiopoulou 2005b, fig. 5.



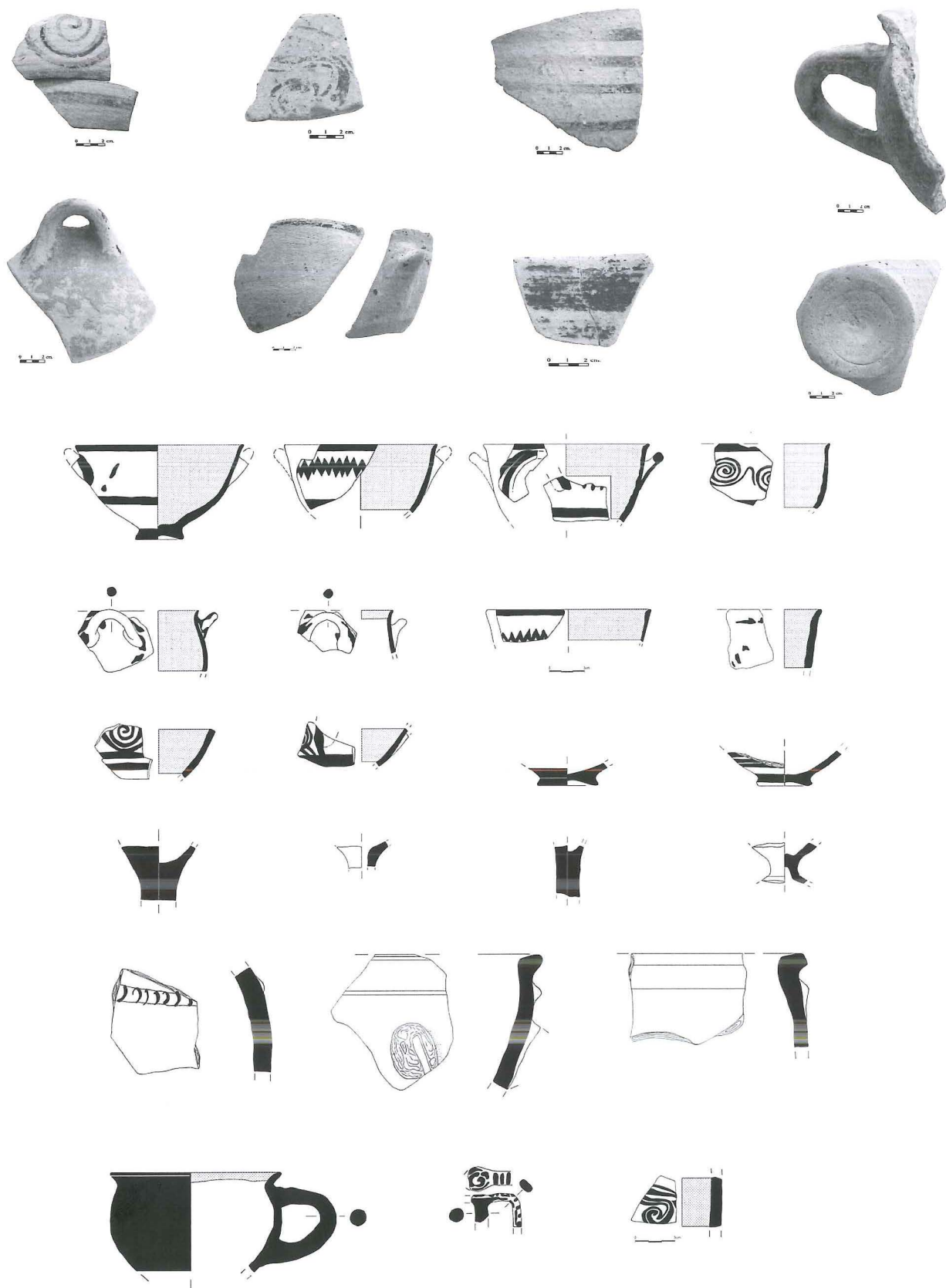


Fig. 14. LM IIIC pottery from the pit.

with the cemetery, namely a refuse pit, dug within House Tomb 5 (Fig. 13), and partially cut into the soft bedrock, which contained a large quantity of LM IIIC pottery, especially plates, deep bowls and kylikes, in a layer of intense burning, accompanied by a large amount of sea shells and a bronze knife (Fig. 14). Similar pits are rather common in LM IIIC sites and have been interpreted as the remains of symposia or ritual consumption of food and drinks. Published examples include pits from Syvri-ta<sup>49</sup> and Khamalevri in the Rethymnon area.<sup>50</sup> Also, communal meals in open areas of the settlement are attested at Phaistos in the same period.<sup>51</sup> It is difficult to see the choice of the place for the deposition of the remains of communal meals within the ancient cemetery as merely a coincidence. The pit is closer to the megaron than to the houses of the LM IIIC settlement, and it was situated almost in the middle of a large open (in LM IIIC) space (Fig. 13). It is quite probable that this data pertaining to the end of the Bronze Age, a period of social and political insecurity and movements of population

across the whole of the Aegean after the collapse of the Mycenaean palatial system, suggests that the inhabitants of Petras felt the necessity to pay respect to their ancestors, either real or imaginary ones.

The cemetery of Petras and the ceremonies involved with it over a period of almost 2,000 years serves very well as an example to illustrate the social aspect of (collective) memory in structuring (elite) group identities, especially by recollection, reconstruction, and in some cases even oblivion.<sup>52</sup>

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<sup>49</sup> Rocchetti 1994b, 242, figs. 12–13; Metaxa-Prokopiou 1994; D'Agata 1997–2000.

<sup>50</sup> Andreadaki-Vlazaki & Papadopoulou 2005, 359, 361, 364, figs. 4–8, 19, 21–30, 34–5, 37; 2007 for the analysis of the pottery.

<sup>51</sup> Borgna 2004.

<sup>52</sup> Hamilakis 1998, 116–7.



# Discussion

- Haggis** Metaxia, thank you for that. I very much like this idea of locating both the cemetery with some cognizance of the earlier structures, and then the locating of the IIIC buildings. The IIIC pattern is, I think, really important, because we do not have enough resolution in these IIIC sites of the earlier stratigraphy in those areas. Vrontas is a very good example of what must have been either a built tomb or a Protopalatial house, that Building A was built on top of. It later incorporated a Minoan kernos. The problem with these IIIC sites is often the stratigraphy just as it is preserved, but I think there is a return to these Protopalatial sites. The recent work at Karphi is going to show this. They were actually selecting these Protopalatial settlements and linking themselves to them to build these large early IIIC buildings.
- MacGillivray** I would like to take Metaxia to jingle a little bit, that last primary burial in the larnax in HT 2, with the very fine, obviously very expensive hieroglyphic seals. Do those all go together? Could that be termed almost a royal burial?
- Tsipopoulou** No seal was found in the larnax. The larnax was used more than once, probably two times and in the latest use it was turned facing the wall. There was another burial, which we believe was initially in the larnax. It was just outside the larnax, and that burial was connected with the seals, the seals were found all around that burial, maybe they were all initially in the larnax.
- Vallianou** Metaxia, I would like to ask you if you have an idea about the LM III parallel megara. There were three at Halasmenos, another three at Smari, and now another one with a peribolos at Petras. Why were they constructed in this fashion? Can you explain it?
- Tsipopoulou** About the megaron at Petras we have no evidence for its use, as it was almost on the surface. The megara at Halasmenos, which preserved their floor deposits, are published in the *STEGA Conference* (Tsipopoulou 2011a, 333–47). I do not believe they were simple habitations. The analysis of their contents showed that they contained mostly vessels used for *symposia*, including a very large kylix with a capacity of 1.5 liters and a few pithoid jars for short-term storage. There were no large pithoi, no tripod cooking pots, so I expressed the hypothesis that the megara at Halasmenos were used for food and drink consumption. About the Petras megaron, I do not know for sure.
- Macdonald** I am sorry, I do not know whether you are going to get to this later or not, but what precisely was found with the seals apart from the burial, which was the second to last burial?
- Tsipopoulou** Nothing was found. Yiannis Papadatos may remember more.

**Papadatos** The only thing I remember is a carnelian bead.

**Tsipopoulou** No pottery was associated with the seals.

**Papadatos** Pottery in the room yes, but not around the seals.

### *Greek abstract*

Το Προανακτορικό-πρώιμο Παλαιοανακτορικό νεκροταφείο του Πετρά Σητείας: ένα διαχρονικό σύμβολο κοινωνικής συνοχής

Η ανασκαφή του ασύλητου νεκροταφείου του Πετρά, που αποτελείται από τάφους-οικίες με σύνθετες κατόψεις, συνεχίζεται από το 2004. Έχουν εντοπισθεί πλήρως ή εν μέρει ανασκαφεί 11 τάφοι-οικίες. Παραμένουν άγνωστα ο τελικός αριθμός των τάφων και η συνολική έκταση του νεκροταφείου. Εκτός των ταφικών κτιρίων, ερευνήθηκε βραχοσκεπή με δευτερογενείς ταφές, πιθανότατα προερχόμενες από τον καθαρισμό ενός κτιρίου στην MM IB/ΠΑ. Παρουσιάζονται τα δεδομένα διαχρονικής χρήσης του νεκροταφείου ως συμβόλου κοινωνικής συνοχής για τον πληθυσμό του Πετρά, πολλούς αιώνες μετά το τέλος της χρήσης του ως χώρος ταφών. Το Ταφικό Κτίριο 2 (TK 2), πλήρως ερευνημένο, είναι, μέχρι σήμερα, το σημαντικότερο για την αρχιτεκτονική, τα ευρήματα και τη χρονολόγησή του. Αποτελείται από εννέα χώρους και περιελάμβανε ταφές κατά χώραν, τόσο στο δάπεδο όσο και σε ταφικά αγγεία, καθώς και μεγάλο αριθμό ανακομιδών. Βρίσκεται στο νότιο άκρο του νεκροταφείου, κτίσθηκε στην ΠΜ ΙΙΙ και χρησιμοποιήθηκε μέχρι την MM ΙΙΑ (αρχή της Παλαιοανακτορικής για τον Πετρά). Το ιδιαίτερο ενδιαφέρον της χρονολόγησης του TK 2, καθώς και τα σημαντικότερα κινητά ευρήματά του (μεγάλη ποσότητα κεραμικής, χρυσές ταινίες, μοναδικοί σφραγιδόλιθοι, καλοδιατηρημένο οστεολογικό υλικό), σε συνδυασμό με τις ενδείξεις οργανωμένης απόδοσης τιμών προς τους νεκρούς, που προσφέρουν τόσο η αρχιτεκτονική, όσο και ορισμένες κατηγορίες ευρημάτων, καταδεικνύουν το ρόλο του μνημείου αυτού στην κατανόηση της κοινωνικής εξέλιξης στην κρίσιμη περίοδο της μετάβασης προς την Παλαιοανακτορική. Στην βραχοσκεπή, εξάλλου, βρέθηκαν σχεδόν στην επιφάνεια τελετουργική πρόχους και κωνικό κύπελλο της ΥΜ IB, ένδειξη τελετουργίας την εποχή αυτή. Σημαντικό στοιχείο για την συνέχιση χρήσης του νεκροταφείου του Πετρά ως συμβολικού μνημείου κοινωνικής συνοχής για την κοινότητα, πολλούς αιώνες μετά το τέλος της χρήσης ως χώρος ταφής είναι ότι, στην ΥΜ ΙΙΙΓ περίοδο κτίσθηκε στο δυτικό του άκρο, εν μέρει πάνω από το TK 1, μεγάλο μεγαροειδές κτίριο, συνοδευόμενο από περίβολο. Το κτίριο αυτό πιθανότατα συνδεόταν με κάποιας μορφής τελετουργία ή απόδοση τιμής προς τους προγόνους, δηλώνοντας την αξιοσημείωτη συνέχεια του Πετρά, σε διάρκεια μεγαλύτερη των 2000 χρόνων.







# Affluence in eastern Crete: metal objects from the cemetery of Petras\*

Susan C. Ferrence, James D. Muhly & Philip P. Betancourt

## Abstract

The metal objects from this Early to Middle Minoan cemetery, which is located on the eastern side of the Siteia Bay in eastern Crete, belong to various categories and types of metals. The gold pieces consist of small delicate bosses, sheets, and strips that probably once surrounded wooden buttons and were attached to other organic materials. A gold “Tree of Life” pendant was probably once the centerpiece of a necklace. Gold pierced beads probably once belonged to larger bracelets and/or necklaces; one of them is shaped like a flower and contains remnants of *lapis lazuli*. Several of the copper or bronze objects are miniature tools such as cosmetic scrapers that were equipped with holes in order to be worn as pendants. At least one of these small tools has part of the ivory handle still attached. Other copper/bronze objects include a chisel, awls, tweezers, knife blades, fish hooks, pendants, bracelets, rivets, beads, and strips. The metal objects from the Petras cemetery range in type and style and date from late EM I to MM IIB. They provide important information about the people who were buried in the Rock Shelter and the house tombs. The jewelry and other items of personal adornment, together with the other tools, display a relative level of affluence that was enjoyed by the local population, a level of prosperity that is further supported by the quality of the other categories of objects that came from the tombs.

The metal objects from the Early to Middle Minoan cemetery of Petras belong to various categories of use and types of metals. Since 2004, Metaxia Tsiopoulou has directed excavations at the cemetery, which consists of a rock shelter and several house tombs (Fig. 1). They were used as ossuaries from EM I to MM IIA. All of the tombs are located on Kephala Hill to the northeast of the palace of Petras in eastern Crete.<sup>1</sup> Due to the secondary nature of most of the burials,<sup>2</sup> dating for the metal objects must be based on stylistic grounds within this wide time period. Many of the metal artifacts that have been excavated from the cemetery were used for personal adornment and cosmetic purposes, while other objects had utilitarian functions. The types of metal involved were gold, silver, copper alloys, and lead.

## Gold jewelry

The gold artifacts from the cemetery consist of jewelry pieces such as pendants, diadems, strips, and beads. Of particular note is the gold pendant (Fig. 2a: PTSU06/230) which came from the Rock Shelter. It appears to be in the shape of a tree and

\* We are grateful to the director of the excavations at Petras, Metaxia Tsiopoulou, for permission to study the metal objects from the cemetery. We thank Temple University and the Institute for Aegean Prehistory (INSTAP), both in Philadelphia, PA, for funding and support.

<sup>1</sup> For the topography of the area surrounding the palace, Papadatos 2007, 156–7, figs. 10.1–10.2; also Tsiopoulou this volume, Introduction, Fig. 10b.

<sup>2</sup> Human bones rarely were found articulated. They were mixed with pottery and other classes of objects within the Rock Shelter and rooms of the house tombs.



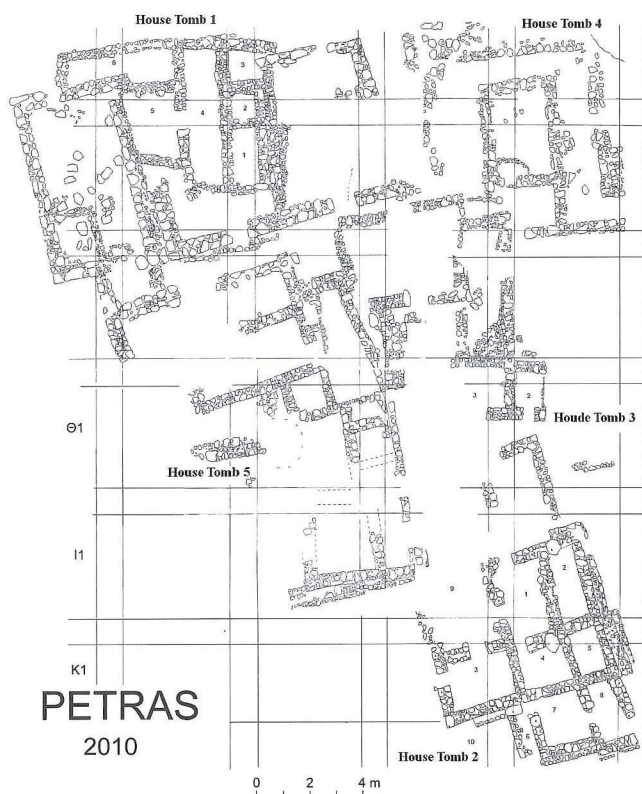


Fig. 1. Plan of House Tombs 1–5 on Kephala Hill, northeast of the palace of Petras in eastern Crete.

was probably once the centerpiece of a necklace. Under 50x magnification, it can be discerned that the pendant was cast as one piece by using the lost-wax method. A remnant of the pouring channel is evident on top of the cylinder where the rope or chain would have extended through the hole for suspension. Furthermore, no seams or joins are visible to indicate fusing of individual pieces. Magnification also confirms the difference between the front and back sides. The front has a branch that extends forward, while the back does not have a branch to impede its ability to lie flat against the chest. The iconography of this pendant is reminiscent of the leaf or branch motif, which appears on a sealing that was excavated in the archives of the Petras palace.<sup>3</sup> This gold piece also is evocative of the Cretan hieroglyphic symbol number 31,<sup>4</sup> which emphasizes the spherical ends of the appendages, much like the gold pendant. Furthermore, the sign is repeated on two sides of a four-sided prism seal<sup>5</sup> that was found in Room 3 of House Tomb 2 in the cemetery. The symbol appears as a logogram in

Linear A and B, but the meaning is unknown.<sup>6</sup> In the case of Petras, we suggest that it might represent the “Tree of Life,” which is a common iconographic motif in Minoan art.<sup>7</sup> Many times a tree is associated with a deity in a religious scene, much like the boating scene on the gold signet ring from Mochlos.<sup>8</sup> In that image, the tree is rendered with spherical ends to the branches much like the gold pendant from Petras.

The gold beads that come from the cemetery, such as bead P.TSK09/689 (House Tomb 1, Room 1) (Fig. 2b), most likely belonged to larger bracelets and necklaces, such as three examples from House Tomb VI at Mochlos.<sup>9</sup> One of the Petras beads probably was a covering for a wooden interior (Fig. 2c: P.TSU09/109). It is decorated with impressed dots and lines. Objects like this also come from the cave of Hagios Charalambos in the Lasithi Plain of eastern Crete.<sup>10</sup> Other parallels exist from Mochlos in eastern Crete<sup>11</sup> and Platanos in South-Central Crete.<sup>12</sup>

One of the gold beads (Fig. 2d: P.TSK04/280) from Petras (House Tomb 1, Room 7) is shaped like a flower and contains *lapis lazuli* inlay. No solder is evident, so the five pieces of gold that make up the bead were most likely fused together using the copper-diffusion bonding technique.<sup>13</sup> Both sides of the bead would have contained inlay, although it is missing from one side. The six-lobed rosettes on each side of the bead were formed by attaching thin gold strips to the surface of the bead.

Minoan parallels for any kind of inlay jewelry production, including enamel, are extremely

<sup>3</sup> Hallager 2010, 84, no. Cr1 PE 001.

<sup>4</sup> *CHIC*, 396–7.

<sup>5</sup> P.TSK05/259; Krzyszkowska this volume.

<sup>6</sup> Hooker 1980, 39; *CHIC*, 19.

<sup>7</sup> Marinatos 1989; 1990.

<sup>8</sup> Davaras 2004, 6–7.

<sup>9</sup> Seager 1912, 55, fig. 25; Karetsoy *et al.* 2000, 128, no. 109.

<sup>10</sup> Hagios Nikolaos Museum number 11,901α and β; see Muhly forthcoming.

<sup>11</sup> Seager 1912, fig. 9, no. II.12, color pl. 10; also Hickman 2008a, 65, pl. 21B, C.

<sup>12</sup> Xanthoudides 1924, pl. 57, no. 503.

<sup>13</sup> Betancourt 2006, 92–3 with additional bibliography.

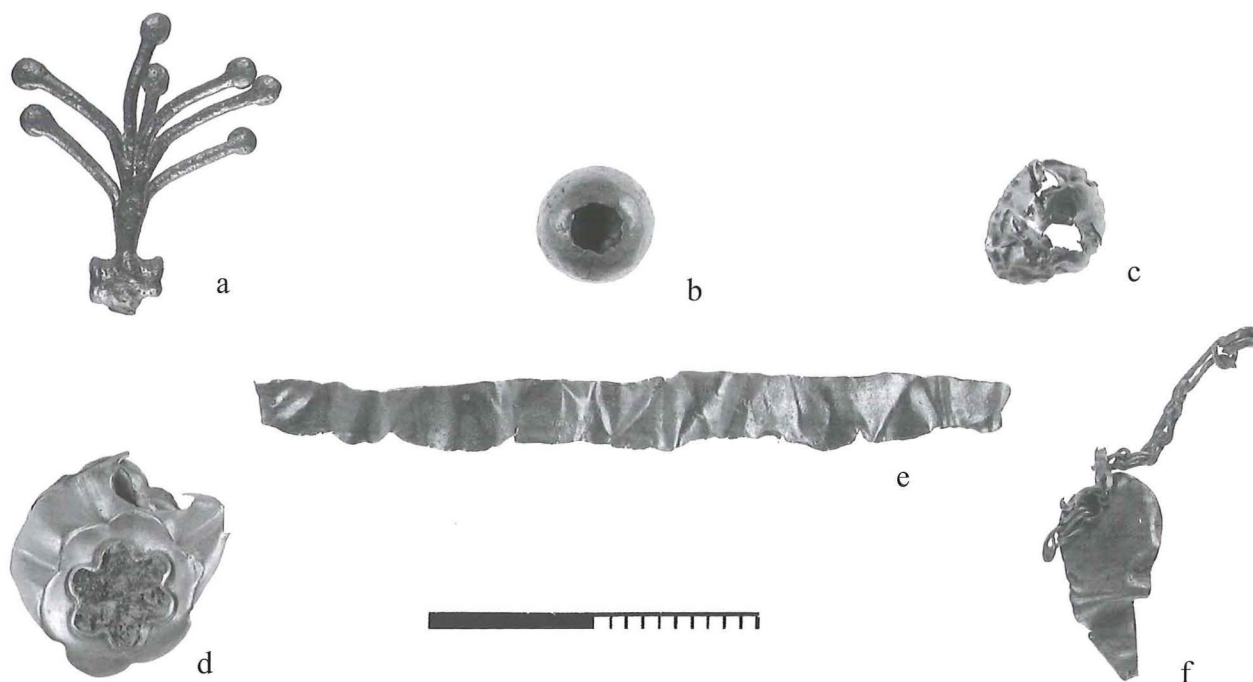


Fig. 2. a) Gold pendant (P.TSU06/230) from the Rock Shelter; b) Gold spherical bead (P.TSK09/689) from House Tomb 1; c) Gold covering for a bead (P.TSU09/109) from the Rock Shelter; d) Gold flower-shaped bead with *lapis lazuli* inlay (P.TSK04/280) from House Tomb 1; e) Gold foil strip (P.TSK05/263) from House Tomb 2; f) Leaf-shaped sheet of gold attached to part of a loop-in-loop chain (P.TSK06/150) from Trench A46, in the area of the southeastern part of House Tomb 5 and the western part of House Tomb 3.

scarce. Inlays, however, were surely more common in Crete than have survived. A good example is the MM II bee pendant from Malia in which the inlay has vanished from the three suspended circles.<sup>14</sup> The next earliest Cretan parallel for the use of inlay in gold jewelry is a ring with inlaid blue vitreous material from a tomb at Poros, Herakleion.<sup>15</sup> It probably dates to LM IA based on the pottery that was found with it. Four similar rings come from the Aigina Treasure, and they are inlaid with *lapis lazuli*.<sup>16</sup> Recent archival and scientific research – including the use of laser Raman microscopy, X-ray diffraction (XRD), scanning electron microscopy (SEM), and X-ray microanalysis (EDX) – by Lesley Fitton and her collaborators suggests that the hoard was made in a workshop on the island of Aigina, and it was buried in a Middle Helladic tomb.<sup>17</sup> Two more inlaid rings come from Tomb 4 at Sellopoulo near Knossos and date to LM IIIA1.<sup>18</sup>

Outside of the Aegean sphere, comparable pieces of jewelry from the Middle Bronze Age come from

tombs at Tell el-'Ajjul and Ras Shamra in the Levant, the Ahhotep Treasure from Egypt, and the Tomb of the Lord of the Goats at Ebla in northern Syria.<sup>19</sup> All of these pieces show the use of inlaid gold that was filled with a vitreous material at one time, possibly enamel. The bee pendant from Malia and inlaid rosette bead from Petras were fashioned

<sup>14</sup> Demargne 1930, pl. 19; 1945, pl. 165, no. 565.

<sup>15</sup> Muhly 1992, 90, 123–5, no. 240, pl. 26; also Effinger 1996, 189, no. HP 1a; Pini 2010c, 20, no. 8. For a good discussion of the problems involved in identifying the materials used in the bezels of these types of rings, see Evely 2000, 451–6, 564–5.

<sup>16</sup> Higgins 1980, 36, fig. 35; Fitton 2009, 22–3, nos. 17–20, figs. 85–93; Pini 2010c, 20–2, nos. 10–13.

<sup>17</sup> Fitton 2009, 30.

<sup>18</sup> Popham & Catling 1974, 222, no. J6, fig. 14H, pl. 37:e, g; also Effinger 1996, 218, nos. KnS 3a, KnS 3c; Pini 2010c, 38, no. 60.

<sup>19</sup> See Lilyquist 1993 for extensive bibliography and figs. 17d, 18, 19, 20e, 22b, 25a–c; McGovern 1985, 131, 135, nos. 301–304, 352, pls. 20, 24; Matthiae *et al.* 1995, 467, 479, no. 387; Matthiae 2008, 41, no. 16.



during the early second millennium, a time in the eastern Mediterranean when jewelry production was known for its “mix of styles and iconographies.”<sup>20</sup> The style and manufacturing technique used to create the gold jewelry from Tell el-‘Ajjul are also evident in the bee pendant. These inlaid gold jewels demonstrate the close ties that existed among Egypt, the Near East, and Crete during the Middle Bronze Age. The high level of Minoan craftsmanship may have resulted from strong connections to Egypt and the Near East.

Other gold items that have been excavated from the cemetery of Petras include over 30 gold pieces and fragments of delicate diadems, strips, sheets, and foil (Fig. 2e: P.TSK05/263, House Tomb 2, Room 3). Magnification revealed that one strip of gold foil, in particular, was punched with seven tiny manmade holes. This is evidence for the attachment of these pieces of gold to other organic materials such as cloth, leather, or wooden buttons. Furthermore, Hickman noted a tradition of attaching gold strips to the fingers of the deceased in Early Bronze Age burials of Anatolia, Mesopotamia, and Egypt.<sup>21</sup> The holes in the strips from Petras are so small that thread must have been the agent of choice. All of these organic materials have degraded and vanished over the millennia since the gold objects were buried with the dead. Many fragments of this type of elite ornamentation have been recovered from several other Minoan burials, such as the caves of Trapeza<sup>22</sup> and Hagios Charalambos<sup>23</sup> in the Lasithi Plain and the Kalathiana and Platanos tholoi among others in the Mesara Plain.<sup>24</sup> Diadems and strips also come from Mochlos Tombs II and VI<sup>25</sup> and burials at Malia.<sup>26</sup> The Chrysolakkos deposit has objects that date from MM IB to MM II.<sup>27</sup> These gold pieces are probably of the same chronological horizon as those from the Petras cemetery. The examples from the Hagios Charalambos and Trapeza caves could also be of the same date.

The final piece of gold jewelry is a leaf-shaped sheet of gold from Trench A46, Level 7 (in the area of the southeastern part of House Tomb 5 and the western part of House Tomb 3) (Fig. 2f: P.TSK06/150) that still has part of a loop-in-loop chain attached to it. The leaf-shaped sheet of gold

and chain would be classified as pendant Type IXa in Branigan’s system. This example from Petras is reminiscent of two from Tombs II, IV, and VI at Mochlos (EM II).<sup>28</sup> Another variation comes from Platanos Tholos A.<sup>29</sup> A. Vasilakis has suggested that pendants like this could have hung from diadems because an example exists from the Prepalatial cemetery at Moni Odigitria.<sup>30</sup>

## Silver jewelry and lead objects

The silver jewelry from the cemetery consists of several pendants that came from the Rock Shelter, one of which is in the shape of a shovel (Fig. 3a: P.TSU06/240). Furthermore, a few silver rivets were pierced for use as pendants such as P.TSU06/140 (Fig. 3b). Visual examination with a microscope confirms that these examples were formed by casting metal. Only one silver disk bead has been recovered so far.

Moreover, three silver bracelets that came from the Rock Shelter were formed by bending a rod into a circle to create a bangle. Under magnification, one can see the effects of hammering on one of the bracelets (Fig. 3c: P.TSU09/83). It is surmised that a square-sectioned rod was cast and then hammered into the round cross-section. This is probably the case with the other two bangles. Variations on the simple form of this bangle have been classified by Branigan as Types I–III.<sup>31</sup> Over 30

<sup>20</sup> Benzel 2008, 101.

<sup>21</sup> Hickman 2008b, 561.

<sup>22</sup> Pendlebury, Pendlebury & Money-Coutts 1935–36, pl. 15, nos. 11–14.

<sup>23</sup> Betancourt *et al.* 2008, 557, fig. 11, nos. 26–7.

<sup>24</sup> Xanthoudides 1924, 82, pl. 43.

<sup>25</sup> Seager 1912, 30, figs. 8, nos. 17a and b, 10, 43.

<sup>26</sup> Demargne 1930, pl. 18; 1945, pl. 165, no. 565; also Hickman 2008b, 561 for additional bibliography.

<sup>27</sup> Stürmer 1993.

<sup>28</sup> Seager 1912, figs. 20, no. IV.14, 25, no. VI.31; Branigan 1974, 42, 186, nos. 2390, 2400, pl. 21; also Hickman 2008a, 62, 65, pl. 21:A.

<sup>29</sup> Xanthoudides 1924, pl. LVII, no. 484; Branigan 1974, 186, no. 2348, pl. 21; also Hickman 2008a, pl. 5:A.

<sup>30</sup> Vasilakis 1996, 104–5, 108, fig. 11, no. 37; Vasilakis & Branigan 2010, 193–4, fig. 79, no. J54, pl. 52, no. J54.

<sup>31</sup> Branigan 1974, 187, pl. 23.

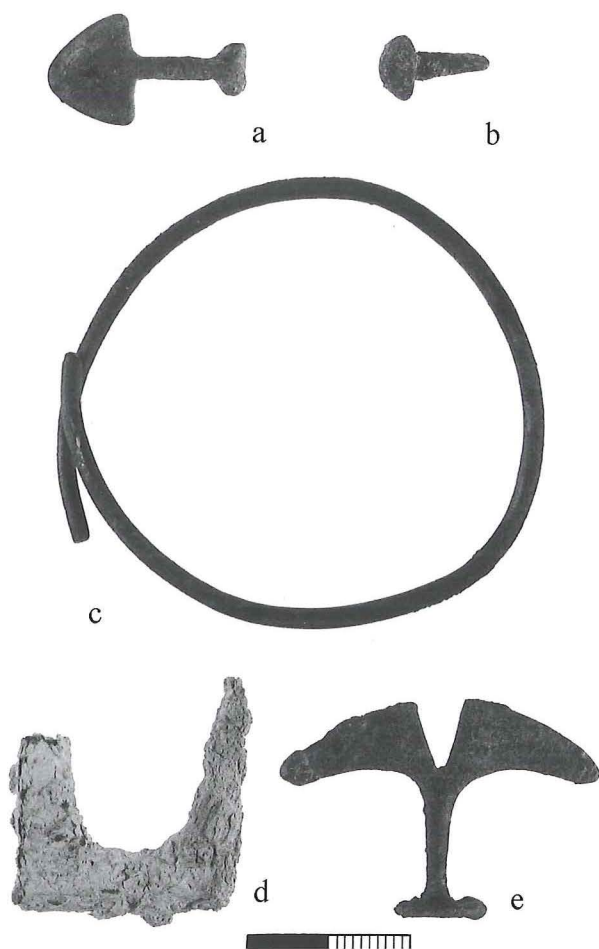


Fig. 3. a) Silver pendant in the shape of a shovel (P.TSU06/240) from the Rock Shelter; b) Silver pendant in the shape of a rivet (P.TSU06/140) from the Rock Shelter; c) Silver bracelet (P.TSU09/83) from the Rock Shelter; d) Lead clamp (P.TSK05/609) from House Tomb 2, Room 5; e) Copper alloy pendant in the shape of a pair of wings (P.TSU06/217) from the Rock Shelter.

examples<sup>32</sup> come from sites on islands throughout the Aegean (Amorgos-Dokathismata, Lemnos-Poliochni, Lesbos-Thermi, Antiparos, Pholegandros), along the western coast of Asia Minor (Troy and Iasos), and within the Mesara Plain (Platanos, Kallithiana, Kamilaria I, and Koumasa A), in addition to burials at Sesklo on the Mainland and Malia and Hagia Photia in Crete. They also vary in the type of metal that was used from silver to gold, lead, and even tin.<sup>33</sup> On Crete, only the tholos at Krasi in the Pediada has two silver bracelets, but the type is not the same as those from Petras.<sup>34</sup>

The cemetery at Petras has yielded over 10 silver objects plus several fragments of lead clamps, such as clamp P.TSK05/609 from House Tomb 2, Room 5 (Fig. 3d), which probably were used for repairing ceramic vessels. Branigan noted the complete lack of lead clamps in Crete as opposed to the Cyclades where they were a popular tool.<sup>35</sup>

Xanthoudides noted the scarcity of silver objects in Early to Middle Minoan burials. In the countless objects that he published from eight tholos cemeteries, only five artifacts were made of silver – three daggers from Koumasa and two pins from Porti and Platanos.<sup>36</sup> He mentioned that the use of silver was more common in the Cyclades.<sup>37</sup> Branigan reiterated this idea decades later, and even though Prepalatial silver and lead objects are relatively rare on Crete (they come from only about 16 sites and number approximately 60 objects),<sup>38</sup> the ones that have been identified are prevalent at sites located in central and northeastern Crete, such as Krasi (10 objects),<sup>39</sup> Trapeza (two objects),<sup>40</sup> Hagios Charalambos (5–10 objects),<sup>41</sup> Archanes Phourni (nine objects),<sup>42</sup> Amnisos (three objects),<sup>43</sup> Mochlos (four objects),<sup>44</sup> and Hagia Photia.<sup>45</sup> Krasi, in particular, has been highlighted in the past for possible relations with the Cyclades,<sup>46</sup> but this hypothesis is no longer accepted.<sup>47</sup> In light of the newly excavated silver and lead finds from the cemetery of Petras, together

<sup>32</sup> Branigan 1974, 187.

<sup>33</sup> Branigan 1974, 187.

<sup>34</sup> Marinatos 1929, fig. 14, no. 39 (one cat. no. for two bracelets).

<sup>35</sup> Branigan 1968b, 225.

<sup>36</sup> Xanthoudides 1924, 47, 67, 110, nos. 212–4, 239, 497.

<sup>37</sup> Xanthoudides 1924, 47.

<sup>38</sup> Branigan counted 29 in 1968b, but the number has doubled since then; also Vasilakis 1996; 2008; Muhly 2008a, 72.

<sup>39</sup> Branigan dates them to EM II: 1968b, 224.

<sup>40</sup> Pendlebury, Pendlebury & Money-Coutts 1935–36, 103.

<sup>41</sup> Ferrence 2008, 23; Hickman 2008a, 24.

<sup>42</sup> Papadatos 2005, 34–5, 45, fig. 22, nos. C2–C7, pl. 17, no. C2.

<sup>43</sup> Marinatos 1930, 98, fig. 9; Vasilakis 1996, 90, 154, 187, pls. 8d, 69, 92e; Betancourt & Marinatos 2000, 213–4; also Hickman 2008a, 236, pl. 47F.

<sup>44</sup> Branigan 1968b, 219, 222.

<sup>45</sup> Davaras & Betancourt 2004; Muhly 2008a.

<sup>46</sup> Hickman 2008a, 22, for bibliography.

<sup>47</sup> Hickman 2008a, 22.



with those from sites in the Lasithi Plain like the Trapeza and Hagios Charalambos caves, perhaps this hypothesis should be reexamined. It is conceivable that the close proximity of the Cycladic colony at Hagia Photia enabled the exchange of silver and lead items with the people of Petras. The large size of the cemetery at Hagia Photia suggests that its associated settlement at Hagia Photia-Kouphota<sup>48</sup> would have had a considerable population, including people who might have reached farther afield for trading purposes. Krasi, located in the Pediada of East-Central Crete and neighbor to the Lasithi Plain, may have benefited from down-the-line commerce that originated somewhere in the Cyclades and was trans-shipped at Hagia Photia for extended trade throughout Crete.

## Copper alloy jewelry

Three pieces of copper alloy jewelry come from the Rock Shelter and consist of a bead and two pendants. One of the pendants is shaped like a pair of wings (Fig. 3e: P.TSU06/217), which has a parallel from Krasi, but it is made of silver, not copper.<sup>49</sup> Hickman identified the trading or gifting of specific gold items between Mochlos and Platanos based upon stylistic similarities among a few pieces of jewelry that were found in both locations.<sup>50</sup> Perhaps the same situation existed between Petras and Krasi due to the number of silver pieces that have been excavated, and especially the parallel occurrence of the two winged pendants, one from each cemetery. Furthermore, Hickman suggests that competitive emulation may have been the result of witnessing personal adornment with gold at public ceremonies.<sup>51</sup> Perhaps the acquisition of silver objects, which were rarer and which implied a relationship with the Cyclades, also had an exotic cachet.

## Copper alloy weapons and tools

Over 25 copper or bronze weapons and tools have been excavated from the Rock Shelter and house tombs of Petras. They have been categorized into

eight classes of objects, including daggers, a knife, a chisel, awls, tweezers, scrapers, pins, and fish hooks. Only two daggers have been found in the Petras cemetery so far (House Tomb 1, Room 6). One is fragmentary (P.TSK10/167), and the other is complete except for the handle (Fig. 4a: P.TSU09/65). Its leaf-shaped blade preserves three small rivets. The rivets would have held the handle onto the hilt of the blade. A parallel comes from Platanos.<sup>52</sup> Branigan classified this shape as Type IIIb of the long daggers,<sup>53</sup> although the example from Petras could also be categorized as Type XX, which has parallels from Kalathiana, Phaistos, and Psychro.<sup>54</sup> A similar dagger<sup>55</sup> also was found in Tomb XI at Mochlos.<sup>56</sup>

A fragment of a knife or sickle blade (Fig. 4b: P.TSK05/91) from Petras (House Tomb 5, Room 3) preserves only the hilt, and most of the blade is missing. It has two rivet holes, and the cutting edge is dull from use. It could possibly be assigned to Branigan's Type IIa knives,<sup>57</sup> for which a parallel comes from Koumasa.<sup>58</sup>

Three awls have been excavated from the Petras cemetery. A complete example from part of a possible votive deposit identified to the east of House Tomb 2 (Fig. 4c: P.TSK05/91) was cast with a square section and a tapered hilt, and then the pointed end was hammered into a round section. A handle probably was attached to the other end of the tool. The other two awls were also cast in square sections, which is one of the defining features of Branigan's category that he calls punches.<sup>59</sup> His borers, on the other hand, are round in section. Both types have

<sup>48</sup> At Hagia Photia-Kouphota, see Tsipopoulou 2007a, 136–7, figs. 8.2–8.8, for evidence of metallurgy in earlier levels with pottery that parallels many pieces from the cemeteries of Hagia Photia and Petras.

<sup>49</sup> Marinatos 1929, fig. 14, no. 41; Vasilakis 1996, pl. 65.

<sup>50</sup> Hickman 2008a, 320.

<sup>51</sup> Hickman 2008a, 320.

<sup>52</sup> Xanthoudides 1924, pl. LV, no. 1870.

<sup>53</sup> Branigan 1974, 9, 158, no. 169, pl. 4.

<sup>54</sup> Branigan 1974, 162, nos. 373–5, pl. 9.

<sup>55</sup> Type IIIc; Branigan 1974, 159, no. 188, pl. 4.

<sup>56</sup> Seager 1912, fig. 45, no. XI.22.

<sup>57</sup> Branigan 1974, 27, 167, pl. 13, no. 636.

<sup>58</sup> Branigan 1968a, 91.

<sup>59</sup> Branigan 1974, 26–7, 171–2.



Fig. 4. a) Copper alloy dagger (PTSU09/65) from the Rock Shelter; b) Fragment of a copper alloy knife or sickle blade (PTSK09/348) from House Tomb 5, Room 3; c) Copper alloy awl (PTSK05/91) from House Tomb 3, Room 1.

one pointed end and one blunt end, which may have been furnished with a handle of perishable material. Branigan counted over 200 examples of both types throughout the Aegean.<sup>60</sup> They are not uncommon

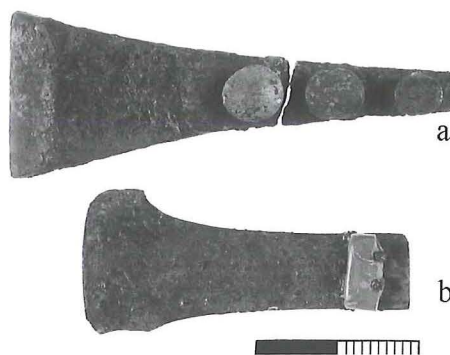


Fig. 5. a) Tweezers with silver-capped rivets (PTSK05/141) from House Tomb 2, Room 1; b) Copper alloy scraper with part of its tiny handle (PTSK06/209) from House Tomb 4, Room 1.

on Crete (coming from at least 10 sites) and were used throughout the Bronze Age.

Several tweezers have been excavated at Petras, two of which have silver-capped rivets with wide heads still in place (Fig. 5a: P.TSK05/141, House Tomb 2, Room 1). They all seem to fall under Branigan's Type IV, in which the arms widen toward the blade end, while the butt end would have been inserted into a hinge of perishable material, such as wood, and the rivets would hold it in place.<sup>61</sup> All of the examples from Petras were made of cast metal. Tweezers are ubiquitous in Prepalatial burials, since they have been found in upwards of 20 cemeteries on Crete, not to mention at least as many burial grounds around the Aegean region. Type IV in particular has been discovered at Hagia Triada, Mochlos,<sup>62</sup> Malia, and Platanos among several other sites.<sup>63</sup>

In addition to the tweezers, one other object belongs to the Prepalatial toilet kit. One small scraper (Fig. 5b: P.TSK06/209, House Tomb 4, Room 1) still preserves part of its tiny handle, as two minuscule rivets hold it in place. This cosmetic tool falls within Branigan's Type III, which is defined by concave sides, a convex cutting edge, and two rivets.<sup>64</sup> It is a popular instrument in Prepalatial

<sup>60</sup> Branigan 1974, 26–7.

<sup>61</sup> Branigan 1974, 31–2, 175, pl. 17, nos. 1348–56.

<sup>62</sup> Tomb XIX: Seager 1912, 73, fig. 44, nos. 25a, b.

<sup>63</sup> Branigan 1974, 174–5, nos. 1281–1360.

<sup>64</sup> Branigan 1974, 32, nos. 1402–25, pl. 17.



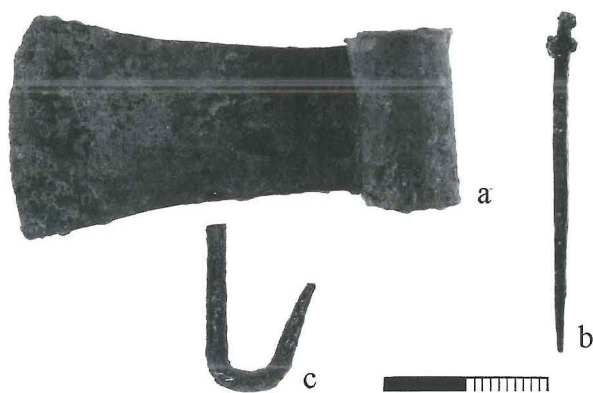


Fig. 6. a) Copper alloy scraper pendant (P.TSK05/771) from House Tomb 2, Room 3; b) Fragment of a copper alloy needle or pin (P.TSU09/99) from the Rock Shelter; c) Copper alloy barbless fishhook (P.TSK05/325) from House Tomb 2, Room 3.

burials, as over 30 examples have been found in at least 15 cemeteries on Crete including Hagios Charalambos,<sup>65</sup> Trapeza,<sup>66</sup> Marathokephalo,<sup>67</sup> and Mochlos.<sup>68</sup> Interestingly, enough of the shafts of the rivets are visible on one side of the Petras scraper to be able to examine them under 50x magnification. This revealed that the rivets were rolled into shape, not cast. Each rivet began as a sheet that was rolled into a piece of wire. They then would have been hammered to anneal the metal for strength.

Several unusual copper or bronze objects of the same type from Petras are not easily identifiable (Fig. 6a: P.TSK05/771, House Tomb 2, Room 3). They are scraper-like in that they have wide flat blades, but the blunt end is bent into a curl. This rolled end is off-center from the flat blade, so it could be used much like a spatula. Ergonomically, however, this type of artifact does not lend itself to being a hand tool. In any case, the blade itself is actually not sharp on any of the examples from Petras. They vary in the quality of their manufacture, but at least half of them were cast metal sheets that were rolled on one end and hammered on the other. Three parallels for this type come from Early Cycladic II tombs at Chalandriani on Syros. Within Branigan's group of scrapers, this class is Type VI, in which the defining feature is a basal loop designed for suspension.<sup>69</sup> The blade can take different forms. Even though Branigan calls them scrapers, functionally,

they are pendants purely meant for personal adornment.

A few fragmentary needles or pins (Fig. 6b: P.TSU09/99) have been recovered from the burials at Petras. Even though they are all broken, enough is preserved to determine under magnification that they were all cast with a square cross-section and then hammered into round sections whenever necessary. Due to their fragmentary nature, a type cannot be determined. Pins and needles in general are common in Early to Middle Bronze Age burials, mostly coming from Cycladic and northern Aegean sites.<sup>70</sup> On Crete, upwards of 30 pins have been recovered, typically from tholoi in the Mesara and burials at Malia.<sup>71</sup>

Two barbless fish hooks (Fig. 6c: P.TSK05/325) have been excavated from Petras (House Tomb 2, Room 3). They were cast as rods with square cross-sections and then hammered into round sections if desired. Finally, they were bent to form the hook.

## Conclusions

The metal objects from the Petras cemetery range in type and style, and they date from late EM I to MM IIA. Some Cycladic influence appears during EM I-II with the prevalence of silver and lead objects and the rolled scraper pendants. Generally, however, most of the metal objects seem to be Cretan in origin because many parallels have been found at other cemeteries around Crete. Much of the gold jewelry fits well with the objects from the house tombs at Mochlos and Chrysolakkos among other cemeteries. The gold objects could be dated generally from EM II to MM IIA. Furthermore, Middle Bronze II parallels from the Near East exist for the inlaid bead. At Petras, the symbol of the "Tree of Life" occurs on a gold pendant and a seal-

<sup>65</sup> Muhly 2008b, 558, 560, fig. 11: no. 23.

<sup>66</sup> Pendlebury, Pendlebury & Money-Coutts 1935–36, pl. 15.

<sup>67</sup> Xanthoudides 1921, 20, fig. 6.

<sup>68</sup> Seager 1912, 55, 73, nos. VI.29, XIX.29–30, 32.

<sup>69</sup> Branigan 1974, 177, no. 1446, pl. 16, no. 1446.

<sup>70</sup> Branigan 1974, 173–4, 178–82, pls. 15, 17–9.

<sup>71</sup> Branigan 1974, 173–4, 178–82, pls. 15, 17–9.

stone, which is dated to MM IIA. This is an interesting correlation between the cemetery and the palace of Petras that links an icon of the Minoan religion with the administration of the palace.

A long history of metallurgy existed in the immediate vicinity of the Petras house tombs. Evidence for metalworking at the neighboring FN-EM I site of Kephala-Petras<sup>72</sup> and the Early Minoan settlement at Hagia Photia-Kouphota<sup>73</sup> supports the notion that nearby workshops supplied metal goods to the people who used the Petras cemetery. These workshops clearly had a relationship with the Cyclades, which would have been facilitated by the people who used the massive cemetery at Hagia Photia.<sup>74</sup> This Cycladic influence was eventually tempered by local Cretan customs, which placed gold at the forefront of burial accoutrement.

The study of the metal objects from the Petras cemetery provides important information about the people who were buried in the Rock Shelter and house tombs. The jewelry and other items of personal adornment, together with the other tools, display a relative level of affluence that was enjoyed by the local population, a level of prosperity that is further supported by the quality of the other categories of objects that came from the tombs.

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<sup>72</sup> Papadatos 2007.

<sup>73</sup> Tsipopoulou 2007a.

<sup>74</sup> Muhly 2008a, 73.



# Discussion

- Alberti** Am I correct, did you mention a balance pan and could you give me the chronology?
- Ferrence** The chronology of the balance pan? It is from a mixed deposit, so anywhere up to MM II.
- Alberti** Is it from the house tombs or from the Rock Shelter?
- Ferrence** One of the house tombs.
- Alberti** Thank you.
- Macdonald** Sorry, I do not quite understand something here. It really has to do with the chronology of the cemetery. With the latest objects, in particular the bead decorated with *lapis*, that you showed, they cannot be really pushed any earlier than MM IIA and it cannot be pushed any later because of the chronology of the cemetery. The same is true obviously of the seals, although this is outside of your paper, they cannot be earlier than MM IIA, on anybody's chronology and they cannot be any later than MM IIA because of the chronology of the cemetery, so I am trying to push things here, and just say that it is quite clear here on chronology and the cemetery, and when reference is made to the palace, as it were, perhaps this is a question for Metaxia, is everything in the cemetery, does it predate the foundation of the palace, or is it just obviously an overlap of some kind?
- Tsipopoulou** As I said before, the problem is that we do not have pottery associated with the larnax and the pithos burials. This is a pity. Then we have these two areas, which were used for the storage of vessels for the ceremonies, with all these plates, they must have been used at the end of the life of this house tomb, and I do not think they are even MM II. To me they look earlier than MM IIA. Of course we have the seals, the seals cannot be Prepalatial. They must be dated in MM IIA, but the pottery looks earlier.
- Brogan** Would there be any distinct pattern in the distribution of these finds within the cemetery? Broadly Rock Shelter/House Tomb and more specifically within the house tombs?
- Ferrence** There are a lot of silver objects in the Rock Shelter.
- Tsipopoulou** The pendant with the "Tree of Life" comes from the Rock Shelter, so we do not know its original position. And if I remember correctly the bead with the *lapis lazuli* comes from HT 1. And the gold bands were in almost every house tomb. The same

is true for the bronze objects. As for the seals we had all these beautiful and important seals connected with HT 2, and very few seals came from the other house tombs. There were various seals in the Rock Shelter, most of them made of bone. HT 1, which is earlier than HT 2, contained gold bands but no seals. So, apparently things were changing towards the end of the use of the cemetery.

#### *Greek abstract*

Ευμάρεια στην Ανατολική Κρήτη: μεταλλικά αντικείμενα από το νεκροταφείο του Πετρά

Τα μεταλλικά αντικείμενα αυτού του Πρωτομινωικού και Μεσομινωικού νεκροταφείου, το οποίο βρίσκεται στο ανατολικό άκρο του κόλπου της Σητείας στην Ανατολική Κρήτη, ανήκουν σε διάφορες κατηγορίες και τύπους μετάλλων. Τα χρυσά αντικείμενα συνίστανται σε μικρά, ευπαθή σφαιρίδια και ταινίες, οι οποίες, προφανώς, περιέβαλαν αρχικά ξύλινα κουμπιά και ήταν συνδεδεμένα με άλλα οργανικά υλικά. Ένα χρυσό περιάπτο που παριστά «Δένδρο της Ζωής» αποτελούσε, πιθανότατα αρχικά, κεντρικό τμήμα περιδεραίου. Χρυσές ψήφοι ανήκαν, προφανώς, σε ψέλλια και/ή περιδέραια. Μια από αυτές έχει σχήμα άνθους και περιέχει υπολείματα από ένθετο *lapis lazuli*. Πολλά από τα χάλκινα και ορειχάλκινα αντικείμενα είναι μικρογραφικά εργαλεία, όπως ξέστρα καλλωπισμού, εφοδιασμένα με οπές ανάρτησης για να φέρονται ως περιάπτα. Τουλάχιστον ένα από αυτά τα μικρά εργαλεία σώζει μικρό τμήμα ελεφάντινης λαβής. Άλλα χάλκινα/ορειχάλκινα αντικείμενα περιλαμβάνουν: ένα καλέμι, οπείς, τριχολαβίδες, λεπίδες μαχαριών, αγκίστρια, περιδέραια, ψέλλια, ήλους, ψήφους και ταινίες. Τα μέταλλινα αντικείμενα του νεκροταφείου του Πετρά κυμαίνονται τυπολογικά και χρονολογικά από την ύστερη ΠΜ Ι ως την ΜΜ ΙΙΒ. Προσφέρουν ενδιαφέρουσες πληροφορίες σχετικά με τους ανθρώπους που είχαν ταφεί στην Βραχοσκεπή και στα ταφικά κτίρια. Τα κοσμήματα και τα άλλα αντικείμενα καλλωπισμού, μαζί με τα άλλα εργαλεία, παρουσιάζουν ένα σχετικό επίπεδο ευμάρειας, της οποίας έχαιρε ο τοπικός πληθυσμός, ένα επίπεδο ευημερίας, το οποίο δηλώνεται και από τις υπόλοιπες κατηγορίες κτερισμάτων.







# Seals from the Petras cemetery: a preliminary overview\*

Olga Krzyszkowska

## Abstract

Excavations since 2005 have revealed important unplundered tombs in the vicinity of Petras, Siteia. These include a Prepalatial rock shelter and several house tombs. Among the most significant finds are the seals, datable to the Prepalatial and Protopalatial periods. The earliest include several cylinders made from hippopotamus ivory. Hitherto few seals certainly of this date and material have been discovered further east than Mochlos, and none from secure contexts. Also found were seals of bone and steatite, which are datable to MM I and MM II in Central Cretan terms. Pride of place at Petras are the MM II seals made of hard semi-precious stones – agate, carnelian, blue chalcedony and jasper – some of which bear inscriptions in Cretan hieroglyphic. Shapes represented are Petschafte (loop signets), a rectangular bar, three-sided and four-sided prisms. The association of prisms – whether made of steatite or hard stone – with eastern Crete has long been recognized. However, hitherto virtually all extant hard stone prisms have been stray finds, and none has been discovered in a context likely to be more or less contemporary with manufacture date. The new seals from Petras are of exceptionally high quality – matching if not exceeding the very finest hitherto known. Thus they help to reinforce earlier observations regarding the role of Petras as an emerging regional centre in the Protopalatial period.

Every 10–15 years or so, roughly 1000 new seals of Bronze Age date come to light in Greece.<sup>1</sup> Some are merely stray finds, wholly without context, handed in to museums. Some come from controlled excavations, but were effectively chance losses in antiquity, and so contextual information is of limited value. Seals deliberately deposited with burials not only stand the best chance of survival, but when evaluated with associated grave goods, potentially offer valuable insights into questions of social status. Among every new batch of a thousand or so seals there will inevitably be familiar pieces – familiar in style or iconography, in material, shape and technique. But new pieces are never simply “more of the same”. Every seal is unique, but some (dare I say it) are “more unique than others”.

In the cemetery of Petras we have the great good fortune to have seals from controlled and carefully conducted excavations; contextual associations

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\* I am most grateful to the excavator, Metaxia Tsipopoulou, for entrusting the Petras cemetery seals to me for publication. For generous financial assistance I offer sincere thanks to the Institute of Aegean Prehistory (Philadelphia) and the Institute of Classical Studies (London). Philip Betancourt provided much practical advice, while Tom Brogan and Clio Zervaki facilitated study at INSTAP-EC. Athanasia Kanta and her staff afforded me the valuable opportunity to study *comparanda* in the Herakleion Museum. For logistical support I am grateful to Gavin and Rosemarie McGuire. For references and useful insights I thank: Maria Anastasiadou, Janice Crowley, Maurizio Del Frio, Artemis Karnava, Jacke Phillips and Peter Warren. Last, but far from least, I cordially thank Walter Müller and Ingo Pini for study and discussions at the CMS Archive in Marburg, and for permission to reproduce CMS images. Photographs of the Petras seals were taken by Chronis Papanikolopoulos (except P.TSU06/104 and 176; P.TSK/O6/66, taken by the writer). Selected colour images appear on the Petras website. Photographs of impressions are by Ingo Pini and the writer. These will form the basis of drawings to be prepared for the final publication by the CMS draughtswoman.

<sup>1</sup> I. Pini, pers.comm., cited in Krzyszkowska 2005, 1.





Fig. 1. Seals from the Rock Shelter. Scale *ca.* 3:2.

have been meticulously recorded. Critically the excavations will be fully published by a team of recognized experts. Altogether 20 seals, including the 2011 campaign not included in the present discussion, have been recovered to date. Although they belong to broadly familiar types and mesh well with our existing knowledge of Minoan glyptic, they cannot be dismissed as merely “more of the same”. The real stars at Petras are the hard stone seals found in the house tombs, and specifically those found in Room 3 of House Tomb 2. These form the focus of the current paper, but first I summarize seals found elsewhere.

We may begin with seals from the Rock Shelter (Fig. 1). These include an elongated conoid<sup>2</sup> made of hippopotamus ivory (almost certainly an incisor) (P.TSU06/193) and two strange seals of bone. One is a so-called “telephone receiver” or “Telefonhörer”, a term actually used by CMS Marburg (P.TSU06/115).<sup>3</sup> The other was evidently a composite shape involving a separate grip or handle, now missing (P.TSU06/228).<sup>4</sup> Material, shape and

motif suggest that these three seals should be datable to EM III–MM IA in Central Cretan terms.<sup>5</sup> The small cylinder of steatite, bearing a pair of rather crudely executed inward-facing C-spirals, finds parallels in MM I (P.TSU06/176).<sup>6</sup> The latest of the seals, datable to MM II, is the chlorite Petschaft

<sup>2</sup> For the shape Yule 1980, 42 (shape class 6e). The face is decorated with simple solid circular drillings.

<sup>3</sup> *Comparanda* in bone: CMS II.1, no. 15; III, no. 6. In soft stone: CMS IV, no. 68; Hughes-Brock 1995, 109–10, fig. 1a–b (HM 2232, Mochlos stray find). Cf. Yule 1980, 102 (shape class 34n).

<sup>4</sup> The face shows a meander pattern. Cf. Yule 1980, 152, pl. 21 (motif 31); Sbonias 1995, 84–7. Add CMS V Suppl. 3, no. 119.

<sup>5</sup> For Prepalatial seals generally, Krzyszkowska 2005, 57–76.

<sup>6</sup> Parallels for the shape in steatite include CMS II.1, nos. 305, 477; III, no. 33 (dated Pini, 49, as MM I); V Suppl. 1A, no. 271. The closest parallel for the motif occurs on a three-sided prism, CMS VI, no. 82c, attributed by Anastasiadou (2011, 127–8, no. 503), to her “Mesara Chlorite Prisms” group (conceivably somewhat earlier than MM II steatite prisms known from Malia and eastern Crete).

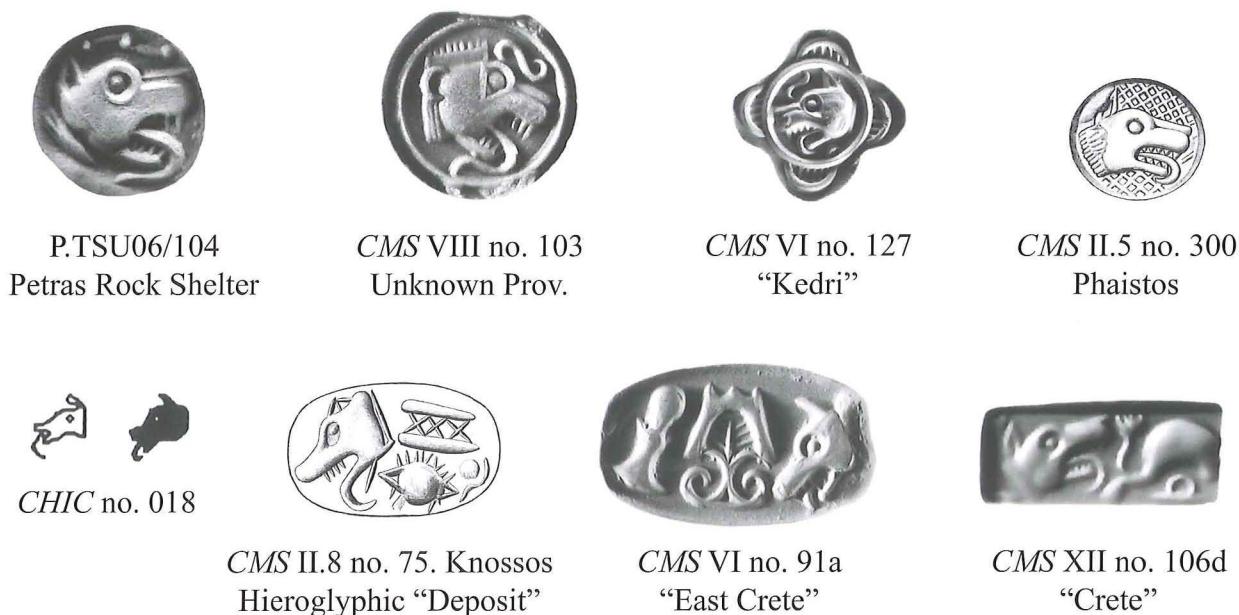


Fig. 2. Impressions of selected seals depicting the "wolf's head" (sign 018). Scale *ca.* 2:1.

(or loop signet) bearing the head of a "wolf", with fearsome teeth and long curling tongue; behind is a filling motif (Fig. 1, lower right: P.TSK06/104).

The "wolf's head" occurs as the principal motif on two hard stone Petschafte and is also represented in the MM IIB sealing deposit at Phaistos (Fig. 2).<sup>7</sup> It is well attested on archival documents and on seals as a sign in the hieroglyphic syllabary (Fig. 2).<sup>8</sup> When it occurs singly, as on the Petras Petschaft, we cannot be sure whether it is merely a decorative motif, whether it served as a kind of badge, or whether it conveyed a syllabic quantity.

From the Rock Shelter we move now to the house tombs, beginning with House Tomb 3, where the range of seals is similar (Fig. 3). They include an irregular stamp cylinder of hippopotamus ivory (P.TSK06/67), a fine hollow cylinder with torsional grooving made of bone (P.TSK06/157) – both EM III/MM IA in Central Cretan terms – and a squat loop signet of steatite with cruciform seal face (P.TSK06/65), probably datable to MM I–II, though it lacks close parallels.<sup>9</sup> Finally, there is a bottle made of spondylus shell (P.TSK06/66). It is neither pierced nor engraved, but might be construed as an unfinished seal. While no Cretan seals of spondylus are attested, some may lurk un-

identified amongst those published as stone or even ivory.<sup>10</sup> But I am uncertain as to whether the material is really suitable for engraving, as opposed to

<sup>7</sup> Petschafte: CMS VI, no. 127 and VIII, no. 103. Phaistos: CMS II.5, no. 300 (?hard stone impressions) and possibly no. 299 (though it lacks a protruding tongue and might be a lioness). Younger (1993, 149–50) sees all lions as dogs and identifies Evans's (1909) sign no. 73 as a dog's head. See also n. 8 below. Soft stone Petschafte are datable to MM I–II (cf. Yule 1980, 85–6), though the "wolf's head" on P.TSU06/104 places it firmly in MM II. A good parallel for the shape is CMS V Suppl. 1A, no. 320.

<sup>8</sup> "Wolf's head": Evans 1909, 209, no. 73; CHIC, no. 018. For a full list of occurrences, CHIC, 330. Note that the protruding tongue helps distinguish this from the dog's head CHIC, no. 017 (Evans 1909, 208–9, no. 72). See also n. 7 above on Younger's identification.

<sup>9</sup> Irregular cylinders: cf. Yule 1980, 91 (shape class 32c) though none offers a close parallel for P.TSK06/67; add CMS V Suppl. 3, no. 358. Hollow cylinders: Krzyszkowska 1989, 121, with *comparanda* (add V Suppl. 1A, nos. 257–60), and correcting earlier misunderstandings of the shape by Platon (1962, 14–8) and Yule (1980, 89). Cruciform faces: CMS III, nos. 29–30.

<sup>10</sup> A pyramidal seal from Poliochni (Blue) is said to be spondylus (Bernabè Brea 1964, 157, 602, 653, pl. 86g; Karali 1999, 43) but was published at CMS I Suppl., no. 67 as "Marmor". Possible signs of "layering" are visible in the CMS photograph, but the identification needs to be verified.



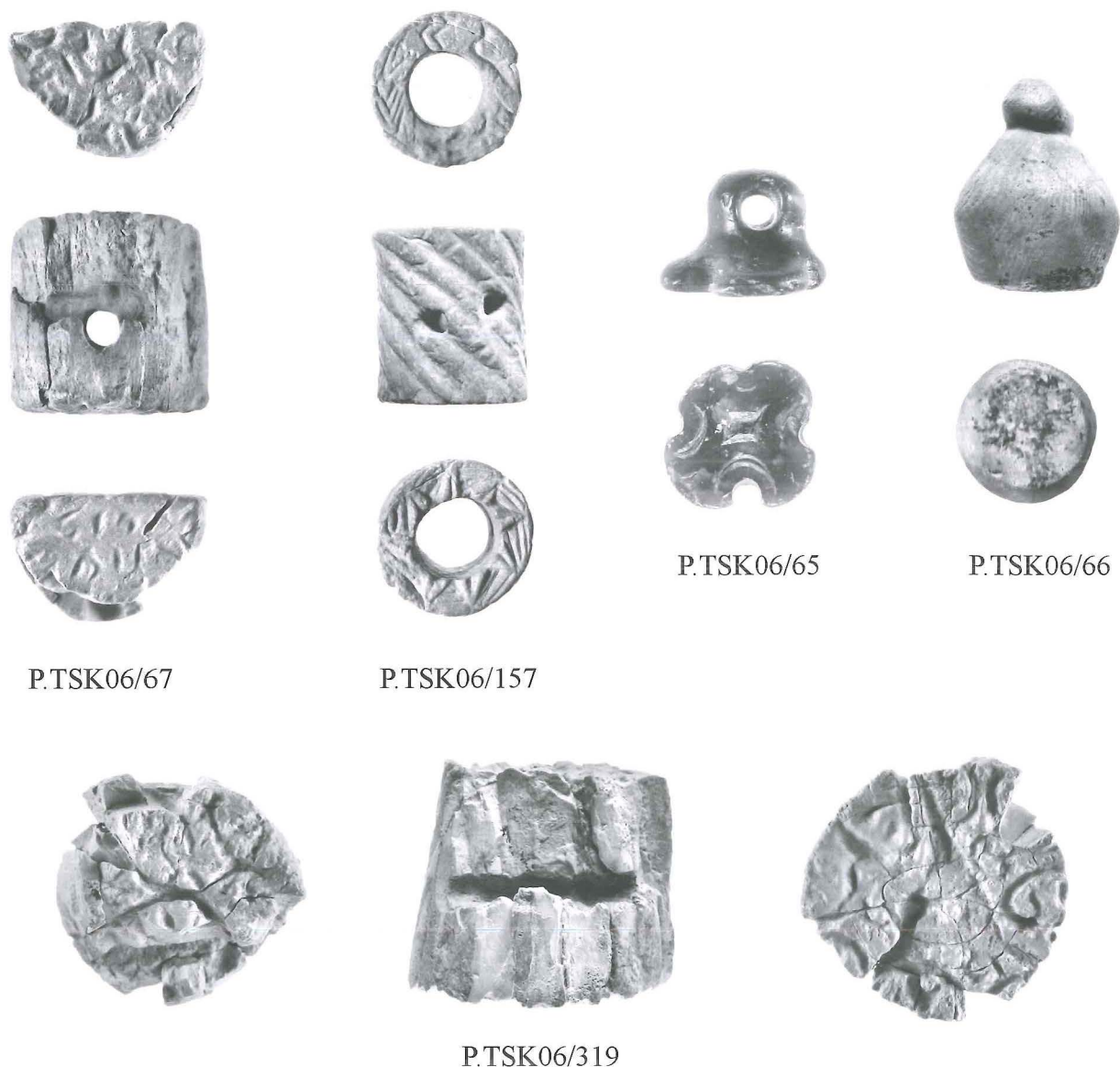


Fig. 3. Seals from House Tomb 3 (above) and House Tomb 5 (below). Scale *ca.* 3:2.

carving or shaping. Bottle-shaped seals of bone or ivory are EM II–MM IA in date, and those in soft stone a trifle later.<sup>11</sup>

House Tomb 5 has yielded a single seal, a bifacial cylinder made of hippopotamus ivory (P.TSK06/319).<sup>12</sup> Its condition is poor and the motifs are virtually illegible (Fig. 3). Nevertheless, the presence at Petras of ivory (and bone seals) belonging to recognizable types is significant. Scarcely more than a handful have been found further east than the Mirabello area, only three from secure contexts.<sup>13</sup>

House Tomb 4 has yielded two seals, both firmly datable to MM II. The first is a three-sided prism

<sup>11</sup> Yule 1980, 33–5 (shape class 3a–b).

<sup>12</sup> Yule 1980, 89–90 (shape class 32a–b); Sbonias 1995, 47–9 (shape 11). Also Krzyszkowska 2005, 63–8.

<sup>13</sup> Notably CMS II.1, nos. 421–2 from a cave burial at Maronia, Siteia, found with Vasiliki ware and stone vases (Platon 1954, 511), and CMS V Suppl. 3, no. 358 from a rock shelter at Schinokapsala, which yielded EM IIB–MM IA pottery. In addition there are four seals from Palaikastro (CMS II.1, nos. 479–82), never published in the site report, but are presumed at CMS II.1, 571 to be from the cemetery (Grabbezirke). I have not handled any of these pieces, and no diagnostic features are visible in photographs of CMS II.1, nos. 421, 422 or 479. But CMS II.1, nos. 480 and 482 are certainly hollow cylinders of bone; CMS II.1, no. 481 and V Suppl. 3, no. 358 are clearly hippopotamus ivory.



Fig. 4. Seals from House Tomb 4 and impressions. Scale *ca.* 2:1.

of steatite (P.TSK09/1484), which was perhaps exposed to heat (Fig. 4). Steatite prisms represent one of the largest groups known in Aegean glyptic, with roughly 650 examples.<sup>14</sup> While many lack a secure context, their distribution in eastern Crete – effectively from Malia eastwards – is well established. One of the main production centres was the *Atelier de sceaux* at Malia, which has yielded about 125 pieces, some broken or damaged in the course of manufacture, and preserved in the MM IIB destruction of Quartier Mu. But there were certainly other production centres too, revealed to us through differences in technique and style. Depicted on this example are a lion regardant, waterbirds and boars.<sup>15</sup>

The second seal from House Tomb 4 is an exceptionally fine Petschaft of green jasper, bearing hieroglyphic signs (Fig. 4: P.TSK06/145). Green

jasper is a hard semi-precious stone, first attested during MM II and usually employed for prisms and Petschafte, often bearing hieroglyphs.<sup>16</sup> This may be linked to the fact that the engraved motifs or signs are immediately legible from the seal itself. In other words, one need not make an impression to read

<sup>14</sup> Anastasiadou 2011. Cf. summary in Krzyszkowska 2005, 92–5.

<sup>15</sup> The treatment accords well with the “Malia-East Cretan” group defined by Anastasiadou (2011, 63–115), thus securely datable to MM II. For parallels, see her motifs 15, 16 and 26 (Anastasiadou 2011, 177–8, 178–9, 184–5 respectively).

<sup>16</sup> For green jasper, Krzyszkowska 2005, 82–3, 123 with references; Krzyszkowska 2010b, 253–4. In all *ca.* 45 MM II seals are green jasper, including, *ca.* 15 Petschafte (= *ca.* 40% of Petschafte in hard stone). For this shape, see Yule 1980 (shape class 31j–k). For prisms, see below.



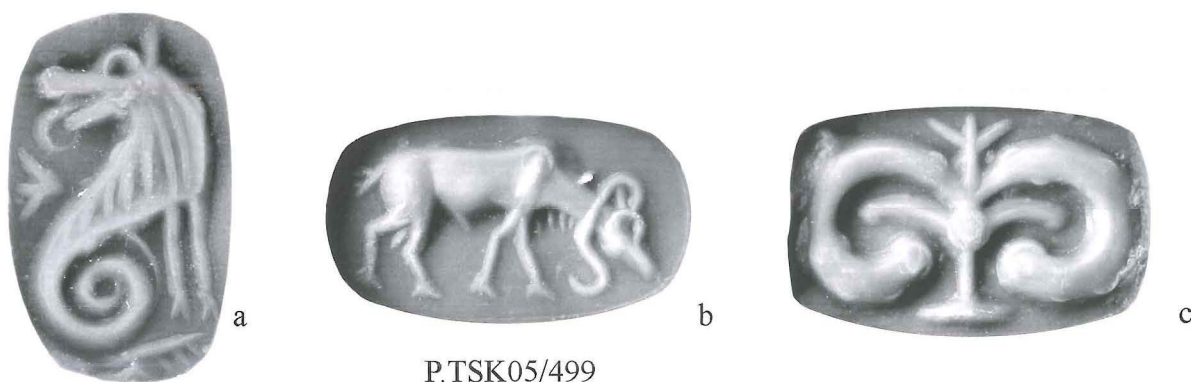


Fig. 5. Impressions of three-sided prism P.TSK05/499 from House Tomb 2, Room 3. Scale *ca.* 3:1.

the design or inscription. In any case, this particular Petschaft is beautifully crafted: note the ribbed hoop, the torsional grooving beneath the piercing, and the fine torus above the base. The seal face is just over 1 cm in diameter, and yet the engraved motifs – four hieroglyphic signs, plus sundry fillers – are crisp and clear.<sup>17</sup> This was only feasible in hard stone, worked with rotary technology, namely fast cutting wheels and drills attached to a lapidary lathe. The technique was seemingly invented in the Near East during the Old Babylonian period and was swiftly adopted in MM II Crete.<sup>18</sup> The green jasper itself is also likely to be imported.

Hard semi-precious stones were also used for the five seals found in Room 3 of House Tomb 2. All are very fine and offer new insights into the development of style and iconography during this period. First is a three-sided prism made of blue chalcedony, in places translucent, in places milky-white. Along with green jasper, this too makes its first appearance on Crete in MM II and was almost certainly imported, though precise sources remain obscure.<sup>19</sup> It was used chiefly for Petschafte and prisms.

Among three-sided prisms of hard stone most carry hieroglyphic inscriptions on one or more faces; few bear purely ornamental and/or figural devices, as is the case with the chalcedony prism from Petras.<sup>20</sup> The motifs are a lion regardant, a shaggy long-horned sheep and a spiraliform motif (Fig. 5). Of especial interest is the rendering of the lion. In some cases, MM II lions may in fact be dogs, but the distinctly marked mane suggests that on this example (and on the steatite prism from Tomb 4) a lion was indeed intended.<sup>21</sup> On the chalcedony prism the

engraver has provided the lion with a magnificent inward-curving spiral in place of hindquarters and the more usual upward curling tail. This ingenious solution – perhaps occasioned by lack of space – is otherwise unparalleled. But as we shall see, below, the substitution of hindquarters with *outward* curving spirals is known in MM II glyptic.

Indeed a fondness for spirals is amply displayed on the four-sided prism of carnelian from House Tomb 2, Room 3 (P.TSK05/322).<sup>22</sup> The motifs are best appreciated from impressions (Fig. 6): (a) lions in profile with outward curling hindquarters; (b)

<sup>17</sup> The inscription here reads: X-016-049-077-033 or X-077-016-033-049, a combination not otherwise attested, although the sign group 077-016-033 >< occurs on *CHIC* #2908; Karnava suggests (pers. comm.) that this might represent the basic “word” and 049 a suffix. Note that *CHIC* #2908 = *CMS* I Suppl., no. 73, a green jasper four-sided prism from “Siteia”. For inscribed seals, Karnava 2000, 160–208, 229–31. In Del Frio (forthcoming) P.TSK06/145 is designated PE S (1/1) 01 following the *CHIC* system.

<sup>18</sup> Krzyszkowska 2005, 83–5.

<sup>19</sup> Krzyszkowska 2005, 81–3; 2010b, 251–2; Pini 2010b, 239 with n. 15.

<sup>20</sup> *Ca.* 70% bear hieroglyphs on one or more faces; purely figural are *CMS* VI, nos. 97–98; VII, no. 45. Cf. Yule 1980, 67–8 (shape class 22b). Note that not all his examples are actually hard stone or MM II in date.

<sup>21</sup> The *CMS* regularly uses the term dog-lion. Cf. *CMS* XI, no. 82 (rock crystal) depicting lion regardant with mane but no tongue, and hindquarters/tail fully rendered; also (more distant) *CMS* II.5, no. 271 with lion regardant. Both attributed by Younger (1993, 149–50) to his “Palaikastro Cat Group” (see above n. 7) and by Yule 1980, 219–20 to his “Drilled Lions Group”.

<sup>22</sup> For carnelian, Krzyszkowska 2005, 81–3. For the shape, Yule 1980, 66 (shape class 21b); also Krzyszkowska 2005, 83, 95–8.



a



b



c



d

P.TSK05/322



CMS XI no. 233a



a



b



c



d

P.TSK05/259



CMS VI no. 93c  
detail



CMS VI no. 138

Fig. 6. Impressions of four-sided prisms P.TSK05/322 and P.TSK05/259 from House Tomb 2, Room 3. Impressions of selected MM II seals with spiralforn elements. All at *ca.* 3:1.

a pair of creatures in profile with spiral “tails”; (c) a pair of heads with spiral locks; (d) an unidentified creature (?) depicted frontally, with elongated spiral “appendages”. The motifs on faces (b) and (c) are arranged tête-bêche. Here it is worth noting that four-sided prisms appear quite suddenly in MM II, with few convincing antecedents. Of *ca.* 25 examples in hard stone, only four do not bear hieroglyphic inscriptions on at least one face; none bears solely figural motifs. In this respect, our carnelian example is highly unusual.

Our next prism – made of dark green jasper – bears inscriptions on three faces and in that sense finds good parallels in the extant repertoire (Fig. 6: P.TSK05/259).<sup>23</sup> The sign-groups in question are also well known, although curiously that on face

<sup>23</sup> For green jasper, see above no. 16. Of 11 four-sided prisms in green jasper only one does not bear hieroglyphs on one or more faces (CMS II.2, no. 273). Of 13 three-sided prisms in this material, only two lack inscriptions (CMS VI, no. 98; VII, no. 45).



(d) must be “read” from the stone, whereas those on faces (b) and (c) are readable from the impressions.<sup>24</sup> Unparalleled though are the strange bird-like (?) creatures on face (a) whose hindquarters terminate in spirals. This feature and the treatment of the paws or claws is so close to that on the carnelian prism, that they are likely to reflect the same workshop tradition, if not the same hand.

While MM II glyptic makes much use of spirali-form elements in creating motifs of a purely decorative or vaguely floral character, few parallels exist for the combination of spirals with the bodies of living creatures, so prominent on the Petras prisms just discussed. I know of no instances for conjoined bodies terminating in an elaborate spiraliform finial, as occurs on our green jasper seal. However, the finial itself finds a persuasive parallel on CMS VI, no. 93c (Fig. 6), a carnelian prism bearing hieroglyphic inscriptions (and sundry fillers) on all three faces.<sup>25</sup> For bodies terminating in simple outward-curving spirals just three parallels may be cited. One is a fine zoomorphic seal of pale blue chalcedony, depicting a cat whose body takes the form of a petaloid loop, terminating in a spiral (Fig. 6).<sup>26</sup> A dog/lion with head regardant and a spiral in place of its hindquarters appears on a three-sided steatite prism, formerly belonging to Richard M. Dawkins.<sup>27</sup> Another steatite prism, now in Copenhagen, bears a pair of lion-like creatures with spiral hindquarters, arranged tête-bêche (Fig. 6).<sup>28</sup> This prism was first published by Evans, who described the animals as “hippocamps”. Allowing for differences in material and technique, they offer a striking parallel for the lion-like creatures on face (a) of our carnelian prism. The creatures on face (b) are unparalleled: their tails are spiky (and hence might be reminiscent of a naturally occurring sea horse, as opposed to a mythical hippocamp) but the torsos (and possibly heads) seem humanoid. Likewise unparalleled and equally difficult to understand is the creature on face (d), evidently yet another *Mischwesen*, another instance of this engraver’s whimsical imagination.

Truly outstanding in every respect is the last prism from House Tomb 2 (Fig. 7: P.TSK05/291). The stone is one of the loveliest I have encountered: an unusual mottled jasper, claret-red and yellow.<sup>29</sup> The quality of engraving is exquisite. The

seal measures only 1.85 cm long, yet the wealth of detail, especially on the inscribed faces is truly astonishing. Note for instance the toothed saw on face (b) and the fly on face (d). Of the inscribed faces, only the combination on face (d) is attested elsewhere.<sup>30</sup> While the individual signs on faces (b) and (c) are well known, the combinations found here are new.<sup>31</sup> Face (a) is exceptionally interesting. It depicts a female figure, wearing a long pleated robe, cinched at the waist by a girdle ending in a tassel. Her hair is done up in a bun, or perhaps she is wearing a kind of *polos*. She raises her hand toward an outsized spear, which effectively frames the field on the left. Although the motif can – and perhaps should – be seen as purely pictorial, we cannot exclude the possibility that the hieroglyphic signs 4 and 50 (woman and spear) are actually intended.

Some support for this suggestion may come from a three-sided prism in the Ashmolean (Fig. 7). On face (a) is a female figure, recognizably akin to ours, wearing a pleated dress with tassels at the waist and accompanied by an outsized spear and sign 13 (calf’s head).<sup>32</sup> And the same style dress (if

<sup>24</sup> The inscriptions read (b) X 036–092–031 (parallels CHIC, 342); (c) 038–010–031 (parallels CHIC, 343); (d) 057–034–056 (parallels CHIC, 362–3) + spiral/fleur-de-lys motif. The floral motif on faces (b) and (c) resembles the sign CHIC 023, but is evidently not to be read. For orientation of sign-groups on seals: Karnava 2010, 199–200. In Del Freo forthcoming P.TSK05/259 is now designated PE S (3/4) 01, correcting Del Freo 2008, 200 (based on erroneous information) where the numbers #286bis and #288bis should be ignored (Del Freo, pers. comm.).

<sup>25</sup> CMS VI, no. 93; CHIC, no. 257; Krzyszkowska 2005, 123, no. 161, C13.

<sup>26</sup> CMS VI, no. 138 (ex-Evans, unfortunately without provenance). Cf. Yule 1980, 194, pl. 32, no. 15.

<sup>27</sup> CMS VIII, no. 20b (now Ashmolean Museum 1967.920).

<sup>28</sup> CMS XI, no. 233a; cf. Evans 1909, 204, no. 58 P.3.

<sup>29</sup> Cf. CMS IV, no. 132 (three-sided prism from “Elounda”) and VII, no. 221 (cushion from Palaikastro) both made of yellow jasper, with distinctive claret-coloured veins or bands running through it. Similar in colour are CMS X, nos. 50 and 82, originally published by Betts as agate; later “corrected” by him to banded tufa (calcite): Christie’s 1989, 29, 32 (nos. 48, 62; colour); the engraving, however, points to hard stone.

<sup>30</sup> Face (d) 031–021–061 ><. Cf. CHIC #059cB, #149, #197.

<sup>31</sup> Face (b) X 016–045–056; face (c) 028–044–049><.

<sup>32</sup> CMS VI, no. 92a; CHIC #264a, read by Godart & Olivier as X 013–050; i.e., the female figure is not transcribed as 004, though the symbol is bracketed. Cf. Jasink 2009, 60–1.



CMS II.8 no. 39. Knossos  
Hieroglyphic "Deposit"



CMS VI.8 no. 92a.  
"Candia district"



a

P.TSK05/291



b



c



d

Fig. 7. Impressions of four-sided prism P.TSK05/291 from House Tomb 2, Room 3. Impressions of MM II seals depicting female figures. All at ca. 3:1

not the same female) recurs on the impression of a four-sided prism at Knossos.<sup>33</sup> Unfortunately, the sealing is damaged and we cannot be sure whether the baton-shaped element behind is sign 65. But on the same nodule was impressed another face of the same prism and that does bear a hieroglyphic inscription. So our mystery lady from Petras has "cousins". Whether she should be accepted as a hieroglyphic sign or as a pictorial image remains open. But this ambiguity – in our eyes at any rate – is well attested in MM II glyptic.

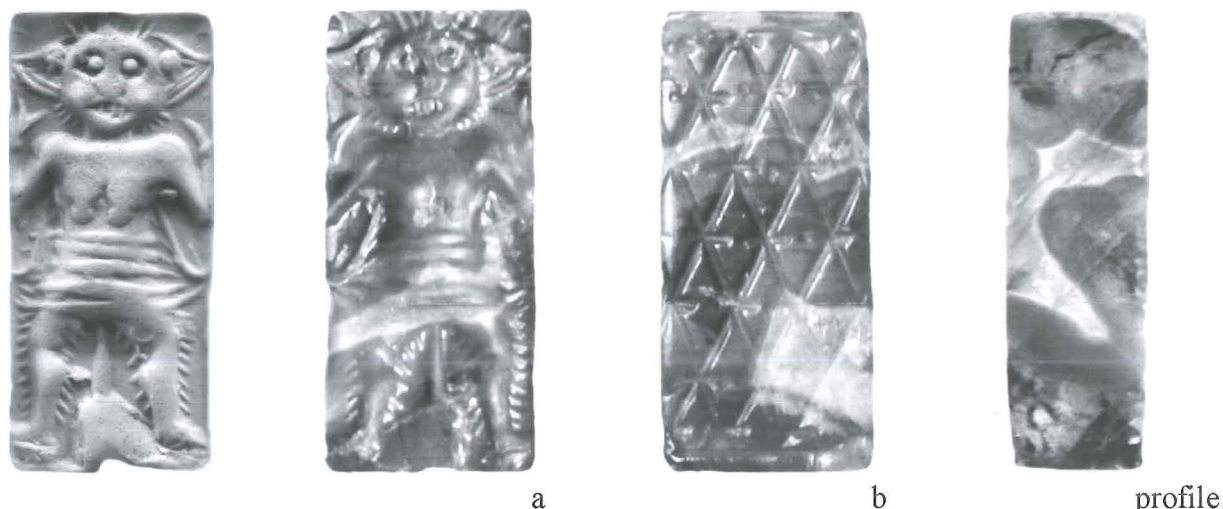
None of the seals just described can be construed as "more of the same", and yet they do all sit very comfortably within the existing repertoire of Minoan glyptic. At first sight, the final seal from House Tomb 3 challenges most preconceptions relating to Minoan pictorial art. Let us begin, soberly, with the seal itself, made of an exquisite banded agate (Fig. 8). It is not a prism, but rather a rectangular bar, with engraving on only two faces, i.e.,

the narrow sides are unengraved. The shape is rare, but not unparalleled.<sup>34</sup> On the reverse is an attractive lattice pattern. On the front is engraved one of the most extraordinary images to survive from the Aegean Bronze Age – a frontal figure with outsized head, pendulous breasts, hairy legs, and a tail possibly dangling in between. The arms/hands seem to be rendered in an abbreviated fashion, but may be holding something. The figure wears a strange skirt or cuirass. The head is especially striking: round eyes and ears, winged locks, bulging cheeks, hairy chin. Above the forehead are spikes or feathers. And it has four protruding teeth. Taken together the appearance should be grotesque, but this creature has a friendly feel.

<sup>33</sup> CMS II.8, no. 39 impressed on HMs 132 with II.8, no. 82 (= CHIC #157)

<sup>34</sup> Yule 1980, 73–4 (shape class 26c). Distribution chiefly East Cretan.





P.TSK05/261

Fig. 8. Rectangular bar (P.TSK05/261) from House Tomb 2, Room 3. Scale *ca.* 3:1.

Frontal figures are rare in Minoan iconography at any period, though, as we will see below, our figure does have some perfectly good MM II relatives. Nevertheless, we are justified in asking whether the inspiration for our creature was wholly indigenous or whether it might incorporate foreign influences. After all, a well-known phenomenon in the Protopalatial period is the arrival of exotic imagery on the island: the sphinx, the griffin, the dragon, and Taweret, the Egyptian hippopotamus goddess swiftly transformed into the Minoan genius.<sup>35</sup>

But the Petras creature is not related to Taweret. Instead, I suggest that it might display affinities to Bes, another friendly demi-god in the Egyptian pantheon, patron of child-birth *inter alia*. His grotesque appearance was meant to drive away pain and sorrow. He was represented as a dwarf with large head, goggle eyes, protruding tongue, bow-legs, bushy tail, and usually a crown of feathers. He was normally shown frontally, not in profile. But further investigation is needed, not least because Bes-images in the Middle Kingdom do not afford especially good parallels (those of New Kingdom date are closer).<sup>36</sup> So for the time being, I would plead for caution. And we should certainly *not* claim that our figure *is* Bes, any more than the Minoan

genius *is* Taweret. That is, when foreign influences are at work, Cretan images are never slavish copies. And obviously the meaning or symbolism of the Petras figure remains wholly elusive.

Notwithstanding any foreign input, the figure may well have several MM II Cretan relatives. Certainly the frontal heads depicted on several four-sided prisms incorporate some of the same features (Fig. 9). Nearest is undoubtedly that on CMS VI, no. 101a, said to be from Central Crete, with its bulging eyes, carefully executed teeth, spikes above the forehead, and faint traces of hair on the chin;

<sup>35</sup> Krzyszkowska 2005, 90 for summary and references.

<sup>36</sup> Bes appears on magic wands, sometimes in association with Taweret (e.g., Louvre AF 6447; E 3614; MMA 30.8.218) but the head is decidedly leonine and the waist is slender. For origins of the Bes-image, Romano 1980. The discovery of figurines depicting Bes in MBA contexts at Alaca Höyük (Koşay 1944, 31, pl. 44) and Byblos (Dunand 1950, 767, pl. 95) – both evidently imports – allows the possibility that figurines or other items depicting Bes might also have reached Crete. A silver pendant from Knossos Ailias Tomb VII, seen by Hood (2010, 167–8, fig. 16.9a) as resembling Bes lacks the creature's typical features; I prefer to follow Phillips (2008, 153) who sees it as a pygmy, or just conceivably, a "squatting pregnant woman". For a Bes figurine of faience (presumably New Kingdom) in Perati Tomb 30, see Iakovides 1969–70, I, 303–4, Δ69; II, 315, 456; III, pl. 91β.



CMS III no. 237b "Malia"



CMS III no. 238a "Malia"



CMS VI no. 101a "Central Crete"



P.TSK05/322c



P.TSK05/261a



Fig. 9. Impressions of selected MM II prisms depicting frontal heads (scale *ca.* 3:1). Details of P.TSK05/322c and P.TSK/261a (not to scale).

squeezed into the corners are hieroglyphic signs 050 and 019.<sup>37</sup> More distant are the two examples reportedly from Malia, now in the Giamalakis Collection, with their elaborate spiral locks.<sup>38</sup> These in turn find parallels on the pair of heads (a detail of one is shown in Fig. 9) that appear on the carnelian prism from House Tomb 2.

Since excavation of the cemetery is still ongoing and the study of the finds to date at a preliminary stage, it would be premature to comment on the contexts of the seals and the circumstances of their deposition. We may, however, observe with conviction that the MM II seals found in the Petras cemetery are of the highest quality, both in the technical and aesthetic sense. The seals are in no way hesitant or provincial; they can compete with the very finest in the contemporary repertoire. These are no "first attempts" in hard stone, but rather the mature products of well-established workshops. Although seals bearing hieroglyphic inscriptions, like

the script itself, are attested in Central Crete, their natural centre of gravity seems to occur at Malia and to extend eastwards to Petras and beyond.<sup>39</sup> Unfortunately few *comparanda* come from securely excavated contexts, but are stray finds acquired by

<sup>37</sup> The remaining seal faces are also inscribed, *CHIC* #297. For full bibliography, *CMS* VI, no. 101.

<sup>38</sup> *CMS* III, no. 237: faces (a) and (c) bear ornamental motifs; face (d) is inscribed (= *CHIC* #280). *CMS* III, no. 238; the remaining faces bear ornamental motifs. Cf. also the frontal head on a serpentine Petschaft from "Knossos" (*CMS* III, no. 105) and perhaps the "imp" with upraised arms on a limestone (?) Petschaft from Mochlos (*CMS* II.2, no. 251). For steatite prisms, Anastasiadou 2011, 207–8, Motif 74, "Gorgo mask".

<sup>39</sup> See Tsipopoulou & Hallager 2010 for the hieroglyphic archive at Petras, securely datable to the end of MM IIB. Among the seals attested in the archive (estimated at between 25 and 40 or 50) at most six bore hieroglyphs (Tsipopoulou & Hallager 2010, 166–8, 195). In terms of sign-groups, there are no matches between the archive (clay documents or seal impressions) and the seals from the tombs.



Evans and Seager, or somewhat later by Giamalakis and Metaxas.<sup>40</sup>

As we know, seals are small and easily portable, so the report or even discovery of a few seals in any given locale is no guarantee that they were made locally. And no workshop material exists that could help pinpoint production centres for MM II hard stone seals. Nevertheless, close scrutiny of the repertoire does reveal stylistic differences that may (with further study) help to identify the output of workshops in the stylistic sense. So what of the Petras seals? Did Petras itself support a seal-cutters' workshop or are all our lovely seals "imports" from Malia or even Knossos? On present evidence, sadly, we simply cannot say. But any new seals from excavated contexts are a boon to the repertoire. And ours, offering such intriguing insights into the de-

velopment of the pictorial repertoire and its relationship to the hieroglyphic script, are precious additions indeed.

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<sup>40</sup> Other early collectors were: R. M. Dawkins, R. C. Bosanquet and J. H. Marshall. See summary in Krzyszkowska 2005, 316–20. For "provenances", see also Pini in *CMS* III, 1–2 (Giamalakis); Hughes-Brock, in *CMS* VI, 9–12 (Evans). To my knowledge only two *hard stone* prisms bearing hieroglyphs come from controlled excavations: HM 2595 (*CHIC* # 309) a surface find at Myrtos Pyrgos (Cadogan 1978, 83, fig. 40) and *CMS* II.2, no. 256 (*CHIC* # 293) from a Geometric tholos at Adromyloi. Both are green jasper.

# Discussion

- Mavroudi** Could we assume that at least some of these seals were imports from Anatolia or the eastern side of the Mediterranean, or just imports from somewhere in Crete, like Malia or Knossos?
- Krzyszkowska** No, they are all Cretan, purely Cretan in style, the semi-precious stones are likely to have been imported, and, of course, the hippo-ivory, at an earlier period, but none of the seals are imports from off-island.
- Macdonald** I wonder whether you would consider the parallels of the Middle Cycladic faces on the Phylakopi jugs, which look remarkably like that particular monster, for Bes I mean.
- Krzyszkowska** Yes.
- Macdonald** That's at least a broadly contemporary parallel from the Aegean, and secondly is there any relation between the hieroglyphic deposit at Petras and anything that one can see on the hieroglyphic seals presented here today?
- Hallager** Metaxia showed these seals to me soon after she found them, and that was also my first thought, if there could be a connection between the hieroglyphic deposit and those seals found, and the problem is that among the sealings from the hieroglyphic deposit those with hieroglyphic inscriptions are very damaged. There is only one which is almost complete, and definitely, from what is preserved in the archive, there is nothing coming from the ones found in the tombs. That much I can say for sure.
- MacGillivray** Are there wolves in Crete? That is an innocent question. I have never heard of wolves in Crete. Why would they be depicting wolves, and not dogs?
- Krzyszkowska** Yes, wild dogs. This is a problem. I am calling it a wolf's head. Perhaps it should have been put in inverted commas, to distinguish it from the dog's head, because there is a separate hieroglyphic sign, sign 17 that is a very distinct sign, the head is not so fat, and it reads differently in archival inscriptions too. So, I am calling it by the conventional name that Evans gave to the sign, which was "a wolf's head". You are quite right, we can debate, do they exist, I have no idea, I cannot recall.
- Hallager** If I may make an additional comment to that question, there is one of the almost completely preserved impressions from the hieroglyphic archive with an animal, and I had great difficulties identifying it, but I ended up thinking that it could only be a wolf, and therefore I realize that there is also the dog-wolf motif, but the thing is that the lower jaw is much shorter than the upper one and the way the animal is stand-



ing would make it more sensible to be a wolf. This does not answer your question, whether wolves existed in Crete, but when you have the whole animal depicted it is very likely that they have actually seen the animal.

**Krzyszkowska** And there is a depiction from Phaistos, also the whole animal, not just the head, which looks very persuasive as a wolf rather than a dog, but I would have to check what the faunal people have to say.

**Tsipopoulou** Some of the parallels you showed for this strange tail, curving like a spiral are of unknown provenance, and they were collected by Evans. I wonder, could they have been coming from our area, because Evans visited Petras, we know that. Could they have been products of the same workshop? The cat in particular.

**Krzyszkowska** The cat, the ash cat, which is absolutely gorgeous, is on a blue chalcedony seal that is in the shape of a little animal, and that one I think, I cannot remember, it would have been labeled if it had any kind of provenance, I think not, or it may have been Central Crete. The steatite prism in Copenhagen, that was bought 1880, as coming from Crete, bought from Roussopoulos, here in Athens. We know nothing about it. It is certainly possible and what I will have to do as a next step is plot the occurrence of the hard stone seals, three and four sided prisms, the Petschafte and so on, because even though many of them, almost none, have an excavated context, we can see where Evans and others were acquiring them. Certainly the distribution is eastern Crete, some in central Crete, but the bulk is Malia eastwards. That applies generally for the hard stone seals in this period, and it applies especially for the hieroglyphic seals, so they can be plotted. Some do come from Siteia, are said to have come from Siteia, but seals do travel, this is the big problem, and unless we have workshop material, it is going to be very difficult to prove that they are made in the Siteia region, that is at Petras as opposed to Malia, where we have very good parallels, and a good concentration. It is possible, but proving it will be very difficult, unless you find a contemporary workshop, and then we will be very happy.

**Haggis** It is very enjoyable to see this material, thank you for that presentation. We are of course facing, to bring up again Macdonald's point and this is of course without having seen the pottery from these various tombs, to see where they sit. With these seals we do have the situation where we have a very sophisticated tradition, that is drawing certainly on a lot of Prepalatial design principles, MM IB design principles, that we are attracting into our normative chronology of MM II, so we have a developed MM II assemblage in a cemetery that we are both calling for the site Prepalatial, and if it is MM then we are thinking of it as *ad quem* date for the construction of the palace, so we are faced with maybe the recognition that our dating of seals has a lot to do with attracting traditions into a few well dated destruction deposits, especially of MM IIB date, and that maybe with things like this we can begin reconsidering the use of this kind of prismatic seals, or are you completely opposed to that idea?

**Krzyszkowska** The dated *comparanda*, it is true, come from the destructions at the end of MM IIB, and those destructions nearly provide a *terminus post quem non* for the use of those particular seals, so we cannot exclude the possibility that our seals are before the end of

MM IIB, based on the present chronology, how much before is a matter for careful, very careful, consideration. I have thought about this for about a year, since I first saw the seals, I have had discussions, not specifically about these, but about the inception of hard stone technology on Crete, which I have always placed in MM II, and I have had extensive discussions with Ingo Pini, about this problem of seal chronology and specifically the inception of hard stone technology, and he is adamant that it cannot be before MM II. Now there is still some scope here. If someone can bring me a hard stone seal with an advanced motif as we have here, because these are not first attempts, this is really polished stuff, if somebody can bring me a seal like that in an incontrovertible MM IIA, then, we have to go with the ceramic dating, but at the moment, there is a problem, because those seals were found without any pottery. If we have to move the dating of such hard stone seals, then, literally, we will have to rewrite the whole chronology of Minoan glyptic, because everything else is so much tied in, it is not just that one little period, it is what goes before and what comes after, and again this is what Pini has remarked to me, that we should always be open minded, nevertheless, or after 100 years or more of seal research we will find that our chronology is wrong.

**Tsipopoulou** This morning I showed the totality of the pottery from HT 2, it is already conserved, you can have a look again at it. This is practically all of the pottery from HT 2. And we had no pottery with the seals, this is absolutely true, I checked and double checked, I looked at all the pictures. Papadatos excavated this very carefully, and there was no pottery, not even sherds, in association with the seals. I am studying the pottery of HT 2 right now. It is a very intriguing matter.

**Papadatos** Sorry about that, it is not about dating. Just to return to Metaxia's point before, about Evans. The same story is with the Cycladic figurines that Evans bought from Khania from someone called Mitsotakis, but it was reported that they were coming from Siteia. At the time it was very strange for Cycladic figurines to come from Siteia, because they were only known from Central Crete. At some point Antonis Zois found one in Vasiliki, but still, nothing was found further east. So after the Cycladic figurines we found at the Petras cemetery, it seems that perhaps these were coming from Siteia as well, so maybe there is a possibility of some looting. This is something we have to think about.

**Tsipopoulou** I found in the Historical Archive of the Archaeological Service some classified reports from Marinatos to the Ministry of Education responsible at the time for archaeology. He was furious about various foreign archaeologists, including Evans and Seager, who were travelling around Crete collecting seals and other ancient artifacts. On the other hand, he reported that the Italians were not doing the same. He pointed out that many sites, especially tombs, were destroyed by illicit digs, because the locals knew that there was a market for seals, coins, etc.



### Σφραγίδες του νεκροταφείου του Πετρά Σητείας

Οι ανασκαφές από το 2005 και εξής αποκάλυψαν σημαντικούς ασύλητους τάφους στην περιοχή του Πετρά Σητείας. Αυτοί περιλαμβάνουν μια Προανακτορική βραχοσιεπή, και μερικούς τάφους-οικίες. Μεταξύ των σημαντικότερων ευρημάτων συγκαταλέγονται οι σφραγίδες, χρονολογημένες στην Προανακτορική και την Παλαιοανακτορική περίοδο. Οι πρωιμότερες περιλαμβάνουν μερικούς κυλίνδρους κατασκευασμένους από χαυλιόδο-ντα ιπποπόταμου. Μέχρι σήμερα, λίγες σφραγίδες αυτής της εποχής από αυτό το υλικό έχουν βρεθεί ανατολικά του Μόχλου, και καμία από αυτές από βέβαιο ανασκαφικό περιβάλλον. Επίσης, βρέθηκαν σφραγίδες από οστό και στεατίτη χρονολογούμενες στην MM I και MM II, με όρους Κεντρικής Κρήτης. Οι σημαντικότερες σφραγίδες του Πετρά είναι κατασκευασμένες από σκληρούς ημι-πολύτιμους λίθους – αχάτη, κορναλίνη, μπλε χαλκηδόνιο και ίασπι – μερικές από τις οποίες φέρουν ιερογλυφικές επιγραφές. Τα σχήματα είναι Petschafte, μια ορθογώνια ράβδος, τριεδρικά και τετρεδρικά πρίσματα. Η συσχέτιση των πρισμάτων – είτε από στεατίτη είτε από σκληρούς λίθους – με την Ανατολική Κρήτη έχει αναγνωρισθεί από μακρού. Όμως, μέχρι σήμερα, ουσιαστικά όλα τα γνωστά πρίσματα από σκληρό λίθο ήταν τυχαία ευρήματα και κανένα δεν είχε βρεθεί σε περιβάλλον σύγχρονο με την πιθανή εποχή κατασκευής τους. Τα νέα ευρήματα του Πετρά είναι εξαιρετικά υψηλής ποιότητας, αντίστοιχης – αν όχι ανώτερης – των καλύτερων μέχρι σήμερα γνωστών. Επομένως, βοηθούν στην επίρρωση παλαιότερων συμπερασμάτων σχετικά με το ρόλο του Πετρά ως ανερχόμενου περιφερειακού κέντρου κατά την Παλαιοανακτορική περίοδο.



# Kephala Petras: the human remains and the burial practices in the Rock Shelter<sup>\*</sup>

Sevasti Triantaphyllou

## Abstract

Rescue excavations in 2006 on the west slope of Kephala Petras Hill brought to light an undisturbed rock shelter ranging in date from the EM I and MM IB–IIA periods. The Rock Shelter is located 50 m south of the house tomb cemetery and its entrance faces the palace of Petras. Apart from a large number of valuable artefacts and pottery vessels indicating a strong influence from the Cyclades, a thick deposit of human remains was recovered, extending over a large area of 10 m<sup>2</sup>. The study of the skeletal remains, represented primarily by commingled human bones, offers a unique opportunity to shed some light on issues related to the treatment of the deceased and the practices associated with the burial, re-burial, and multiple use of the disposal area. It will also help identify the biological parameters of the case-study population, such as the demographics (i.e., minimum number of individuals buried, sex, and age groups), health, dietary status, physiological stress factors, and the type of physical activities practiced during life.

In May 2009, the study of the human bone assemblage from the EM Kephala Petras Rock Shelter began at the INSTAP Study Center for East Crete. The human bone material was initially cleaned with soft brushes and water and sorted in accordance to major anatomical units: cranial bones, mandibles/maxillae/teeth, clavicles/scapulae, humeri, ulnae, radii, hand/foot bones, vertebrae, ribs, os coxae, femora, tibiae, fibulae, patellae, and unidentified bone fragments. The macroscopic investigation of the skeletal material, except for teeth, was completed in July 2010 and lasted almost seven months. The human skeletal assemblage consists of 20,987 bone fragments, of which 11,500 were given an inventory number and systematically recorded. In addition, 4,136 cranial fragments and 5,351 undiagnostic rib and vertebral fragments were counted and weighed only, while a total of 50 kg of unidentified bone fragments were only weighed. It is worth mentioning here the total numbers from other EM assemblages of commingled skeletal remains that have been recently studied. In the Moni

Odigitria tholos tombs, the human skeletal material consists of a total of 3,630 and 1,461 identified bone and tooth fragments from Tholoi A and B, respectively.<sup>1</sup> At Archanes, Tholos Tomb Γ produced only 72 post-cranial fragments,<sup>2</sup> while the recently published report of the Hagios Charalambos Cave

<sup>\*</sup> I am deeply indebted to the excavator and Director of the Petras excavations Dr Metaxia Tsipopoulou who entrusted me with the study of the human skeletal remains from the EM Kephala Petras Rock Shelter. The examination of this material, and also the comprehension of stratigraphy and aspects related to the treatment of the deceased, would be absolutely impossible without the generous provision of contextual information and instructive discussions with Metaxia. I am particularly grateful to Professor Philip Betancourt who helped enormously in practical matters. I also thank Dr Thomas Brogan, Director of the INSTAP Study Center, Eleanor Huffman, Dr Yiannis Papadatos, Clio Zervaki, Garifalia Kostopoulou, Eleftheria Tsihli and Chronis Papanikolopoulos who all helped in different ways. This work was generously funded by the Institute for Aegean Prehistory.

<sup>1</sup> Triantaphyllou 2010a.

<sup>2</sup> Triantaphyllou 2005, 68.



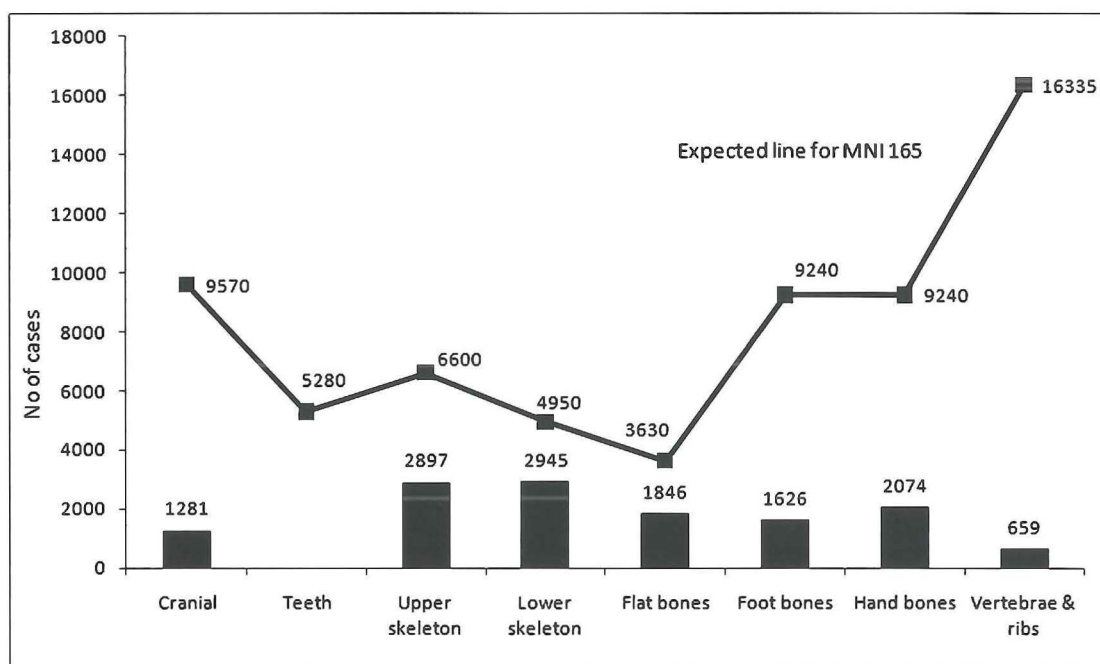


Fig. 1. Skeletal representation according to bone categories.

makes reference to 11,000 entire or fragmentary bones identified thus far.<sup>3</sup>

The study and analysis of commingled human remains differs from that of individual articulated skeletons involved in single episodes of primary burial. The skeletal assemblage of the EM Kephala Petras Rock Shelter offers a unique opportunity to explore issues related to the treatment of the deceased and the practices associated with the burial, re-burial, and multiple use of the disposal area. Also, the biological parameters of the case study population, such as the demographics (i.e., minimum number of individuals buried, sex, and age groups), health, dietary status, physiological stress factors, and the type of physical activities practiced during life, can contribute to the overall biological picture of the EM populations of Crete.

The recording system followed the standards for documenting commingled skeletal remains that were established for the two tholos tombs at Moni Odigitria.<sup>4</sup> In particular, each bone fragment was recorded according to typical anatomical features based on the standard anatomical units for disarticulated skeletal assemblages established by Lyman (1994) and slightly adjusted according to internationally accepted standards for recording commin-

gled human remains,<sup>5</sup> in order to avoid duplication of anatomical units. Long bones, for example, were segmented into five different zones: proximal end, proximal 1/3, middle 1/3, distal 1/3, and distal end. Archaeological information related to trench number, level, and stratigraphical unit, as well as taphonomic parameters such as erosion, encrusting, burning, but also completeness of skeletal elements, fragmentation, siding, age, sex, pathological conditions, and metric and non-metric traits were entered into an Access database.

The degree of fragmentation, as well as the representation of skeletal elements, can shed new light on the type of disposal in rock shelters. The Kephala Petras Rock Shelter produced a considerable number of skulls, but also of long and small bones, in a complete state of preservation. The skulls of 77 out of 82 individuals estimated, on the basis of cranial elements, are in an almost complete state of preservation, while some long bones produced sufficient measurements to provide stature estimation. Fig. 1 shows the bone representation of the

<sup>3</sup> Betancourt *et al.* 2008, 580.

<sup>4</sup> Triantaphyllou 2010a.

<sup>5</sup> Outram *et al.* 2005.

recorded Kephala Petras skeletal elements alongside the expected skeletal representation based on the minimum number of individuals held in the Rock Shelter (minimum number of individuals = 165). According to Fig. 1, although all major anatomical units are well represented, there is a significantly high prevalence of the long bones of the upper and the lower skeleton, as well as of the scapulae and the pelves. On the contrary, cranial material is less well represented. This is not an effect of poor preservation, since the skulls recovered are almost complete. The relatively high representation of the long bones of the upper and the lower skeleton, alongside the scapulae and the pelves, may indicate a preferential selection toward these anatomical units. It is a matter for further investigation whether the almost complete skulls belong to specific stratigraphic units which can be associated with the MM IB/IIA deceased of the final use of the house tombs before the thorough cleaning out took place.

Despite the preliminary nature of the ongoing analysis, results from the study of the skeletal material, as well as of the associated stratigraphical information, are consistent with the secondary deposition of human remains, which, however, did not involve only defleshed and skeletonised bones, but also, less commonly, body parts which were in a fresh condition preserving much of their organic components, or even their anatomical articulation in a few rare cases. In addition, there is one clear case for the deposition of the semi-articulated lower body – pelvis and legs – of an adult male in fresh condition at the time of the disposal, which was found in association with a libation jug and a conical cup suggesting, according to the excavator,<sup>6</sup> a Neopalatial ritual activity that took place in the Rock Shelter; but this is an isolated episode. Excavation with the grid system and in stratigraphic units offers a unique opportunity to investigate the character of the deposition, as well as the sequence of the deposition within the different areas of the Rock Shelter. Thus, joins of bone fragments recovered in different levels of the deposit and in different trenches reinforce the idea that the secondary deposition of the skeletal material represents one single episode rather than multiple re-openings of the Rock Shelter. Multiple re-openings would be

represented by uniform deposits of skeletal elements with joins occurring in the same stratigraphic level.

Moreover, with regard to the external bone surface of the examined skeletal remains, there is no weathering, flaking or discoloration to suggest the exposure of the bone material to outside conditions, such as sunlight and rain water. Instead, a high proportion of the bone material is covered by calcium carbonate of variable thickness. This is often associated with groundwater leaching through the skeletal remains, particularly in cave or rock shelter assemblages. Complete long bones and skulls are also common in the skeletal assemblage of the Hagios Charalambos Cave, which according to McGeorge, represents the secondary deposition of human skeletal remains.<sup>7</sup> The overall picture from rock shelters, based on the analysis of the human skeletal remains, is compatible with the use of such features as the final destination of skeletonised bones, as well as of body parts in fresh condition, which once placed there, were safely sealed away from further circulation and disturbance from the living community.<sup>8</sup>

A low frequency of (only 4%) of the human remains from the Kephala Petras Rock Shelter provided evidence of burning, mostly of smoked black and blue/grey color with minimal severe alterations (e.g., cracking and warping), thus suggest a hasty and short-term exposure to firing conditions, mainly for skeletonised human remains. Besides, as a result of their burning in fresh condition, very few bone fragments showed evidence of the white coloring accompanied by slight alterations in the physical appearance of the bone. The skeletal elements usually involved come primarily from the cranial skeleton, while it is significant to mention that the few burnt bone fragments would correspond to ten individuals only. The low frequency of burnt bone fragments in the EM Kephala Petras Rock Shelter, as well as the slight character of alterations from firing processes, appear to represent localized and small scale activities associated with

<sup>6</sup> Tsipopoulou 2007b; Tsipopoulou 2010b.

<sup>7</sup> Betancourt *et al.* 2008, 578.

<sup>8</sup> Triantaphyllou in press.





Fig. 2. a) Cranium 13, superior aspect: evidence of long term healed cranial injury and detail of the cranial injury; b) Cranium 14, left side: evidence of long term healed fracture on the left orbit.

the fumigation of the area where the human remains were primarily deposited.

One controversial issues regarding Prepalatial burial assemblages has been the estimate of the population unit accommodated. Questions regarding the minimum number of individuals, as well as the composition of the population held in communal assemblages, have been tantalizing specialists working on the island. The minimum number of individuals deposited in the Rock Shelter has been estimated at 165 based on sided identified femoral proximal thirds (137 left/165 right). Similarly, in other recently studied EM commingled skeletal assemblages, the minimum number of individuals has been estimated at 133 at Moni Odigitria Tholos A, 64 at Moni Odigitria Tholos B,<sup>9</sup> 30 at Archanes Tholos Γ,<sup>10</sup> and approximately 400 at the Hagios Charalambos Cave.<sup>11</sup> Calculation of population units based on Bintliff's estimation of 20 corpses per century<sup>12</sup> would approximate the size of one nuclear family group (0.63) to have contributed to the Kephala Petras Rock Shelter.<sup>13</sup> The distribution of sided femoral proximal thirds by age group represents 129 adults versus 36 subadults, suggesting that all age groups including neonates ( $n = 6$ ), were placed in the Rock Shelter, as would be expected in a family skeletal assemblage. This is also the case at Moni Odigitria Tholos A<sup>14</sup> and the Hagios Charalambos Cave,<sup>15</sup> while at Moni Odigitria Tholos B, there is a striking under-representation of the subadult age categories – only four out of 64 individuals<sup>16</sup> – possibly indicating an inten-

tional exclusion or limited access for certain age categories to particular burial assemblages. With regard to the sex groups, based on pelvic and cranial morphology, both males and females appear to have been deposited in the Rock Shelter, although there is a significant over-representation of men. In particular, 30 males versus 17 females and 45 males versus 20 females were recognized according to anatomical features of the pelvis and the cranium, respectively. Similar discrepancies between the two sex groups were provided by Moni Odigitria Tholos B where men are over-represented,<sup>17</sup> and Archanes Tholos Γ<sup>18</sup> where the opposite pattern occurs. It is important to point out, however, that results regarding sexing should be considered with caution, since there is a large number of unsexed individuals due to preservational bias. Nevertheless, estimation of the minimum number of individuals, combined with the distribution of age and sex groups of recently examined EM skeletal remains, would indicate that age, and to a lesser degree sex, were important criteria in terms of accessibility of

<sup>9</sup> Triantaphyllou 2010a, 233, 236.

<sup>10</sup> Triantaphyllou 2005, 66.

<sup>11</sup> Betancourt *et al.* 2008, 580.

<sup>12</sup> Bintliff 1977.

<sup>13</sup> Triantaphyllou in press.

<sup>14</sup> Triantaphyllou 2010a, 232.

<sup>15</sup> Betancourt *et al.* 2008, 578.

<sup>16</sup> Triantaphyllou 2010a, 236.

<sup>17</sup> Triantaphyllou 2010a, 236.

<sup>18</sup> Triantaphyllou 2005, 69.

certain population segments to certain burial assemblages.

With regard to levels of health status, there is a very low prevalence of pathological conditions, reflecting therefore a good standard of life for the Prepalatial Kephala Petras population. The low frequency of non-specific infections and conditions of anaemic episodes contributes to the overall picture of good health in the case study population. Also, there are a small number of long term healed cranial injuries (Fig. 2a-b) associated with men only, possibly suggesting their involvement in interpersonal violence. Similarly, McGeorge makes special reference to 16 cranial injuries involving mostly men, while it seems possible that at least in some cases in the Hagios Charalambos Cave population, trauma can be associated with deliberate injuries.<sup>19</sup> Musculo-skeletal markers on the upper and lower extremities, as well as the evidence of healed rib fractures, would be consistent with a population which was actively engaged in heavy and intense physical tasks, such as farming, herding, and walking in rough terrain. Moreover, the mean stature of the EM Kephala Petras population is estimated to 162.5 cm based on complete long bone measurements, which reinforces the overall picture of good health status since stature can be highly affected by nutrition.<sup>20</sup> Comparing the mean stature of EM Kephala Petras population with other Prepalatial assemblages,<sup>21</sup> it becomes clear that the former population appears to have been the same height with that of Hagios Charalambos<sup>22</sup> and slightly taller than in Moni Odigitria Tholos B (mean stature = 160.79 cm).

Recent macroscopic investigation of 499 permanent and 37 deciduous teeth, which comprise almost half of the total teeth recovered,<sup>23</sup> provide interesting clues concerning the dental health of the case study population. In particular, 139 out of 452 alveolar processes examined showed evidence of teeth lost prior to death due to extensive periodontal disease, while another 70 and 87 out of 499 teeth examined provided evidence of dental caries and deposition of calculus, respectively. A comparison of the oral status of the Kephala Petras Rock Shelter population with the two tholoi of Moni Odigitria shows that the prevalence of dental disease is consistent with Moni Odigitria

Tholos B, which presents a slightly higher rates of caries (15.69%, 27 out of 172) and calculus deposits (9.88%, 17 out of 172)<sup>24</sup> than Moni Odigitria Tholos A. Women at EM Kephala Petras seem to have lost their teeth prior to death slightly more frequently than men. Dental caries occur also in a small number of subadults, over eight years old, indicating the introduction of cariogenic foodstuff early in life. Furthermore, it is interesting to note that there is a tendency for men to have dental caries more frequently than women, suggesting possibly a higher consumption by men of a diet richer in plant carbohydrates. Enamel hypoplasia lines, which represent metabolic disturbances which took place during early childhood, were observed in 75 out of 499 permanent teeth investigated, thus indicating a relatively high prevalence of this defect for the EM Kephala Petras population. This figure is significantly higher in comparison to Moni Odigitria Tholos A and B, although in Tholos B, based on the estimation of the defect in the individuals with associated dentitions, half of the Tholos B population was affected by enamel hypoplasia lines.<sup>25</sup> Enamel hypoplasia defects have been closely associated with nutritional or physiological stress and in particular with the effects of weaning, i.e. cessation of breast feeding, which vary significantly even in contemporary populations.<sup>26</sup> Also, five cases of periapical abscesses, out of the 452 alveolar processes examined were observed. Periapical abscess is an infection of the periapical tissues which followed by the exposure of the pulp chamber or root, due to bacteria from severe attrition, extensive carious decay or trauma.<sup>27</sup>

Furthermore, one case of an adult man with a cranial synostosis, that is premature fusion of the sagittal suture (scaphocephaly)<sup>28</sup> resulting in an ab-

<sup>19</sup> Betancourt *et al.* 2008, 581.

<sup>20</sup> Steegmann 1985.

<sup>21</sup> Triantaphyllou 2010a, fig. 117.

<sup>22</sup> McGeorge 1988.

<sup>23</sup> Macroscopic investigation of teeth is ongoing.

<sup>24</sup> Triantaphyllou 2010a, 241–2.

<sup>25</sup> Triantaphyllou 2010a, 240.

<sup>26</sup> Katzenberg *et al.* 1996.

<sup>27</sup> Hillson 1996, 285.

<sup>28</sup> Aufderheide & Rodríguez-Martín 1998, 52.



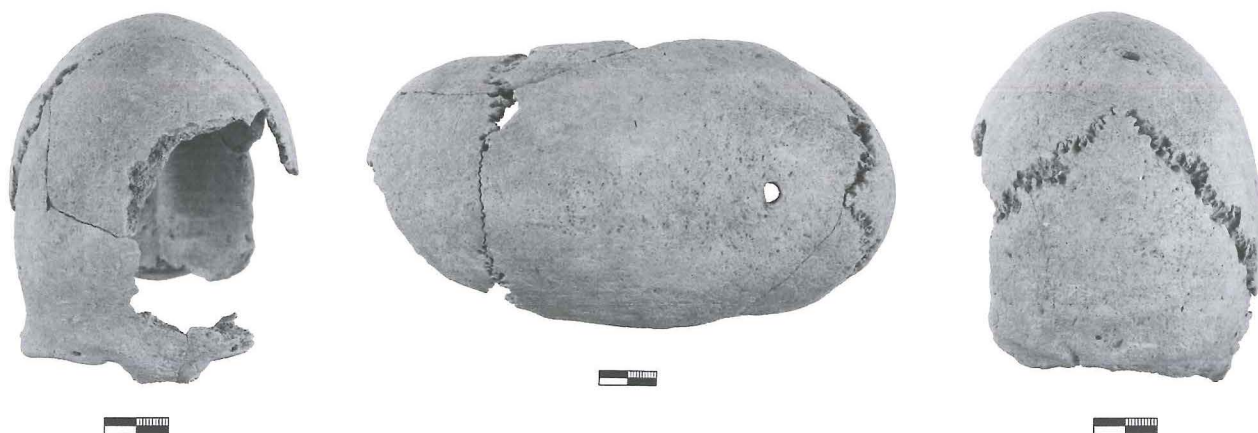


Fig. 3. Cranium 77, anterior aspect, superior aspect, posterior aspect: cranial synostosis.

normally deformed, long and narrow skull, was observed (Fig. 3). The genetically deformed skull is also associated with a remarkably enlarged parietal foramen, which is not very common in archaeological populations.<sup>29</sup> The abnormal physical appearance of the affected individual, accompanied possibly by a mental disorder, may have attributed a special social status to this particular man. Despite the genetic disorder, his inclusion in the secondary disposal area of the EM Kephala Petras population would suggest that he was considered eligible to receive similar burial treatment with the physically ordinary people of Prepalatial Petras.

Less than ten years ago, our knowledge of the manipulation of the deceased, as reflected by Prepalatial skeletal assemblages, was extremely minimal and was based primarily on empirical archaeological observations.<sup>30</sup> The analysis of the human skeletal remains from the EM Kephala Petras Rock Shelter, although at a preliminary stage, offers a great

opportunity for the exploration of aspects related to the treatment of the deceased in contexts other than in the tholoi and the house tombs, but also of biological parameters such as the demographic picture and levels of health and oral status of the living community of the case study population. There is still a long way to go in order to better understand the various stages of burial and after burial activities that took place in Prepalatial Crete. However, recent studies of large skeletal assemblages, together with systematic and well documented excavation projects of house tomb cemeteries such as at Petras Siteia and Sissi, appear very promising for leading us in the right direction.

<sup>29</sup> Aufderheide & Rodríguez-Martín 1998, 59.

<sup>30</sup> E.g., Branigan 1987.

# Discussion

**McGeorge** This was very interesting. Were you at the lecture Friday night [Minoan Seminar by Philip Betancourt on Hagios Charalambos]?

**Triantaphyllou** No, I missed it.

**McGeorge** Ok, well, I think this was a very interesting lecture. I don't think, you were suggesting that there were 22 people in the community at Hagios Charalambos? You said that in passing.

**Triantaphyllou** 22 people? No, I never mentioned that. 400.

**McGeorge** No, but for 1800 years, you said 400. In your lecture you mentioned starting with a small population increase, I think this would be a bit of oversimplification.

**Triantaphyllou** I do not understand your point here. I gave minimum numbers for the assemblages, and for Hagios Charalambos you are mentioning that.

**McGeorge** I know, but you are making conclusions about it, and perhaps you need to make a better comment on that.

**Triantaphyllou** Ok, I want to clarify this though.

**McGeorge** Yes.

**Triantaphyllou** You do not support anymore the 400 individuals?

**McGeorge** No, I am not saying that. I am saying that it is a simplification to assume that there was a single nuclear family that was responsible for the entire cave.

**Triantaphyllou** No, this was not really the point. The question is, what do the minimum numbers represent in terms of demography, and we have different views as to whether it was a nuclear family of six-seven people or an extended family.

**McGeorge** Maybe I misunderstood, but I got the impression that you were suggesting that a nuclear family had supplied that cave for 1800 years.

**Triantaphyllou** No, well, yes and no.

**McGeorge** There you are.



**Triantaphyllou** Not a nuclear family as a nuclear family. Well, what was your suggestion, that it is not?

**McGeorge** I just thought it was a simplification.

**Triantaphyllou** The numbers that you saw are based on an ambiguous estimation for demography and population.

**McGeorge** It was a brilliant talk, I just made a comment.

**Triantaphyllou** Thank you. My point was to give a general picture on what the minimum numbers we have are representing. We can see them in the chronological use of the space, because if we talk about 400 individuals, for example, they are a lot, but if we see them in chronological terms they are not that many, or the 165 of Petras they are not many, if you think how long the cemetery was used. This was really the point.

**Paschalidis** Thank you very much, it was very interesting. I would like to ask about the age of the skeletons, especially how many people were older than 18, and also is there any difference in the numbers between men and women?

**Triantaphyllou** This is an important issue, as age estimation over 18 years old in the Petras Rock Shelter skeletal remains is based on the ectocranial suture closure method, which however does not provide particularly reliable values, and in general there are problems with ageing because of the commingled state of the skeletal remains. On the other hand, when we have complete skeletons we are able to use combined ageing methods from several anatomical points and, therefore, to have a more reliable and secure age estimation of the individual. With regard to the age groups disposed in the Rock Shelter, preliminary study points to a high frequency of individuals of 40–50 years old based on age estimations from the skulls only.

**Tsipopoulou** I understand that we are all aware about the discussions relating to the type of social group, and even the social status of the particular group that used the various Prepalatial tombs in Crete. There are different suggestions about larger or smaller groups, even nuclear families. What we should keep in mind about Triantaphyllou's paper is that the social group that was buried in the Rock Shelter had good health, that all age groups are represented, and also the average height was high. If we compare these data with the architecture of the house tombs, and also the grave goods, I believe we all will agree that we are dealing here with elite burials, an elite cemetery rather. Where the rest of the community was buried is a problem, as I do not believe that the whole community living at Petras was buried here.

**Triantaphyllou** Also, we do not know whether these 165 individuals, if we round them they may even approach 200 individuals. So we do not know whether all these individuals come from one house tomb only. Because if they come from one house tomb then we would talk about a rather large number of people.

**Moutafi** Thank you, it was a very good paper, and, I think, a brilliant example about how much light can be shed on the burial practices by the study of the bones. I have a question, a technical one, about alterations on the bone surface, whether you noticed relatively similar alterations in all skeletal remains or there were any differentiations?

**Triantaphyllou** There were no alterations on the bone surface, but what do you mean?

**Moutafi** I mean the degree of weathering.

**Triantaphyllou** In different anatomical units?

**Moutafi** Not necessarily, but perhaps between individuals?

**Triantaphyllou** No, not at all.

**Moutafi** Which would support your clues about the one episode deposition.

**Triantaphyllou** I strongly believed that this deposition represents one episode from the very first time I started finding joins in bone fragments which were coming from different excavation units, not only on a vertical but also on an horizontal axis.

**Moutafi** But also in the area of their primary burial, the succession of burial episodes would probably have been very similar to that.

**Triantaphyllou** Yes.

**Haggis** I find it surprising about the age differentiation.

**Triantaphyllou** I find it surprising myself, but it exists.

**Papadatos** I was simply thinking that because the earliest house tomb in the cemetery dates to EM II, whether these EM I finds may represent primary burials at least for this early period based on...

**Triantaphyllou** You still insist on the primary character of the deposition in the lower levels of the Rock Shelter?

**Papadatos** No, no way... I am just putting some thoughts here.







# Size does matter: the significance of obsidian microliths and querns at the Petras cemetery\*

Heidi M.C. Dierckx

## Abstract

House Tomb 2 and the Rock Shelter at the Petras cemetery yielded numerous obsidian blades and microliths, as a result of the intensive collection of finds through sieving and flotation. The significance of such a complete assemblage from the EM I-MM IB/IIA tombs is paramount in understanding the mortuary practices of this period. Preliminary analysis points to the importance of microliths, such as *trapezes*, lunates and scrapers, as well as blades, in burial rituals in Early to Middle Minoan tombs. Broken querns also suggest some kind of killing ritual of artifacts at the time of burial.

This article focuses on the presence of the smallest tools (i.e., obsidian microliths), as well as the largest ground stone implements, i.e., querns, excavated from the burials at the Petras cemetery, hence the title. It discusses some preliminary observations on the chipped and ground stone implements from House Tomb 2 and the Rock Shelter, which are dated to EM I-MM IB/MM IIA. As a result of the intensive collection of finds by careful excavation procedures such as sieving and water flotation, the assemblage of chipped and ground stone implements associated with Early and Middle Minoan burials from the Petras cemetery is significant for elucidating the role of stone implements in the mortuary practices of this period.

Past excavations of Minoan tombs rarely used methods that maximized the complete retrieval of artifacts, especially concerning the smallest of artifacts or those artifacts not deemed important or recognizable as objects or tools. The recently excavated burial cave of Hagios Charalambos is a notable exception and serves as a major parallel for the Petras stone tool assemblage<sup>1</sup>

In total, 490 pieces of obsidian and 26 pieces of ground stone tools were recovered from the two Petras tombs (Table 1). The main category of chipped stone consists of obsidian prismatic blades,

retouched blades, worked flakes or microliths and a large number of *débitage* material. Of interest is the occurrence of microliths, which consist of *trapezes*, lunates, tiny scrapers and some denticulated or serrated pieces, and even a few projectile points (Fig. 1b-d, 1f-g).

Most of these were associated with the burials in both tombs. One must note, however, that even with more precise study of the context, it remains difficult to determine to what extent the amount of tools and *débitage* was directly associated with the burials or was part of the preparation rituals before burial. Most burials from House Tomb 2, as well as those from the Rock Shelter, are considered to have been deposited in a secondary context and thus were moved from their original burial site.

The prismatic blades were mostly broken, and either the proximal, distal or medial sections were

\* I want to express my thanks to Dr Metaxia Tsipopoulou for the opportunity to study the chipped and ground stone tool assemblage from the Petras cemetery. I am grateful to INSTAP for funding. My thanks extend to Garifalia Kostopoulou and Dr Metaxia Tsipopoulou for providing me with contextual information. Lastly, I acknowledge Jennifer Davis for her assistance in cataloguing many of the obsidian pieces.

<sup>1</sup> Dierckx 2008.



Petras House Tomb 2

	Blades	Microliths	Débitage	Other	Querns
Rm 1	8	7	33	3	
Rm 2	3	2	9	1	2
Rm 3	13	19	56	5	5
Rm 4	2	6	22	5	1
Rm 5	4	1	9	2	
Rm 7	3		18	2	1
Rm 8	4	5	10	5	
Total	37	40	157	23	9

Table 1. Number of obsidian and querns from House Tomb 2 and Rock Shelter.

Rock Shelter

	Blades	Microliths	Débitage	Other	Querns
A 1	8	6	12	6	2
A 2			2	1	
A 3	6	3	11	2	
A 4/5		1	3		
A 4	5	1	3	2	
A 5	1	2	12	1	
A B	11	8	117	9	1
Total	31	21	160	21	3

preserved (Fig. 1a & 1e). The longest complete blade was 5.44 cm in length, which is comparable to the blades found in Minoan tombs in Crete, measuring on average 5–6 cm. Secondary burial, post-burial activity, and disturbance probably account for the breakage of these blades. The large number of microliths in the tombs is the largest yet known from any Early to Middle Minoan context. From House Tomb 2 come 40 examples, consisting of nine geometrics (both *trapezes* and *lunates*), 21 scrapers and nine points or drills/borers (Fig. 1b–c). Of interest is the occurrence of two projectile points in the assemblage (Fig. 1d). Of the nine rooms which comprise House Tomb 2, the most significant assemblage comes from Rooms 1 and 3 (Table 1).

From the Rock Shelter came 21 microliths, including five geometrics, 11 scrapers, two denticulated or serrated flakes, and three points, of which two are projectile points (Fig. 1f–g). The most sig-

nificant finds come from the area designated B (Table 1).

It also has to be noted that a large number of débitage pieces form part of the assemblage in both tombs. It is noteworthy that both funerary assemblages also contained some chert and quartz tools—scrapers and drill/borers.

It has been proposed that the “geometrics” may have been used as drill bits or engraving points for the working of stone, bone and ivory.<sup>2</sup> But their use as projectile points, based on examples from Egypt, seems plausible. Arrows with lunate heads, with or without barbs, of the same microlith type, were transversely mounted into mastic (Type A). A variation of a *trapeze*, consisting of a bladelet snapped at both ends and mounted with the chisel end upwards, also functioned as a projectile point

<sup>2</sup> D’Annibale 2006, 338; 2008, 195.

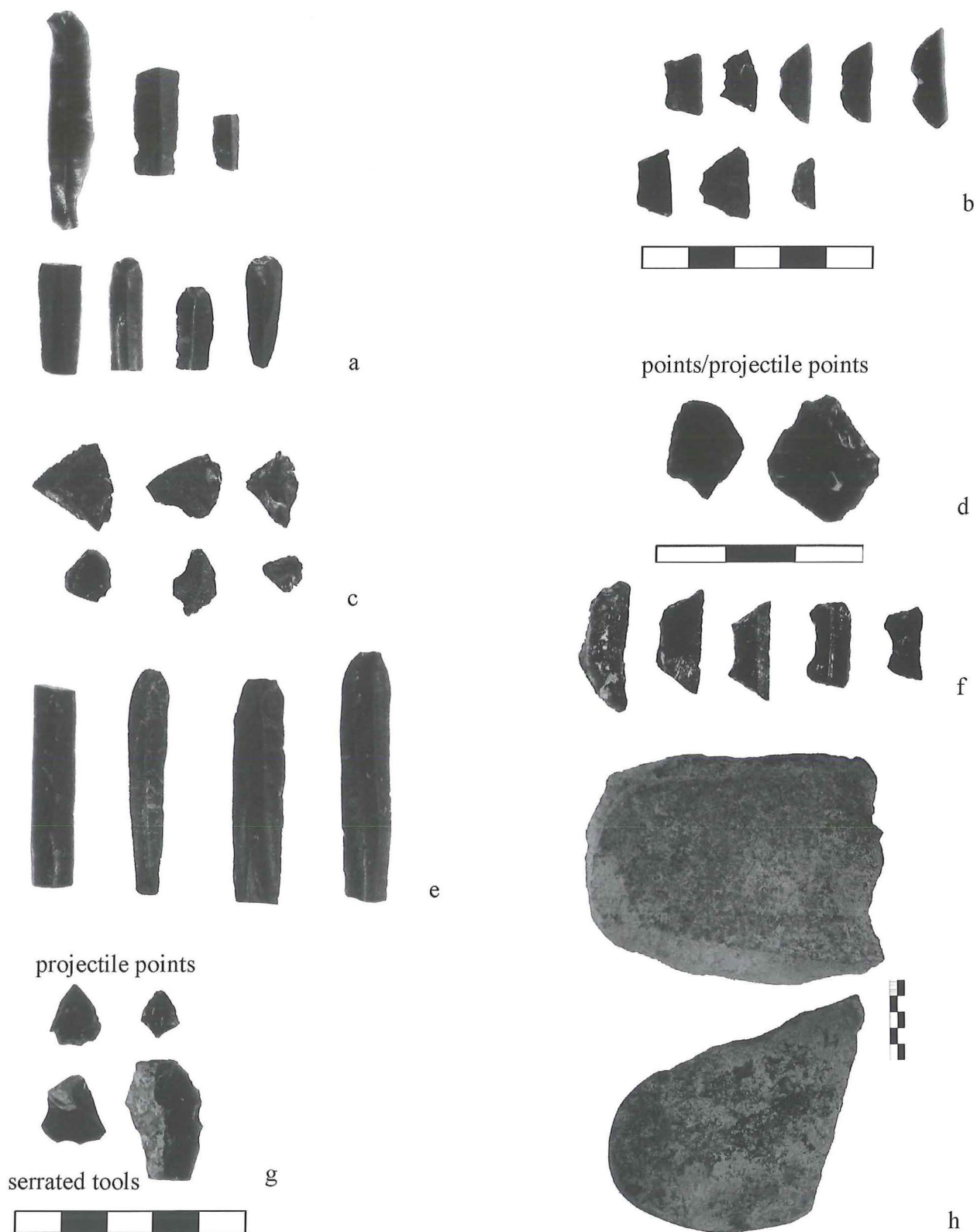


Fig. 1. a) Prismatic blades from House Tomb 2; b) Geometrics from House Tomb 2; c) Scrapers from House Tomb 2; d) Projectile points from House Tomb 2; e) Prismatic blades from the Rock Shelter; f) Geometrics from the Rock Shelter; g) Obsidian from the Rock Shelter; h) Broken querns from House Tomb 2.



(Type A2, variant 2). All types have been proven to have had cutting potential and penetrating ability for hunting or in war.<sup>3</sup> The suggested identification as projectile points seems to fit well with the recently studied geometrics found at Aphrodite's Kephali (of EM I date), which is interpreted as a fortified settlement.<sup>4</sup>

Prismatic blades have been commonly found in Minoan burials of the same time period. In fact, in most cases, prismatic blades were virtually the only chipped stone tools recorded from the burials. An extensive study of the chipped stone from burial contexts of the Early and Middle Bronze Age Aegean has been carried out.<sup>5</sup> As regards the obsidian assemblages from Minoan burial contexts, Carter's study reveals that the most common type of obsidian artifact was the prismatic blade. There also were blades belonging to the initial stages of blade manufacture, such as crested blades and blades of the primary series of blade production. Rarely has the occurrence of flakes, cores or microliths been reported. These have been recorded only at Hagia Photia and in a few tombs in the Mesara.<sup>6</sup> Of the microliths, Carter reports the presence only of "geometrics", specifically the *trapeze*. Thirteen were found in the EM tombs of Platanos and Lebena in the Mesara and three other pieces from Tholos Tomb Γ and the Area of the Rocks at Phourni at Archanes.<sup>7</sup> Two further examples are mentioned as coming from the Moni Odigitria tomb in the Mesara,<sup>8</sup> and one from Tholos E at Archanes.<sup>9</sup> Carter's statement that "It is tempting to see a localized variant in the construction of funerary assemblages, shared by the communities in South and Central Crete,"<sup>10</sup> no longer holds true based on the new evidence from Petras.

A recently excavated EM-MM I burial at Hagios Charalambos provides another comparison for the obsidian from the Petras tombs.<sup>11</sup> This cave also contained burials from a secondary context. The chipped stone consists of prismatic blades, blades from the initial stages of manufacture, some *débitage* pieces, as well as 21 geometrics and two scrapers, one of which is made from quartzite. Of the geometrics, the cave produced 16 lunates, which can be considered in the same category of tools as the *trapezes*. It is interesting to note that lunates have

so far been recorded from tombs in East and East-Central Crete. This may indicate a localized variant of the geometric type of tool.

From the evidence found in Minoan burial contexts, it appears that, of the chipped stone tools, prismatic blades were not the only goods buried with the dead. At least in the Petras tombs, as well as at Hagios Charalambos, microliths appear to have represented a major portion of the EM-MM chipped stone assemblage, in the form of geometrics, tiny scrapers, points or drills/borers, and some projectile points. The large amount of *débitage* from the Petras tombs suggests that the obsidian was manufactured on the spot for burial and deposited with the dead. The prismatic blades and geometrics did not show any signs of use, indicating that they functioned purely as burial goods.

It has been suggested that the obsidian blades deposited in EBA Cycladic tombs, as well as in tombs in South-Central Crete, were especially manufactured for deposition in burials as part of a ritual action and that these blades functioned as "razors" to control body hair, with the cores functioning as pestles, and thus all were related to body modification.<sup>12</sup>

I suggest rather, in the case of Petras, that the combination of blades, projectile points, geometrics, if interpreted as projectile points, and scrapers (potentially used in the processing of animals), may suggest that the tools were part of hunting equipment. It would be interesting to see whether these tools are associated with male burials. Study of the skeletal material might bring some light to this issue.<sup>13</sup>

Ground stone implements from the tombs consisted of a variety of tool types, including pound-

<sup>3</sup> Staley *et al.* 1974, 323, 334, 350, 367, 374–5, fig. 9, pls. IV, V, XII–XIII, XIX.

<sup>4</sup> The chipped stone from Aphrodite's Kephali was studied by the author and publication is forthcoming.

<sup>5</sup> Carter 1999.

<sup>6</sup> Carter 1999, Appendix 4; Xanthoudides 1924, 21, 105, pl. XXII.

<sup>7</sup> Carter 1999, 298–9; Papadatos 2005, figs. 27–8.

<sup>8</sup> Carter 2010, 154, fig. 62, nos. CS 82–3.

<sup>9</sup> Panagiotopoulos 2002, pl. 51, no. I42.

<sup>10</sup> Carter 1999, 307.

<sup>11</sup> Dierckx 2008.

<sup>12</sup> Carter 1998, 73; 2010, 165–6.

<sup>13</sup> Triantaphyllou this volume.

ers, abraders and grinders, whetstones, polishers and querns. Of the 26 ground stone implements, 12 were querns. All the querns were broken, which would suggest that these objects were “ritually killed” before deposition into the grave (Fig. 1h). This ritual of rendering artifacts useless has been suggested for bronze weapons and pottery from several Minoan tombs, for example at Pseira, Mochlos and Hagia Photia.<sup>14</sup> It is also interesting to note that the assemblage of ground stone tools from the Petras cemetery is somewhat different from the assemblages found in the other known Minoan tombs, especially from the Mesara. In fact, the ground stone artifacts recorded were primarily pommels, pestles, whetstones with suspension holes, stone axes and palettes.<sup>15</sup> None of these implements were part of the Petras cemetery ground stone assemblage, which consisted instead of types of hand tools common in Minoan domestic settlements. It is also significant that most of the hand tools were not broken but exhibited wear from use. A similar assemblage has been excavated from the tholos tomb at Hagia Kyriaki. A lack of these tools in the Mesara tombs may reflect, to some extent, a lack of recognition of these tools during excavation. Their presence, however, indicates that they were used before the tomb was built based on their context prior to the building of the tomb.<sup>16</sup> Very few querns have been reported from other Minoan burials, including one example from Kaminospelio in southern Crete and one from Hagia Kyriaki, and they may have been buried with the dead as symbols of their role in life.<sup>17</sup> One “grinding stone” is reported from Hagia Photia Tomb 10, though no details are available.<sup>18</sup> From Mochlos, stone implements including fragmentary querns “were scattered around the South Slope tombs. Although none is

reported by Seager and only one other stone tool was found *in situ* during the cleaning, it is likely that all these implements were originally among the contents of the surrounding tombs”.<sup>19</sup> Querns were also found at Archanes Building 4, along with other hand tools, and were used in the preparation of the dead.<sup>20</sup> Thus, with the lack of detailed study and exact contexts of ground stone implements from tombs, it is difficult to speculate on the reason for the differences between the ground stone assemblage from Petras and other Minoan tombs. Although one may postulate that, at least in the case of Petras, some of the hand tools may have been used in food preparation as part of the burial rituals, whereas the querns served as burial goods for the dead.

In conclusion, the evidence presented above suggests that: 1) Microliths were not merely a Neolithic phenomenon, but continued in use throughout the EM and early MM period; 2) Microliths appear to be an important part of EM and early MM burial goods and may be indicative of a hunting kit; 3) Ground stone tools were also an integral part of burial rituals, especially querns, which were “ritually killed” before deposition in EM and early MM burials.

<sup>14</sup> Davaras & Betancourt 2004, 240; Betancourt & Davaras 2003, 136–7; Soles 1999; 2001.

<sup>15</sup> Xanthoudides 1924, 15–21, 45, 64–6, 79–80, 104–6; Davaras & Betancourt 2004.

<sup>16</sup> Blackman & Branigan 1982, 14–6, fig. 4.

<sup>17</sup> Blackman & Branigan 1973, 202, 206.

<sup>18</sup> Davaras & Betancourt 2004, 18.

<sup>19</sup> Soles 1992, 71.

<sup>20</sup> Sakellarakis 1974.



# Discussion

**Macdonald** Are the obsidian tools manufactured on the site? Why would one be producing a hunting kit for secondary burials? And you did not suggest one thing that is, I am sure, in everybody's mind, that some of the obsidian tools were used to chop up the body a bit more for a secondary burial and get rid of excess flesh and bits and pieces.

**Dierckx** First of all I would have to see what the bones tell us, because I do not know that as of yet, to be sure if that is a possibility, but most of the obsidian was actually found, because I looked at all the contexts, very low, in the deepest levels, so definitely associated with most of the cranial and other bone material. They were not on the surface. So, I assume at this point that they were part of the burials.

**Triantaphyllou** As regards the Rock Shelter, from where I have looked at the bones, there are no cut marks, and I am positive about that. So the obsidian has nothing to do with the defleshing.

**Dierckx** And also there were no use wear marks on the obsidian blades, nor on the little points.

**Papadatos** To continue on that, it was equally possible that they were made for the primary burials and then ended up in the deposit together with the secondary burials. Something else about burial B 19: There has been no osteological study as of yet, so the skeleton has not been sexed, and I think to associate obsidian blades with male burials is a little bit of a circular argument in the sense that the person who has obsidian blades is a male, so a male has to have obsidian blades. It is better to be able to support this with evidence from the bones.

**Dierckx** I agree. It was just a thought that came to me. The idea for the uses of those, primarily because of the *trapezes* and the *lunates* is based on Near Eastern and Egyptian examples. There is an article where they show that these were actually used as projectile points. So, I am basing it more on the use of the tools, and I hope that eventually some bone material will support that.

**Haggis** I just have a couple of questions. First of all I find the kit very convincing so I very much liked the presentation.

**Dierckx** Thank you.

**Haggis** The small things, the retouched blades, the microliths, did you say, are they common in the Cyclades, have they been found in cemeteries?

**Dierckx** No, not even in the Cyclades. There are a couple of *trapezes* in one of the tombs and that is it. So, most of it is in the Mesara and I believe Tristan Carter was studying them and he found 11 pieces from Lebena and Platanos together.

**Haggis** The *trapezes* look back at an earlier Neolithic tradition?

**Dierckx** Not that I know of.

**MacGillivray** I am just kind of mystified about killing quern stones. If you killed them in a tomb would you not get both sides?

**Dierckx** Not necessarily if you are killing, and examples from the literature on the pottery show that only part of the pot is buried. And I have the same with the querns. I have all examples of part of a quern and not the other half. So I am thinking, why would you put half a quern into a tomb?

**Stamos** Going along with the ritual killing of the querns, is it always the same half of the quern that is in the tomb, or both sides?

**Dierckx** Hard to tell. It looks pretty much to be from the same side. It was a good observation. I never thought of that.

### *Greek abstract*

Το μέγεθος μετράει: η σημασία των μικρολιθικών εργαλείων οφιανού και των τριβείων στο νεκροταφείο του Πετρά.

Το Τάφικό Κτίριο 2 και η Βραχοσκεπή του νεκροταφείου του Πετρά απέδωσαν πλήθος λεπίδων οφιανού και μικρολιθικών εργαλείων, ως αποτέλεσμα της εντατικής συλλογής των ευρημάτων, μέσω στεγνού και υγρού κοσκινίσματος. Το πλήρες αυτό σύνολο ΠΜ Ι–ΜΜ ΙΒ τάφων είναι πολύτιμο για την κατανόηση των ταφικών πρακτικών της περιόδου. Η προκαταρκτική ανάλυση δείχνει τη σημασία της τοποθέτησης στους τάφους μικρολιθικών εργαλείων, όπως τραπεζιόσχημα, μηνοειδή και ξέστρα, καθώς και λεπίδες, ως τμήμα των ταφικών πρακτικών κατά την Πρώιμη και τη Μέση Μινωική περίοδο. Σπασμένα τριβεία, εξάλλου, υποδηλώνουν ένα είδος θανάτωσης των τέχνηργων τη στιγμή της ταφής.







# Defining the end of the Prepalatial period at Petras<sup>\*</sup>

*Metaxia Tsipopoulou*

## *Abstract*

The palace of Petras was built slightly later than other similar buildings, at the beginning of MM IIA. This date was established by the excavation of floor levels in stratigraphical trenches placed within the palace. Furthermore, the so-called Lakkos, a large secondary deposit in Sector III of the settlement, contained a large quantity of fragmentary pottery of very good quality, dated to the late Prepalatial period (MM IB–beginning of MM IIA). Petras was an important center throughout the Prepalatial period. In EM III–MM IB, the social and economic factors that led to the construction of the palace and the establishment of a palatial economy and administration were already present, lacking only their architectural expression. The on-going excavation of the cemetery of the same period, important for its architecture and the movable finds, suggests that social differentiation, even among elite groups, was already pronounced before the construction of the palace. The present paper presents, in a preliminary form, the ceramic assemblage of House Tomb 2, to date the most important burial building in the cemetery, and compares it with the contemporary pottery of the stratigraphical trenches of the palace and of the Lakkos deposit.

The excavation at Petras has offered us the rare chance of investigating an urban settlement (EM II–LM IIIB) and its palace (MM IIA–LM IB) as well as an important, practically un plundered cemetery (EM I–MM IIA).<sup>1</sup> The intensification of the studies for the final publications, by an international team of experts, have in recent years enabled us to define the chronology of many deposits, coming from the settlement, the palace and the cemetery.<sup>2</sup>

The goal of the present paper is to present the chronological evidence, following the preliminary study of the relative pottery groups, from the following areas of the excavations:

– House Tomb 2 (HT 2), the most important building of the cemetery excavated to date.<sup>3</sup>

<sup>\*</sup> Warmest thanks to: Yiannis Papadatos for the excavation of HT 2 and the test trenches dug before the construction of the paths; Michael Wedde, who participated in the excavation of the stratigraphical trenches of the palace; Clio Zervaki

for the conservation of the finds; Douglas Faulmann for the drawings of HT 2; The drawings of Σ-palace are by M. Wedde; Chronis Papanikolopoulos for the photographs of HT 2; The photographs of the finds of the Σ-palace are by the author; Donald Haggis for many fruitful conversations; Garifalia Kostopoulou for the plates. An earlier version of the paper was presented at the 11<sup>th</sup> Cretological Congress, in Rethymnon, in the fall of 2011. The Petras volume provides a good opportunity for this paper to be published together with other papers dealing with the chronology of late Prepalatial Petras. The form is still preliminary. More study of all the related deposits will be necessary, before more secure conclusions can be reached.

<sup>1</sup> Tsipopoulou 2007b; 2010b; 2011b; 2012; in press a; this volume, Introduction; Tsipopoulou this volume, 117–31; Triantaphyllou 2010b; Triantaphyllou *et al.* forthcoming; Betancourt this volume; Ferrence *et al.* this volume; Krzyszkowska this volume; Dierckx this volume.

<sup>2</sup> Tsipopoulou & Hallager 2010, 49–68, 135–53; Tsipopoulou 2012; in press c; Haggis 2007; this volume; Tsipopoulou & Alberti 2012; Rupp & Tsipopoulou this volume; Rupp this volume; Papadatos 2008; Papadatos *et al.* in press.

<sup>3</sup> Betancourt this volume, fig. 1a, Tsipopoulou this volume 117–31, fig. 2; Tsipopoulou in press a.





Fig. 1. P.TSK05/198.



Fig. 2. P.TSK05/409.

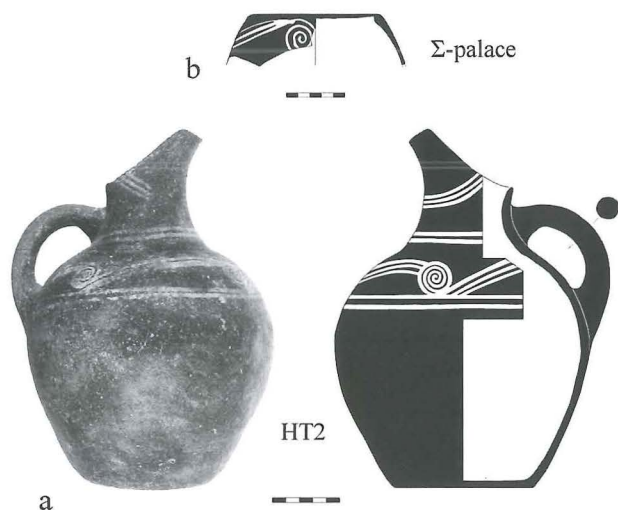


Fig. 3. a) P.TSK05/536; b) P94/215.

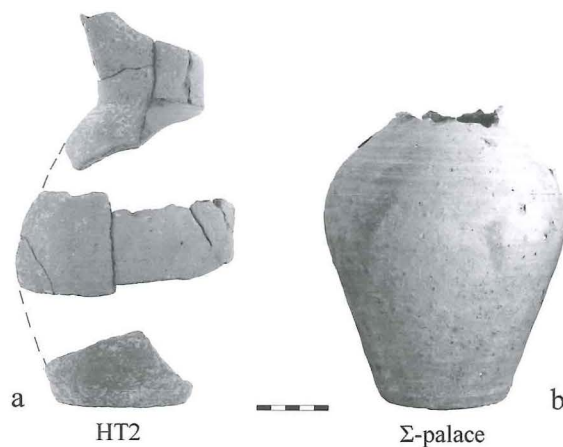


Fig. 4. a) P.TSK05/331; b) P95/293.

– The stratigraphical trenches in the palace.<sup>4</sup>  
 – Two parts of the settlement, a) the Lakkos in Sector III,<sup>5</sup> and b) a late Prepalatial deposit which came to light during the trial excavations prior to the construction of the paths for the visitors, in the same general area.<sup>6</sup>

HT 2 is clearly distinguished from the rest of the burial buildings in the Petras cemetery, not only for its large size and its complex architecture, but also for its finds. It comprises eight areas, two of them exclusively for the storage of vessels used in ceremonies, especially forms connected with food consumption. Most of the burials were secondary, but there were also a few primary burials, in two larnakes and a pithos, as well as another one directly on the ground. HT 2, both for the dating and the burial practices, shows the transition from the Pre- to the Protopalatial period.<sup>7</sup>

Furthermore, the unique group of five seals

made of hard stones,<sup>8</sup> two of which held inscriptions in the Cretan hieroglyphic script, suggests that the building was used for the burial of people belonging to the most prominent social group of late Prepalatial-early Protopalatial Petras. It should be noted that seals are rare in the other house tombs. The hieroglyphic inscriptions indicate that their owner(s) enjoyed a prominent social rank, connected with palatial administration.

The stratigraphical trenches in the palace offered a secure *terminus post quem* for the construction of

<sup>4</sup> Tsipopoulou this volume, Introduction, Fig. 4; Tsipopoulou & Wedde 2000; Tsipopoulou in press b.

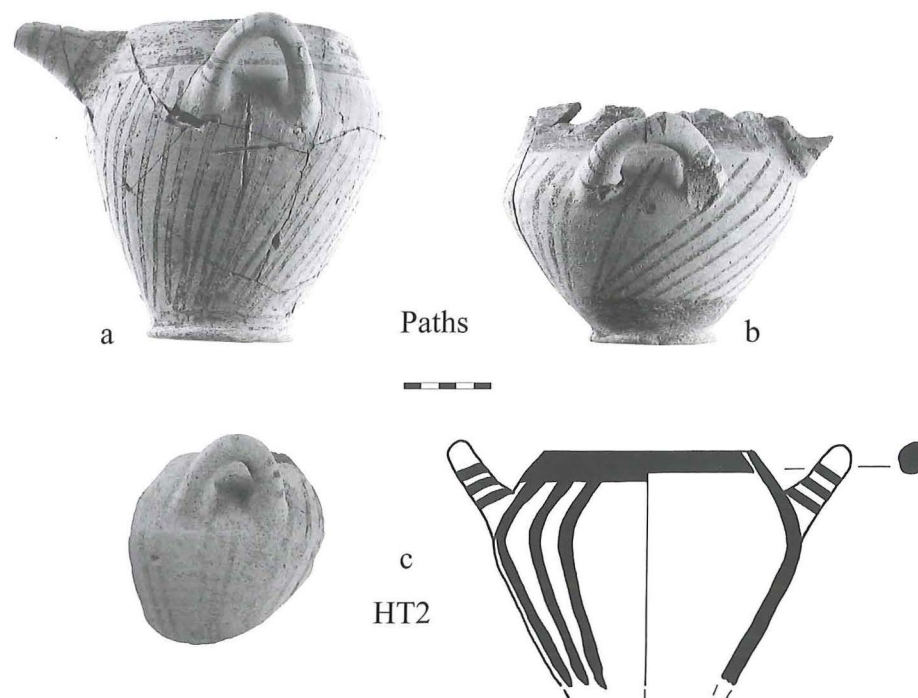
<sup>5</sup> Tsipopoulou this volume, Introduction, Fig. 5a-d; Haggis 2007; this volume.

<sup>6</sup> Tsipopoulou this volume, Introduction; Figs. 6-7.

<sup>7</sup> Tsipopoulou 2011b; in press a.

<sup>8</sup> Krzyszkowska this volume.

Fig. 5. a) P05/83;  
b) P05/128;  
c) P.TSK05/317.



the central building, in MM IB.<sup>9</sup> The palace was erected at the beginning of MM IIA, although the floors of this period were not preserved. The excavation of the deposit containing the hieroglyphic archive offered a secure *terminus ad quem* for the destruction of the first palace in MM IIB.<sup>10</sup>

Outside of the palace there were other important, both for the quantity, as well as for the quality, MM IB deposits, the most significant being the so-called Lakkos, a very large secondary deposit on the east slope of Hill I at Petras (at a distance of less than 100 m from the plateau of the palace), that was only partially excavated.<sup>11</sup> Related to the pottery of the Lakkos are the ceramic assemblages that came to light in the test trenches excavated before the paths for visitors were constructed, close to the Lakkos and to Sector III in general. These belonged to primary deposits, including foundation deposits.<sup>12</sup>

The chronological horizon of the pottery of HT 2 is EM III–MM IB and (possibly also the initial phase of MM IIA). The assemblage has good parallels among better known pottery groups of eastern Crete. One of the earliest vases in HT 2 is an EM III jug (Fig. 1) with a parallel from Lebena.<sup>13</sup> Most of the vases are identical to examples excavated at Gournia. It is possible that they have been imported from the Mirabello area, although this cannot be proven as of yet, because the petrographic analyses

have not been completed. A jug (Fig. 2) provide a good example of this type.<sup>14</sup> Another category of vessels has characteristic MM IA light-on-dark decoration and finds exact parallels among the material from the North Trench at Gournia (Fig. 3a),<sup>15</sup> as well as from Mochlos<sup>16</sup> and Palaikastro.<sup>17</sup>

There are interesting comparisons and exact parallels between the pottery of HT 2 and that of the stratigraphical trenches of the palace (Fig. 4a–b). The same spiralforn motif found on the jug from HT2 decorates a bridge-spouted jug from a stratigraphical trench in the palace (Fig. 3b), while two MM IB bridge-spouted jugs, identical in shape and decoration, come from a foundation deposit in the test trenches of the paths for the visitors (Fig. 5a–b) and have an exact parallel from HT 2 (Fig. 5c). The shape is also common at Knossos.<sup>18</sup>

A slightly different type of MM IA bridge-

<sup>9</sup> Tsipopoulou & Wedde 2000; Tsipopoulou in press b.

<sup>10</sup> Tsipopoulou & Hallager 2010, 49–68, 135–53.

<sup>11</sup> Haggis 2007; this volume.

<sup>12</sup> Tsipopoulou this volume, Introduction.

<sup>13</sup> Alexiou & Warren 2004, 185, fig. 51, no. 21.

<sup>14</sup> Betancourt & Silverman 1991, fig. 5, no. 380.

<sup>15</sup> Hawes *et al.* 1908, nos. 17, 24.

<sup>16</sup> Seager 1912, 42, figs. 18–9, no. Va.

<sup>17</sup> Bosanquet & Dawkins 1923, pl. III, m.

<sup>18</sup> Macdonald & Knappett 2007, 66, fig. 3.4, no. 163.



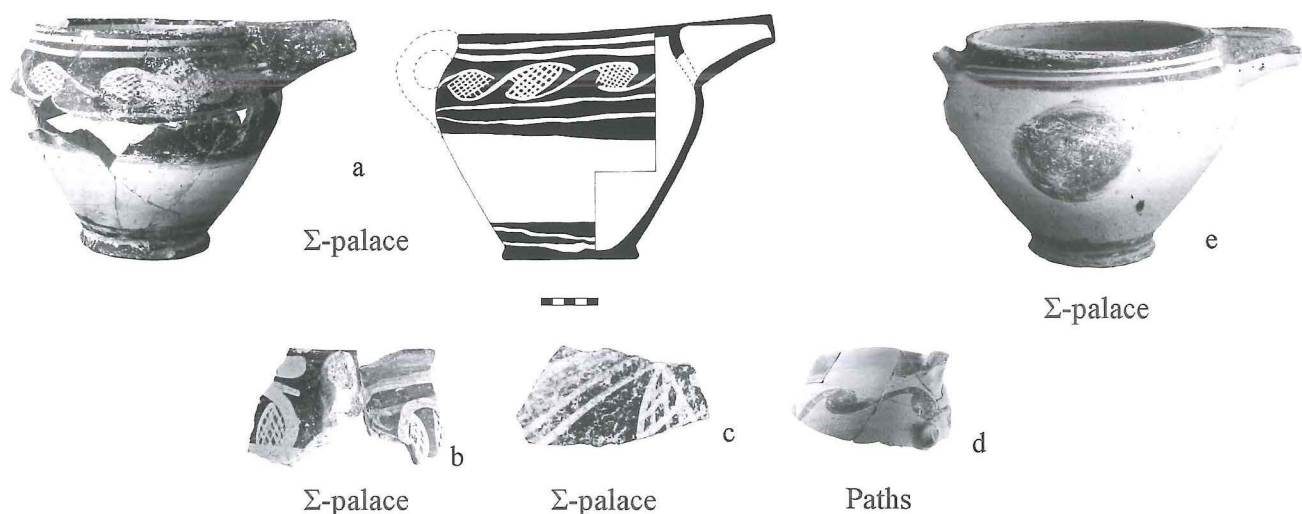


Fig. 6. a) P95/1160; b) P95/1180; c) P92/771; d) P05/327; e) P95/1457.

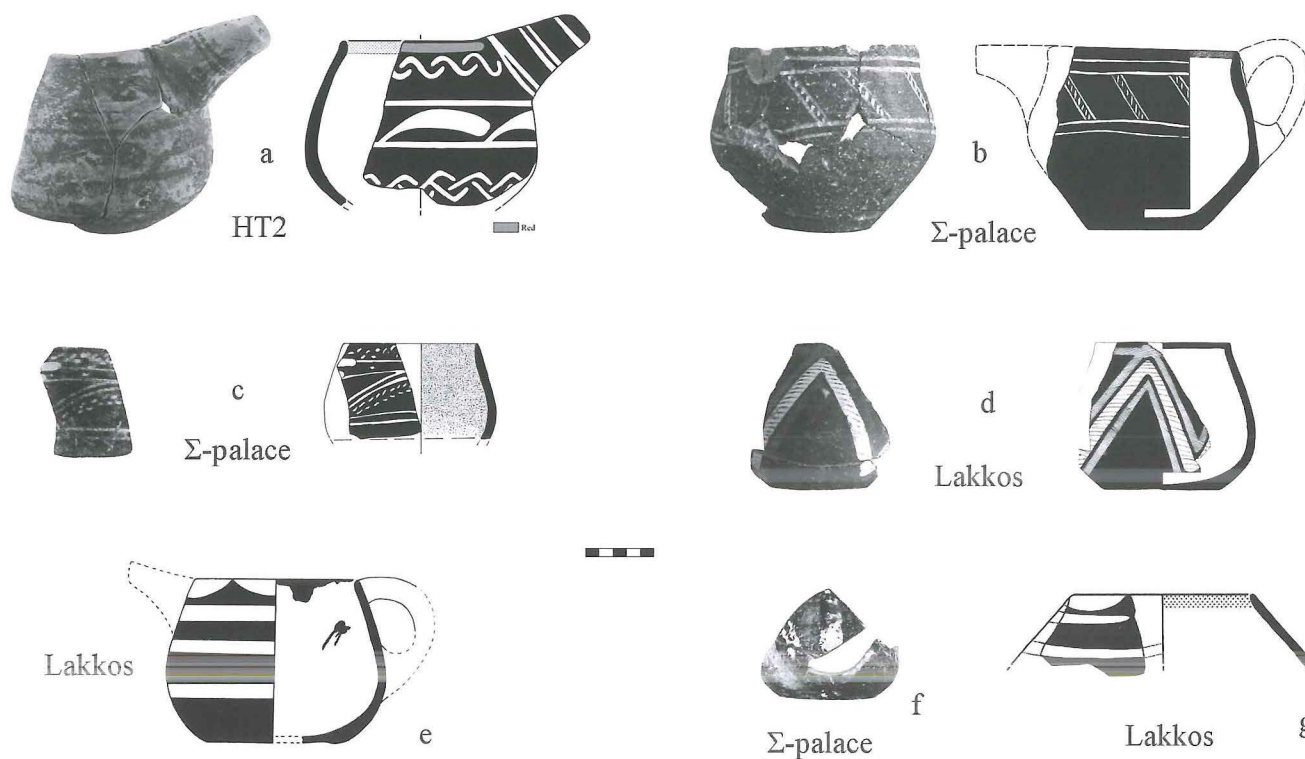


Fig. 7. a) P.TSK05/926; b) P95/1177; c) P92/293; d) P95/289; e) L10; f) P92/874; g) L325.

spouted jug, not present in the HT 2 material, was found in the stratigraphical trenches of the palace (Fig. 6a-c, e) and in the test trenches of the paths for the visitors (Fig. 6d). The closest parallels come from Gournia.<sup>19</sup> One of these jugs has a decorative motif that occurs very commonly in many Prepara-

tial deposits at Petras,<sup>20</sup> both on semi-closed and on open vessels, especially on tumblers, the so-called

<sup>19</sup> Hawes *et al.* 1908, no. 17.

<sup>20</sup> Tsipopoulou in press b; Tsipopoulou & Wedde 2000, Σ7, 375, fig. 9, P94/215.

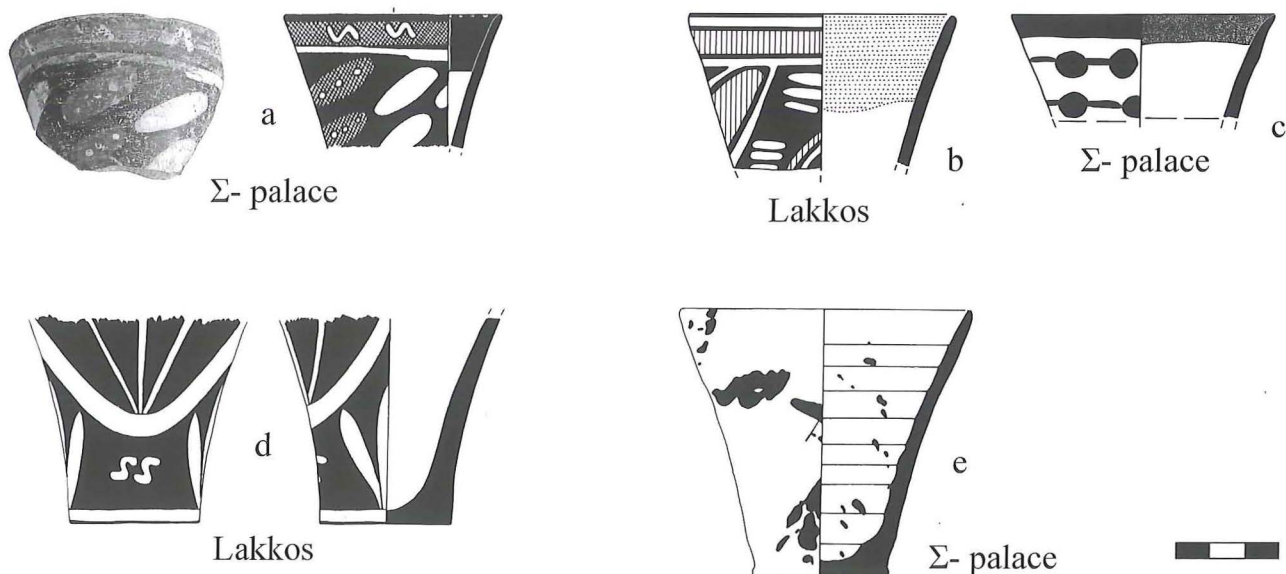


Fig. 8. a) P95/294; b) L62; c) P94/bag 219/17; d) P95/610; e) P95/295.

seaweeds (*capsules d'algues*), which have many parallels from Malia.<sup>21</sup>

A third type of MM IB bridge-spouted jug, with a low center of gravity, connects HT 2 (Fig. 7a), the Lakkos<sup>22</sup> (Fig. 7d, e, g) and the stratigraphical trenches in the palace (Fig. 7b, c, f). The shape is rather common at Petras, but less so outside of eastern Crete. For the decoration, the parallels come from Gournia<sup>23</sup> and Mochlos.<sup>24</sup>

The most common type of drinking vessel in the settlement is the tumbler (Fig. 8). In the house tombs it is practically non-existent, at least in the material already studied, i.e., the Rock Shelter, HT 2 and Room 6 of HT 1. On the contrary, the two excavated votive deposits contained a significant number of tumblers. This probably suggested that tumblers were not used as burial offerings. The material of the Lakkos<sup>25</sup> (Fig. 8b, d) is again very similar to that of the stratigraphical trenches of the palace (Fig. 8a, c, e). It is interesting that both deposits contain cups of the “alternating style”, MM IB in date (late Prepalatial for Petras).<sup>26</sup> It is also interesting to note that the spatter ware decoration, so common both in the Lakkos material<sup>27</sup> and in the stratigraphical trenches, is absent from HT 2. Haggis suggested that the decorative motifs used on pottery, and also on seals, figurines, etc., could possibly identify certain elite groups, or families, within the community.<sup>28</sup> It

would be very interesting to check the validity of this idea, and to establish whether this decoration is encountered on pottery from other house tombs of the Petras cemetery. A few more tumblers with various types of light-on-dark decoration and also with polychrome decoration and “alternating style”<sup>29</sup> as well as spatter ware, come from various deposits of the settlement and the stratigraphical trenches in the palace<sup>30</sup> (Fig. 9a-j).

Carinated cups, with the carination on the lower part of the body and a flat base, are absent from HT 2 but are very common both in the Lakkos<sup>31</sup> and in the stratigraphical trenches of the palace (Fig. 10a-d). The parallels come from Palaikastro.<sup>32</sup>

<sup>21</sup> Van Effenterre 1980, vol. I, fig. 103.

<sup>22</sup> Haggis 2007, fig. 9a, c.

<sup>23</sup> Hawes *et al.* 1908, nos. 8–9.

<sup>24</sup> Seager 1912, 47, figs. 18–9, no. IV.2.

<sup>25</sup> Haggis 2007, 732, fig. 11a.

<sup>26</sup> Floyd 1997.

<sup>27</sup> Haggis 2007, 731–7, figs. 13–4.

<sup>28</sup> Haggis 2007, 755–70.

<sup>29</sup> Cf. also examples from Palaikastro, Bosanquet & Dawkins 1923, pl. 10k, l, m; Knappett & Collar 2007, fig. 18.88.

<sup>30</sup> Knappett & Collar 2007, figs. 7a, b, f–j, 11a–h, k, 13g–i, 14a, b; Tsiopoulou & Wedde 2000, 375, fig. 10.

<sup>31</sup> Haggis 2007, fig. 6c–e.

<sup>32</sup> Bosanquet & Dawkins 1923, pl. 5b, c; Knappett & Collar 2007, figs. 6.18, 18.93, 94.



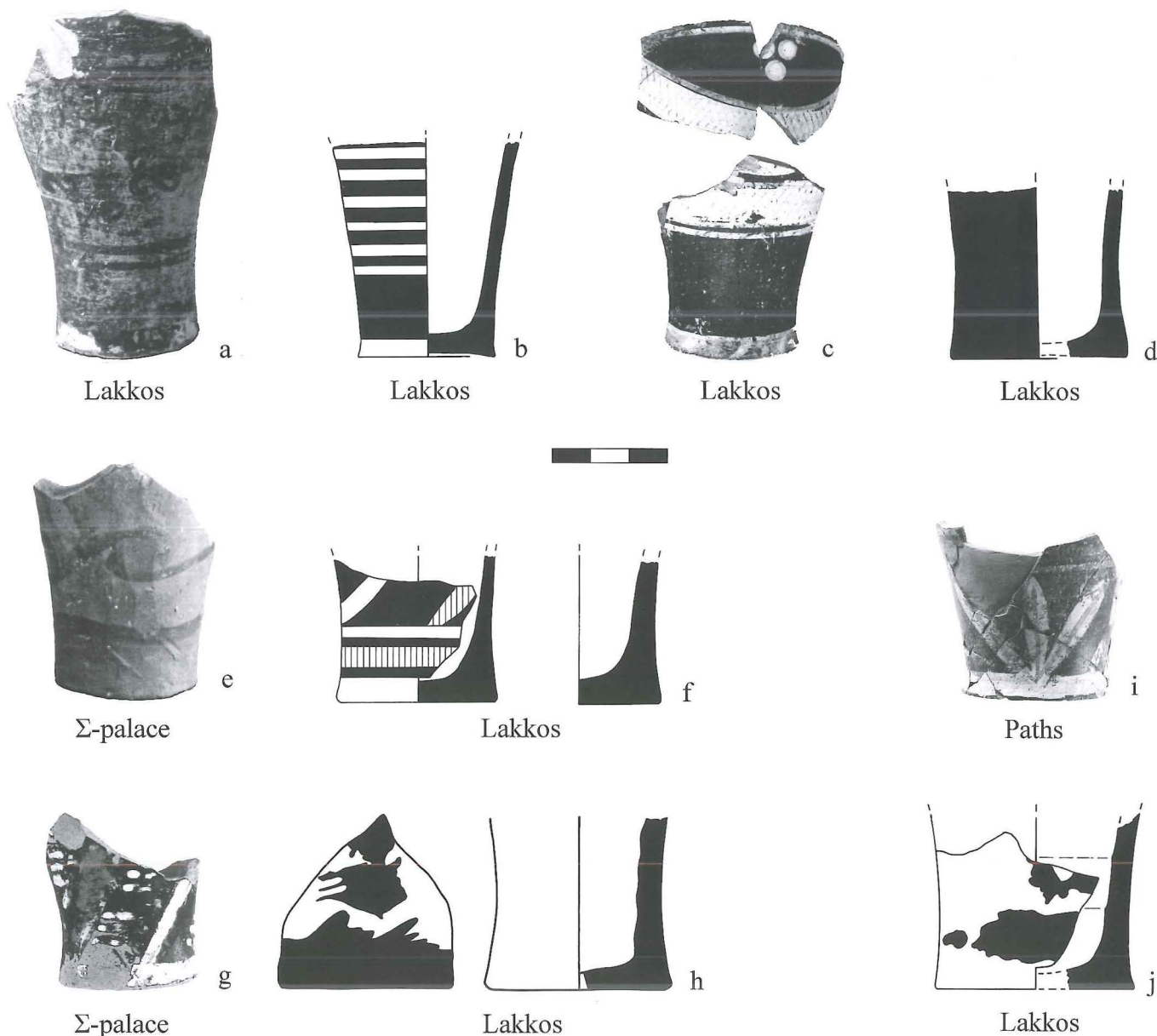


Fig. 9. a) P95/1436; b) L617; c) P95/351; d) L616; e) P95/211; f) L619; g) P92/717; h) L432; i) P05/336; j) L691.

Wheel-made carinated cups with a discoid base and elevated ribbon handle are very numerous in the Lakkos material<sup>33</sup> and were found as well in the test trenches of the paths for the visitors and also in HT 2 (Fig. 10e-j). The shape is quite common at Palaikastro.<sup>34</sup> Similar cups, without the pronounced base, are common both from the Lakkos and the stratigraphical trenches of the palace. A similar MM IB/IIA cup found in the Rock Shelter of the cemetery, with an exact parallel in the Lakkos, represents a *terminus ad quem* for the deposition in the Rock Shelter, after the possible cleaning of

a house tomb at the end of the Prepalatial period (Fig. 10k-p). A unique one-handed spouted cup with thick walls has an exact parallel from Palaikastro (Fig. 10q).<sup>35</sup>

A type of MM IB/IIA globular cup is represented by an example from the stratigraphical trenches

<sup>33</sup> Haggis 2007, fig. 6a, b.

<sup>34</sup> Bosanquet & Dawkins 1923, figs. 4f, 5d; Knappett & Collar 2007, fig. 6.20, 23.

<sup>35</sup> Knappett & Collar 2007, fig. 8.36.

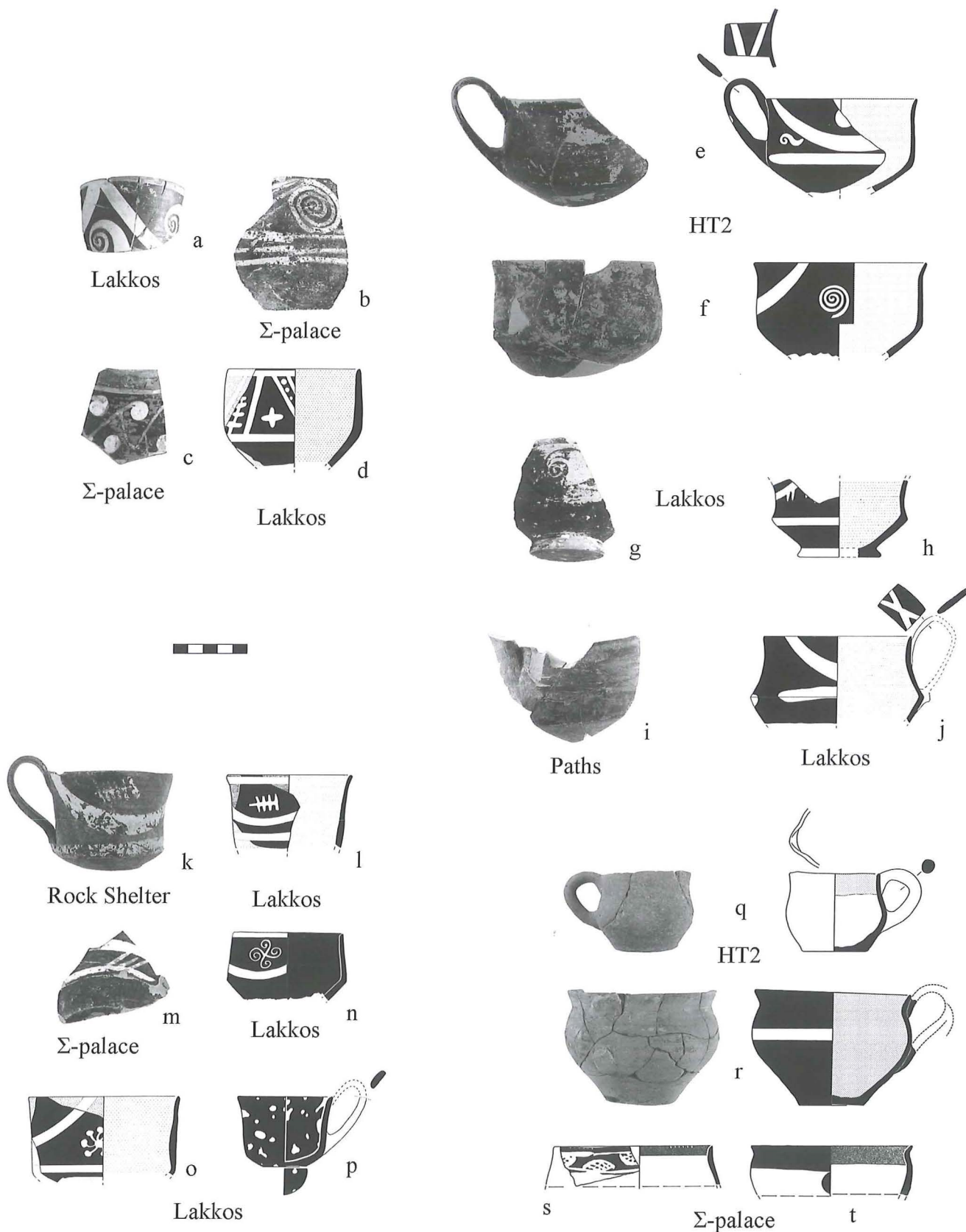


Fig. 10. a) P95/1137; b) P93/111; c) P92/243; d) L165; e) P.TSK05/469; f) P.TSK05/283; g) P95/1427; h) L630; i) P05/332; j) L93; k) P.TSU06/28; l) L44; m) P92/856; n) P95/781; o) L164; p) L326; q) P.TSK05/61; r) P.TSK05/354; s) P95/747; t) P94/bag 219/15.



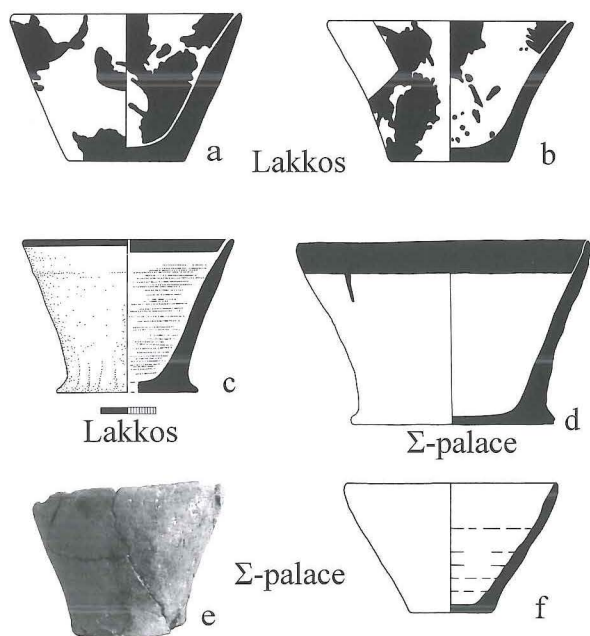


Fig. 11. a) L610; b) L609; c) L340; d) P95/216; e) P95/1179; f) P95/231.

in the palace, and has parallels from the Mesara<sup>36</sup> and from eastern Crete.<sup>37</sup> A globular cup from HT 2 dated to MM IIA, is among the latest pottery in

this deposit, and has a parallel from the stratigraphical trenches in the palace. This type seems to be absent from the Lakkos, and probably offers a *terminus ad quem* for the construction of the palace (Fig. 10r-t).

Handleless conical cups were not identified in the cemetery, as opposed to what was the norm in the Mesara at the same time, although it is certain that in MM IB this type of cup was already produced at Petras, as suggested by undecorated and decorated specimens both from the Lakkos<sup>38</sup> (Fig. 11a-c) and the stratigraphical trenches of the palace (Fig. 11d-f).<sup>39</sup> It is quite probable that, instead of handleless conical cups, dishes were used in the funerary rites and ceremonies connected with HT 2. More than four dozen of them, made in only two types of clay, and probably of local manufacture, were stored in one of the rooms of the building, and many more

<sup>36</sup> Alexiou & Warren 2004, 158, fig. 140b, no. 14.

<sup>37</sup> Cf. from Mochlos: Seager 1912, 47, figs. 18–9, no. IV.2; from Priniatikos Pyrgos: Betancourt 1984, 175, pl. 21, no. 68.

<sup>38</sup> Haggis 2007, fig. 14c-l, 18c.

<sup>39</sup> Tsipopoulou & Wedde 2000, 362, n.10, fig. 6.

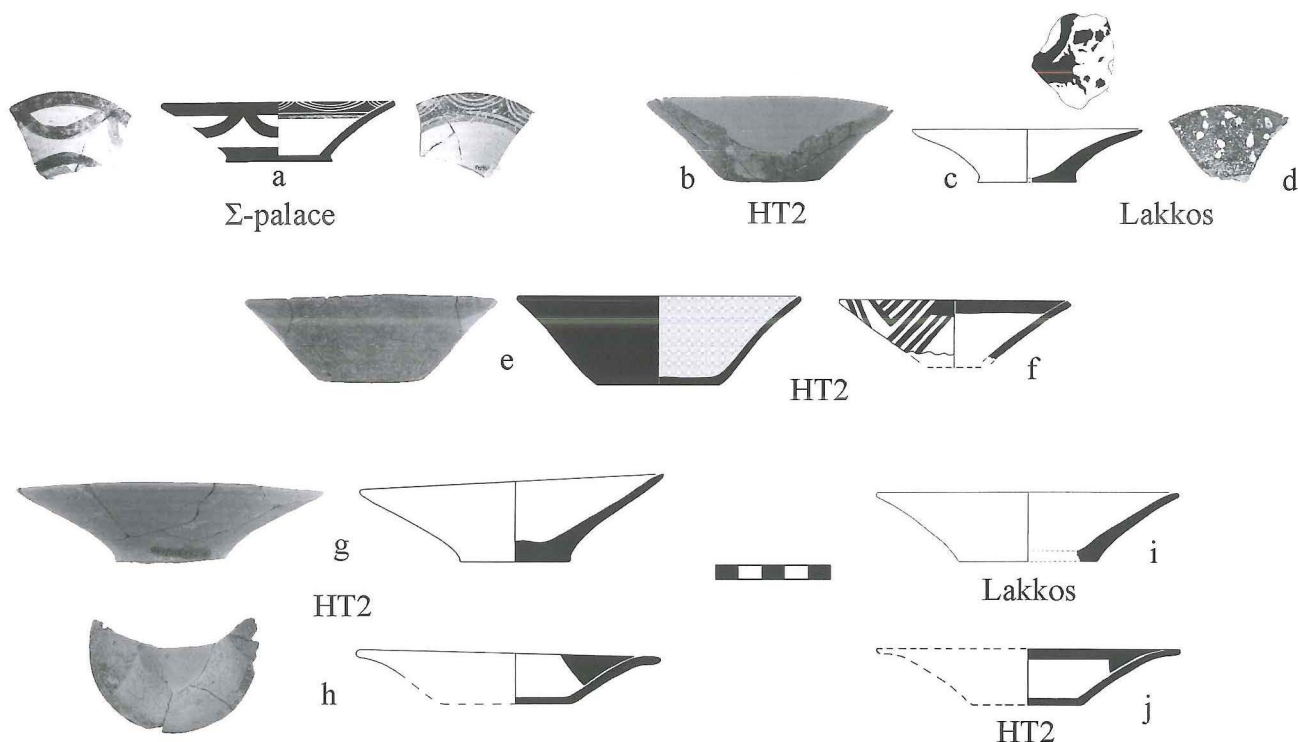


Fig. 12. a) P95/435; b) P.TSK05/754; c) L181; d) P95/1308; e) P.TSK05/755; f) P.TSK05/969; g) P.TSK05/140; h) P.TSK05/300; i) L43; j) P.TSK05/978.

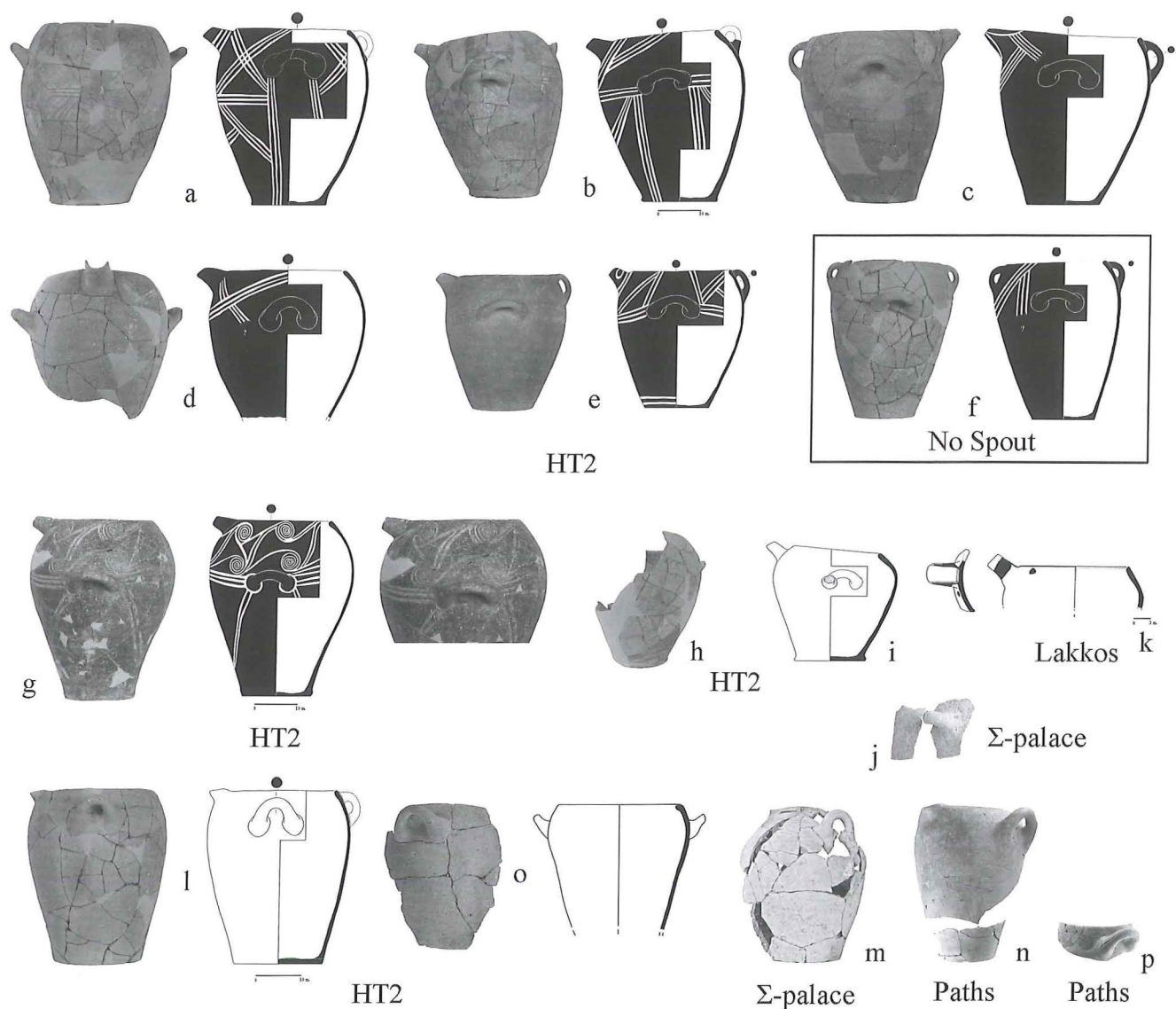


Fig. 13. a) P.TSK05/631; b) P.TSK05/389; c) P.TSK05/535; d) P.TSK05/629; e) P.TSK05/770; f) P.TSK05/344; g) P.TSK05/627; h) P.TSK05/1007; i) P.TSK05/883; j) P94/bag 136/2; k) L40; l) P.TSK05/158; m) P94/536; n) P05/339; o) P.TSK05/208; p) P05/337.

were initially deposited on the benches and the platform at the east side of the building, and were found fallen in front of them. A few typical examples are decorated on the interior surface in light-on-dark with groups of concentric angles, while on the exterior surface they have wide bands in dark paint on a light background.<sup>40</sup> A few more shallow dishes with similar decoration from the storage areas of HT 2 (Rooms 7 and 8), on which the concentric angles are combined with rosettes, have parallels on open shapes from the Lakkos.<sup>41</sup>

Deep dishes can be either plain, dipped in paint twice from the rim, or in spatter ware, and are present both in the Lakkos<sup>42</sup> and HT 2. In the stratigraphical trenches of the palace another type of MM IB dish was identified with polychrome decoration on the interior surface, which was absent from the material of HT 2 (Fig. 12a-j).

<sup>40</sup> Tsipopoulou this volume, 117-31, Fig. 4.

<sup>41</sup> Haggis 2007, fig. 6d.

<sup>42</sup> Haggis 2007, fig. 15b, 21g.



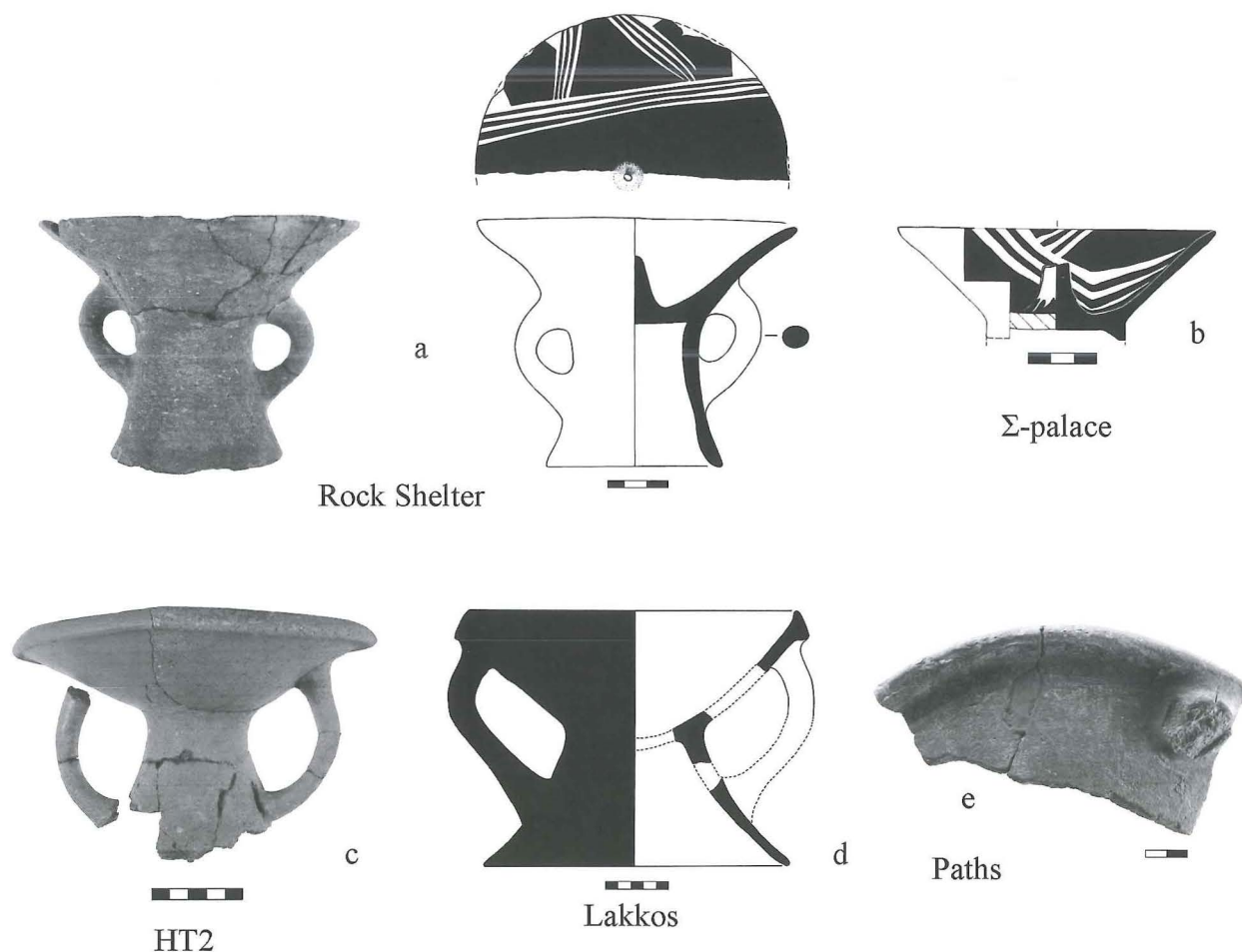


Fig. 14. a) P.TSU06/110; b) P95/226; c) P.TSK05/129; d) L284; e) P05/338.

Of special interest is a group of nine large four-handled pithoid jars (*ca.* 40–45 cm in height); six of them are bridge-spouted, one has an open spout, and another two are without a spout. They were found in HT 2 (Fig. 13a–i, l, o) but, to date, not in the other house tombs of the cemetery, nor in the Rock Shelter. Their capacity is *ca.* 15 lt and their decoration is similar to that of the dishes, light-on-dark with systems of bands and concentric angles. These vessels were found in rooms that contained burials, so apparently they were connected to a special funerary rite, associated with the bodies and were not used by the living, contrary to the dishes stored in the special rooms. Similar fragmentary pithoid jars, either bridge-spouted or with an open spout, with spiral decoration or undecorated, were found both in the stratigraphical trenches (Fig. 13j, m) and the Lakkos (Fig. 13k),<sup>43</sup> as well as in the test

trenches excavated prior to the construction of the paths for the visitors (Fig. 13n, p).

A final group of vessels, related to feasting, that connect the settlement and burials at Petras in the latest Prepalatial period are pedestalled fruitstands. They belong to two different types: one, quite uncommon has a conical protrusion internally in the middle of the base. They were used both for rites in honor of the dead (found in Votive Deposit 1 and in Room 7 of HT 2, the storage area; Fig. 14c) and probably also as grave goods, as they were found also in the Rock Shelter (Fig. 14a). In the Lakkos (Fig. 14d),<sup>44</sup> in the stratigraphical trenches of the palace (Fig. 14b)<sup>45</sup> and the test trenches of the

<sup>43</sup> Haggis 2007, fig. 20i.

<sup>44</sup> Haggis 2007, figs. 22h, 23.

<sup>45</sup> Tsipopoulou & Wedde 2000, fig. 6.

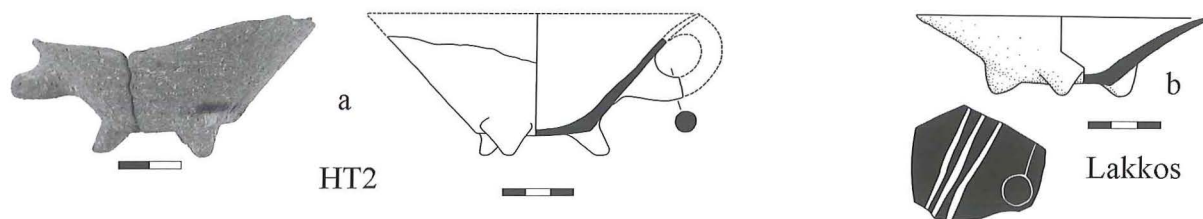


Fig. 15. a) P.TSK05/308; b) L40.

paths for the visitors (Fig. 14e), fruitstands, especially made of red clay with a burnished surface, are very common. Finally, incense burners are another type of vessel present both in the Lakkos and in the tombs (Fig. 15a-b). One specimen from the Lakkos (Fig. 15b) is decorated with systems of concentric angles and bands in the light-on-dark technique,<sup>46</sup> very similar to the decoration of the plates and the pithoid jars in HT 2.

The study of the chronological phases and the ceramic types of late Prepalatial Petras continues. Although it is still far from complete, it has already offered some valuable information about the social organization of the site, the importance of which goes beyond eastern Crete, as it included the only Protopalatial palace east of Malia. It is significant that the study has identified more and more clearly the existence of elite groups within the society of Petras, clearly distinct from each other; this is ex-

actly the scenario one would expect before the construction of the palace. The beginning of MM II is marked, not only by the construction of the central building on the large plateau of Hill I, but also by large scale urban re-arrangements of the space in general. For their construction, two conditions were necessary: a) the mobilization of a large working force, and b) the establishment of a wide social consensus. It is not easy as yet to decide whether the relationships between these elite groups were peaceful and symbiotic, rather than hostile and antagonistic, at the end of the Prepalatial period. It is possible, however, that the continuation of the excavation and the study will shed more light on this important issue.

<sup>46</sup> Haggis 2007, fig. 8i.



### *Greek abstract*

Καθορίζοντας το τέλος της Προανακτορικής φάσης στον Πετρά Σητείας.

Το ανάκτορο του Πετρά Σητείας, ιδρύθηκε αργότερα από άλλα γνωστά, όχι νωρίτερα από την αρχική φάση της Μεσομινωικής ΠΑ. Στο σημείο αυτό συγκλίνουν όλα τα μέχρι σήμερα δεδομένα, συγκεκριμένα δάπεδα που ήρθαν στο φως σε στρωματογραφικές τομές κάτω από το ίδιο το κτίριο, αλλά και τα ευρήματα του λεγόμενου Λάκιου, ενός μεγάλου αποθέτη στον οικισμό, ο οποίος περιείχε κεραμική της τελικής Προανακτορικής. Όλα αυτά τα στοιχεία υποδεικνύουν ότι ο Πετράς υπήρξε σημαντικό κέντρο της Προανακτορικής περιόδου στην Κρήτη, και ότι κατά την ΠΜ ΙΙΙ–ΜΜ ΙΒ οι κοινωνικές πολιτικές και οικονομικές εξελίξεις, οι οποίες αμέσως μετά οδήγησαν στην ίδρυση του ανακτόρου, ήταν ήδη παρούσες και ανέμεναν μόνον την αρχιτεκτονική τους έκφραση. Η χρήση του νεκροταφείου του Πετρά, εξαιρετικά σημαντικού σε έκταση και πλούτο ευρημάτων, τα οποία δείχνουν ιδιαίτερα αναπτυγμένη κοινωνική διαστρωμάτωση, διεκόπη την ίδια εποχή, σύμφωνα με τα μέχρι σήμερα δεδομένα. Στην ανακρίνιση παρουσιάζεται συγκριτικά κεραμική από το Ταφικό Κτίριο 2, το Λάκιο και τις στρωματογραφικές τομές του ανακτόρου.



# The Lakkos pottery and Middle Minoan IB Petras\*

Donald C. Haggis

## Abstract

The paper reevaluates the composition, taphonomy, and chronology of the Lakkos pottery in light of recent publications of contemporary deposits from Palaikastro and Knossos, commenting on two relevant problems: first that our understanding of ceramic phases is context-dependent. Although we normally construct and think about ceramic typologies in terms of broad temporal and geographical frameworks – diachronically changing styles, production centers, culture regions, and logical spheres of influence – it is in fact local systemic contexts of consumption that inform stylistic preferences and modes of production and distribution, and thus the actual composition of any given archaeological assemblage. The second problem is our understanding of stratigraphic discontinuities in visualizing social contexts of the emergence, form and function of the Protopalatial palaces. The Lakkos assemblage is discussed in light of recent work that suggests the dynamic quality of Protopalatial sociopolitical institutions, rather than static and qualitatively distinctive architectural forms, documents, or prestige goods. The discussion of the Lakkos pottery reflects on recent work that visualizes changing modes of consumption in fluid and socially variable structures.

The purpose of this paper is to offer my current thinking on the Lakkos deposit, emphasizing some formal similarities to recently published material from Palaikastro and Knossos, and then to comment on the implications of the context for understanding Protopalatial Petras and the Middle Minoan (MM) IB to IIA transition in Crete.

The Lakkos is a large pit situated on a wide terrace about 75 m north of the palace in Sector III.<sup>1</sup> Although Protopalatial buildings have been recovered in its vicinity – especially in trial excavations down slope on the north and west sides of the hill – the details of the topography of the area of Sector III in MM IB remain difficult to reconstruct because of dense occupation in the Neopalatial period and LM III.<sup>2</sup> The Lakkos effectively buried a late Prepalatial building or buildings, providing a MM IA *terminus post quem* date for the deposit.<sup>3</sup> The pit, of which about 100 m<sup>3</sup> have been excavated so far, contained ritual implements, vessels inscribed with hieroglyphic signs, and stone vases. The vast majority of the artifacts were potsherds:

a variety of fine table wares (drinking, dining, and serving vessels); medium size and small storage and transport containers (amphorae, spouted jars and hole-mouthed jars); and very few pithoi and cooking pots.<sup>4</sup>

## The chronology of the Lakkos pottery

Detailed arguments for a MM IB date of the Lakkos pottery emphasized distinctive patterns of forming technology, and clear connections to MacGillivray's

\* I would like to thank Metaxia Tsipopoulou for giving me the opportunity to study the Lakkos pottery, and to acknowledge her commitment to this extraordinary site and dedication to the development of a truly international effort of fieldwork, research and conservation in eastern Crete.

<sup>1</sup> Tsipopoulou this volume, Introduction, Fig. 5d.

<sup>2</sup> Tsipopoulou 1999b; 2002; 2005a; this volume, 117–31.

<sup>3</sup> Rupp 2006.

<sup>4</sup> Tsipopoulou 2002; Haggis 2007.



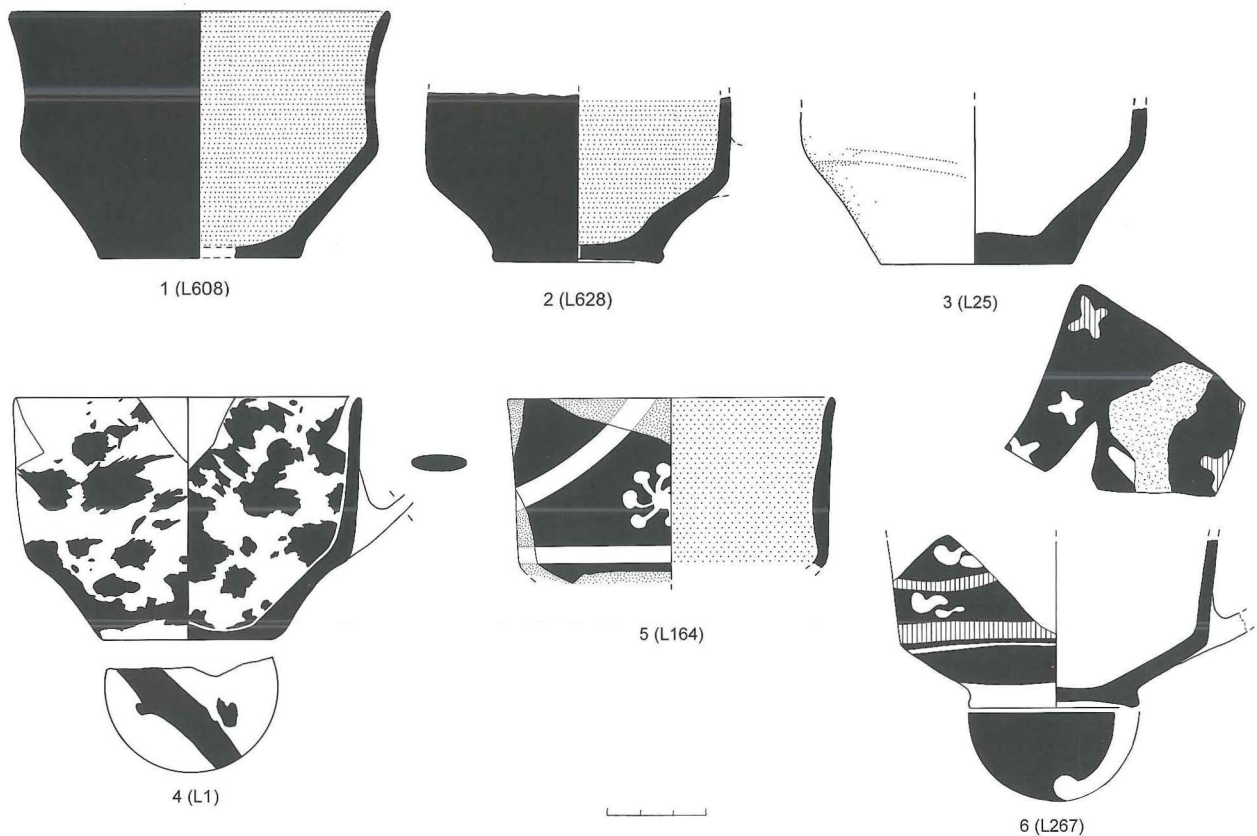


Fig. 1. Standard carinated cups in monochrome (1–2); rough burnished (3); spatter (4); white-on-dark (5); and polychrome (6) wares.

Group A at Knossos; Andreou's Malia South Houses and Mochlos House D–Vasiliki House B groups; Dawkins' earliest G3 deposit, and the earliest levels in trench EU89 outside Building 7 at Palaikastro.<sup>5</sup> Three important deposits, published after my initial 2007 report had gone to press, level 9 of H3 at Palaikastro, and soundings in the area of Magazine A (Deposit A) and the Southwest House at Knossos (Deposit B), provide interesting parallels that should allow us to begin to define precisely what constitutes this ceramic phase in eastern Crete, and to note its similarities and differences with contemporary deposits in central Crete.<sup>6</sup>

In comparing the Lakkos forms to contemporary material from central Crete, we can say that true hemispherical cups are absent, and straight-sided cups are extremely rare, with most examples looking like large one-handled conical cups. Straight-sided cups are of course common at Knossos in MM IB, while tumblers and conical cups are perhaps rarer in most contexts until MM IIA.<sup>7</sup> The

scarcity of true hemispherical and straight-sided cups in the Lakkos might suggest a distinctive, albeit negative, characteristic of the phase in eastern Crete, although examples of both do appear in both Chi 1 (MM IA) and H3 level 9 (MM IB) deposits at Palaikastro. Such vessels types are, however, commonplace in MM IIA. The true beveled cup, on the other hand, is a standard East Cretan MM IB form, and the conical cup, as at Phaistos, probably served the role of the Knossian footed goblet.<sup>8</sup> The standard carinated cup (Fig. 1), a clear development of the MM IA angular cup, is distinctive and may turn out to be a period-specific type. It has straight, or only slightly concave, tall and short

<sup>5</sup> Haggis 2007, 749–55.

<sup>6</sup> Knappett & Collar 2007; Macdonald & Knappett 2007; see also discussion in Caloi 2009, 415–6, on Phase B at Phaistos.

<sup>7</sup> Compare for example Macdonald & Knappett's (2007) Deposits A, B and D.

<sup>8</sup> Knappett & Collar 2007, 171; Caloi 2009, 415.

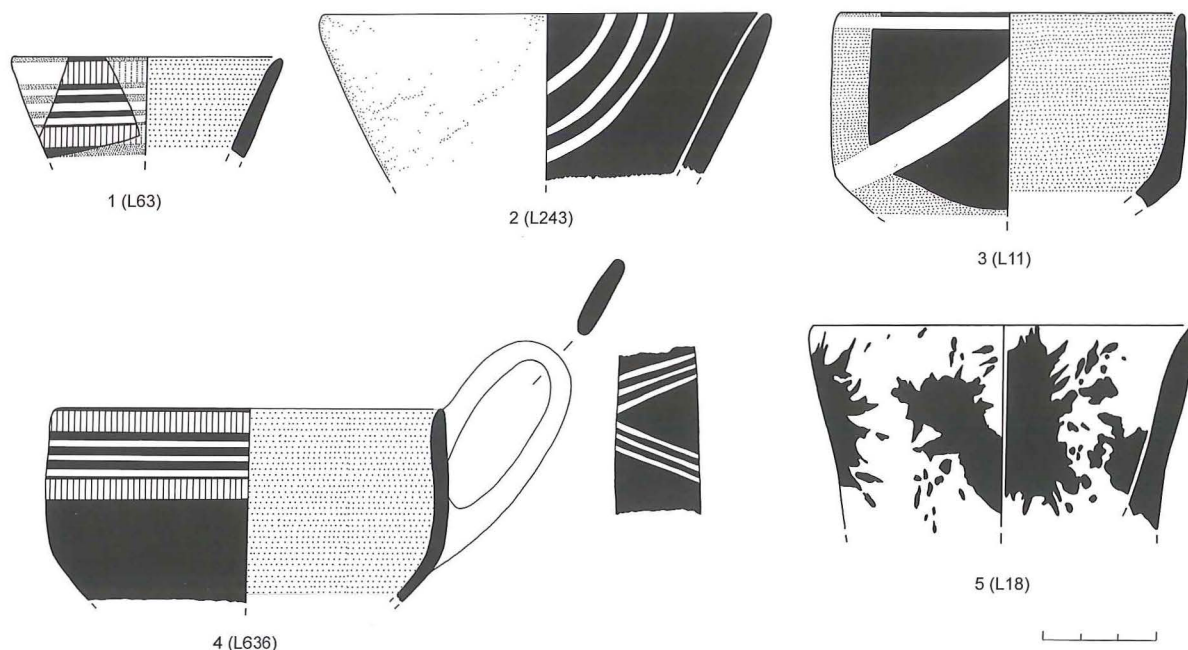


Fig. 2. EM III (2) and MM IA (1) tumblers; MM IA proto-carinated cups (3–4); possible MM IA (5) conical cup.

rim, normally with a flat, articulated, or off-set base. There are good parallels from stratified MM IB deposits at Palaikastro (H3 level 9) and at Knossos in deposits in the area of the Southwest Houses and southwest front of the palace.<sup>9</sup> A careful study of this shape might lead us to see it as a type fossil for MM IB, with varieties generally approximating in profile MacGillivray's Types 3 and 4 from the Early Chamber beneath the West Court Group.<sup>10</sup> Ilaria Caloi has also noticed the shape, emphasizing links between the Lakkos examples and those from B1 and B2 groups from Phaistos. She is hesitant to see any other tangible links,<sup>11</sup> but there may be more connections with the Phaistos deposits, such as baggy-spouted jars, globular bridge-spouted jars, and tumblers, as well as a range of polychrome decorative motifs, such as vertical and diagonal stripes and disc rosettes. The remainder of the main fine ware shapes in the Lakkos – round cups, tumblers, baggy jugs, bridge-spouted jars, and saucers – compare easily with contemporary forms from Knossos.

There are decisive formal parallels between the Petras Lakkos and deposits Chi 1 and H3 at Palaikastro, recently published by Knappett and Collar in the BSA. The publication of the Lakkos and H3 deposits now present sizable assemblages, providing

a starting point for reconstructing the details of a MM IB ceramic phase in East Crete. In Chi 1 there are good parallels for Lakkos MM IA forms such as white-on-dark and polychrome angular cups and tumblers; the presence of spatter ware in Chi 1 suggests that some hand-built forms in the Lakkos could be earlier than MM IB (Fig. 2:5).<sup>12</sup> While individual sherds in the Lakkos are arguably EM III (Fig. 2:2) and MM IA (Fig. 2:1, 3–4), they are on the whole rare and I am reluctant to assign all of the protocarinated cups, simple white and polychrome banding on tumblers, and roughly-shaped coil-built forms squarely to MM IA, preferring to consider the possibility of an early MM IB date. Alternatively, it is possible that these late Prepalatial vessels survived in actual use, or represent material belonging to the lowest levels of the pit, as it intruded on late Prepalatial levels. Regardless of the actual date of these early looking sherds, the forms in the Lakkos assemblage seem to reflect back on

<sup>9</sup> Knappett & Collar 2007, 171, figs. 18.97–8, 22; Macdonald & Knappett 2007, figs. 3.3, 3.6.212.

<sup>10</sup> MacGillivray 1998, 94; cf. MacGillivray 2007, 116–8.

<sup>11</sup> Caloi 2009, 416.

<sup>12</sup> Knappett & Collar 2007, 158, fig. 6.



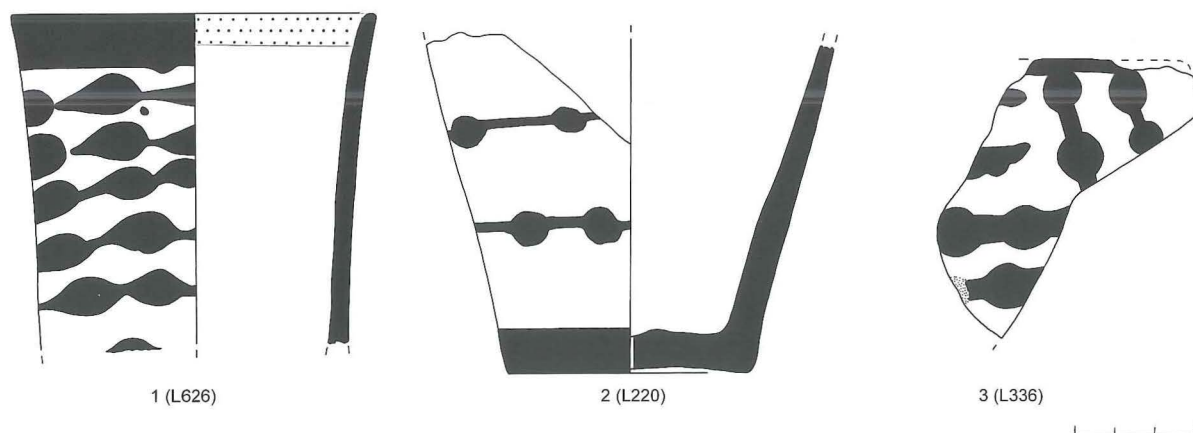


Fig. 3. Seaweed style or *capsules d'algues*: tumbler? (1); jug (2); bridge-spouted jar (3).

and interpret Prepalatial types, with very few basic shapes – such as the beveled cup and some forms of carinated cup – being conceptually new in MM IB.<sup>13</sup>

Turning to MM IB at Palaikastro, the H3 Level 9 deposit mirrors the Lakkos in virtually every detail, with the exception of rough-burnished ware, which is not present in the pottery selected at Palaikastro.<sup>14</sup> It is probably important that H3 Level 9 is also a deep fill deposit lying to the north and outside the buildings of Block B.<sup>15</sup> The formation processes of substantial MM IB deposits – the attraction of material into fills or pits on the exterior of buildings – may ultimately prove to be a pattern related to use or depositional contexts, resulting from communal activities in exterior spaces, and significant phases of rebuilding. I will discuss this in more detail below.

The H3 Level 9 pottery is nearly identical to that of the Lakkos in the range of shapes and decorations: white-on-dark, polychrome, and monochrome wares were principally selected, and typical features include woven style designs, such as diagonal red and white stripes.<sup>16</sup> Spatter ware is present at Palaikastro in both MM IA and IB, but is less apparent than in the Lakkos. While this may be the result of a selection bias, the ware is also evidently a local Petras creation. Some interesting parallels between the assemblages include white-on-dark speckled ware used for tumblers, which we can now place definitively before MM IIA, and the alternating floral style.<sup>17</sup> Also a kelp-like sea-weed style in dark-on-light ware appears in both the H3 level 9 and Lak-

kos groups, in the latter for jars, jugs and cups (Fig. 3); this peculiar style of decoration is also found in foundation deposits of Quartier Mu.<sup>18</sup> An interesting form appearing in the H3 level 9 deposit and a regular feature of polychrome ware in the Lakkos (Fig. 4), is a tall distinctively s-shaped, carinated cup.<sup>19</sup> Finally, noticeably lacking in the selected H3 assemblage, but I think present in Dawkins' G3 deposit, is the thick polished brown ware, which is probably equivalent to rough-burnished ware, a significant ware group in the Lakkos.<sup>20</sup>

What is remarkable about the pottery from the Lakkos, and now the material from H3 level 9 at Palaikastro, is the overall stylistic diversity. This complex array and juxtaposition of decorative wares might be a characteristic of MM IB, perhaps in contrast to the monochromatic character of MM IIA, and tendencies of simplification, standardization, or stylistic rationing in MM IA and MM IIA.<sup>21</sup> The question remains as to why this diversity exists, and how it relates to social practices of production

<sup>13</sup> See Haggis 2007, 753, 770, on the Prepalatial character of MM IB.

<sup>14</sup> Haggis 2007, 739, 754.

<sup>15</sup> Knappett & Collar 2007, 168–9.

<sup>16</sup> Knappett & Collar 2007, 170–1.

<sup>17</sup> Knappett & Collar 2007, 170.

<sup>18</sup> Knappett & Collar 2007, 171, fig. 20; Haggis 2007, 743.

<sup>19</sup> Knappett & Collar 2007, 171, fig. 18.96.

<sup>20</sup> Haggis 2007, 739.

<sup>21</sup> Contrast H3 level 8 and level 9 deposits at Palaikastro (Knappett & Collar 2007, 178–9).

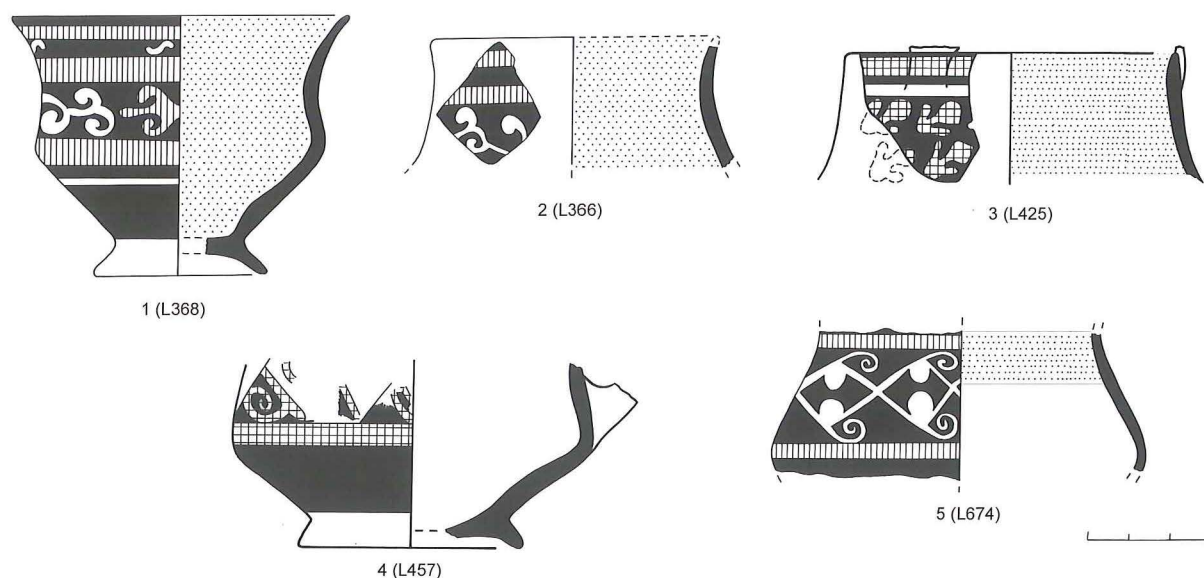


Fig. 4. Polychrome S-shaped carinated cups

and consumption. It has been recognized that critical phase transitions, periods of sociopolitical reorganization, correlate to material innovation and stylistic novelties, the competitive proliferation of symbolic attributes, and ceramic diversity.<sup>22</sup> I have argued before that MM IB is one such phase of sociopolitical restructuring, and that the decorative pottery indicates an intensification of stylistic interaction, a dynamic and exuberant experimentation with styles of pottery, with the expressed purpose of creating distinctly different pots, and indeed sets or groups of table wares, that served to articulate the horizontal and vertical differentiation of their users in specific feasting or drinking ceremonies.

A central problem in characterizing assemblages will be in trying to visualize patterns of primary use derived from secondary contexts or notional “discard” situations, which is often the case with MM IB. The interpretation of the activities themselves will depend upon qualifying and modeling the specific function of forms in their systemic contexts. A step in this general direction is suggested by Macdonald and Knappett in analyses of deposits in the southwest area outside the palace at Knossos; they have used the interpretive term “intermediate”, as a way of broadly qualifying something as being different from “non-palatial,” or completely “domestic” or “palatial”.<sup>23</sup> That

said, our reconstruction of taphonomy is as much an interpretive process as is the formal definition of systemic or behavioral contexts; normally it involves the assessment of formation processes as determining primary (*de facto*) or secondary (*post de facto*) contexts, stratigraphic events, or conditions. In the case of the Lakkos, the eponymous label – terms such as “dump” or “fill” or “secondary deposit” – are descriptive and qualitative, meretriciously limiting our perspective on the range of possible behaviors that might have resulted in its actual formation. The analysis of context, however, requires consideration of the physical condition of cultural material and matrix, the chronological and formal interrelationships among artifacts of various types and styles, and perhaps above all the act of discard as a deliberate process of deposition and primary behavior. This is say, disuse, destruction, discard, burial, and fill formation, are themselves important parts of the primary use-life of artifacts, involving ritual acts and social actions that may preserve a palimpsest of origins, actors, and activities, while crystallizing and codifying memories of the event.

<sup>22</sup> E.g., Clark & Blake 1994, 28–30; Wenke 1997, 48.

<sup>23</sup> Macdonald & Knappett 2007, 165–7; cf. 174.



## Stylistic complexity and patterns of consumption

I argued in 2007 that the stylistic diversity present in the Lakkos – especially white-on-dark, polychrome, spatter, rough burnished, and monochrome wares – represents different stylistic groups in parallel ranges of shapes, suggesting the apposition of wares, visibly juxtaposed in contexts of communal consumption, and containing or embodying symbolic markers of social identity by their users.<sup>24</sup> The extreme stylistic variation on a communal scale, that is, a large number of ware groups with visually distinctive (and distinctly different) attributes, suggested strongly horizontal variability; if taken as social messaging devices in original or final display and use contexts, the wares could reflect juxtaposition of users or groups of users of equal or contested rank in performative contexts.

By way of contrast, a clear qualitative and quantitative hierarchy of goblets in the MM IB Deposit A in Early Magazine A at Knossos presented a textbook case of vertical stylistic variability, suggesting to the excavators an instance of patron-role feasting, perhaps in a courtyard on the outside of the south front of the palace.<sup>25</sup> The Lakkos shows very little evidence of such marked hierarchical divisions, though the visual complexity and redundancy of designs in white-on-dark and polychrome groups could indicate qualitative and diacritical hierarchies, or assertive and individualizing motives of display. There may also be a weak hierarchical differentiation between the technical quality and decorative elaboration of white-on-dark and polychrome wares and the other ware groups.

Furthermore, I suggested that painted and incised motifs on the pottery, such as hieroglyphic signs, and nearly all figural and geometric patterns, were transferred across media such as jewelry, figurines, sealstones, and perhaps textiles, to be used as distinguishing symbols in a variety of public or communal activities encouraging or requiring visual display and communication.<sup>26</sup> The clearest connection, perhaps because of the abundance and survivability of the media, is between pottery and sealstones. Maria Relaki has recently emphasized the potential

performative function of seals and sealing in Prepalatial ceremonies, indicating both emblematic and assertive functions – and indeed the longevity of motifs and practices into the Protopalatial period.<sup>27</sup> Building on Sbonias's work, a central part of Relaki's thesis is that the Prepalatial seals in the Mesara form "iconographic clusters" relating to specific communities, and structured relationships between and within corporate groups.<sup>28</sup> Turning to Protopalatial seal use at Phaistos, Relaki concludes that "it seems likely, therefore, that the variations and duplications of motifs in tight clusters represent seal-owners with equivalent social or political roles or people with common group affiliations, as was probably also the case in the Prepalatial period."<sup>29</sup> She ultimately argues that these distinct iconographic groups, especially the more conservative motifs, were "commensurate with the existence of specific corporate groups" in the Protopalatial period. Considering the potential functions of symbolic transference,<sup>30</sup> the hieroglyphic, figural, and geometric seal motifs in the Lakkos white-on-dark, polychrome, and rough-burnished wares could suggest a similar social-symbolic display in one or more contexts centering on feasting, in which potters produced certain wares and applied specific motifs, making pots for the use of certain individuals, groups, and occasions. This is to say, whatever active role the seal motif played in articulating group identity or status in sealing activities within the cloisters of palace storerooms or pantries might have been translated to a more visible medium among groups on the outside. That is, the symbols were related or transferred to more publically visible contexts of display and inter-group interaction, in courtyard areas directly outside the palace.

A context suggesting a combination of inter-group and intra-group feasting is presented by Militello for rooms of the southwest quarter oppo-

<sup>24</sup> Haggis 2007, esp. 755–62.

<sup>25</sup> Macdonald & Knappett 2007, 163.

<sup>26</sup> Haggis 2007, 762–9.

<sup>27</sup> Relaki 2009; 2012.

<sup>28</sup> Sbonias 1999; Relaki 2012.

<sup>29</sup> Relaki 2012; cf. Sbonias 1999, 40–3.

<sup>30</sup> Haggis 2007, 762–9.

site the Lower West Court at Phaistos, and particularly for a room of House C directly opposite the Middle West Court, where a ratio of 1:7 of bridge-spouted jars to cups closely parallels the 1:9 ratio of pouring to drinking vessels in the Lakkos.<sup>31</sup> Both Lakkos and Phaistos contexts represent a scale of participation clearly beyond what we have modeled for normal or routine household consumption. At Protopalatial Phaistos, however, feasting was diversely structured with large communal gatherings suggested for the House C and L assemblages, and more restrictive or exclusive activities in the South and North Wings.<sup>32</sup> That both the Middle and Lower West Courts at Phaistos were used for communal gatherings involving public feasting is clear enough, as evidenced by largely primary deposits of stored vessels in adjacent buildings – a situation echoed by Deposit A in the south front at Knossos.

At Phaistos, a situation possibly more like the Lakkos, is the Strada del Nord deposit, which is a series of five stratified dumps consisting of thousands of MM IB sherds. Todaro connects the wasters in the deposit to pottery production – a public display of ceramic manufacturing in the Upper West Court, in support of ceremonies of consumption in the Middle Court.<sup>33</sup> We might easily imagine House C, if not this production activity as well, provisioning feasts in the Middle Court in the Protopalatial period. The problem of course with the Lakkos is that it is normally considered a secondary deposit, that is, post-de facto refuse. In this sense, it might be more like the Strada del Nord dumps than the pantries of House C, the southwest quarter, or the south front at Knossos. In light of these contexts at Phaistos and Knossos, I have begun to ask whether it is possible to characterize the deposit in systemic terms and to attempt to reconstruct its original primary use context.

## The Lakkos assemblage and problems with taphonomy

The character of the pottery in the Lakkos suggests distinctly non-domestic, communal feasting, and ritual activities. While the vast majority of identifiable vessels are cups, at a ratio of 9:1 to pouring

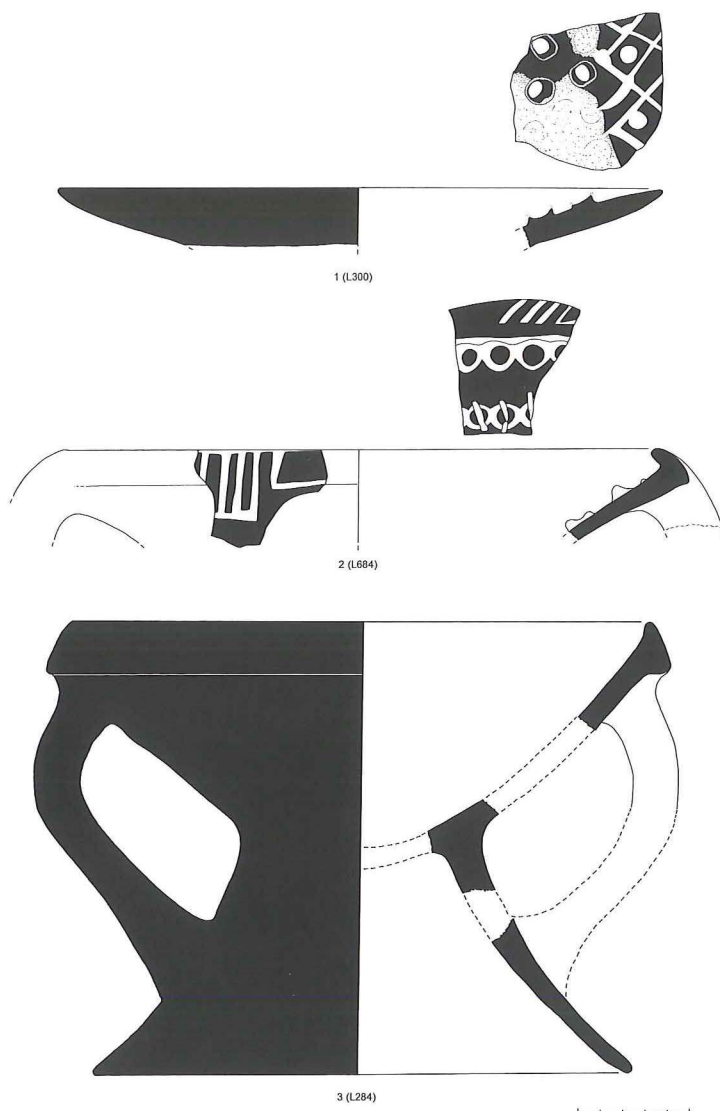


Fig. 5. Fruitstands: white-on-dark (1–2) and dark/red wash (3) ware.

vessels (bridge-spouted and baggy jars, and jugs), even more striking is the ubiquity of fruitstands (Fig. 5), which are scarce in contemporary domestic and palatial assemblages on Crete but make up at least 4% of the total dining and serving assemblage in the Lakkos. Contemporary examples are hard to find. They are present but very rare in the Ja deposit at Kommos (also a Protopalatial fill);<sup>34</sup> also a

<sup>31</sup> Militello 2012; Haggis 2007, 756.

<sup>32</sup> Militello 2012.

<sup>33</sup> Todaro 2012.

<sup>34</sup> Haggis 2007, 756.



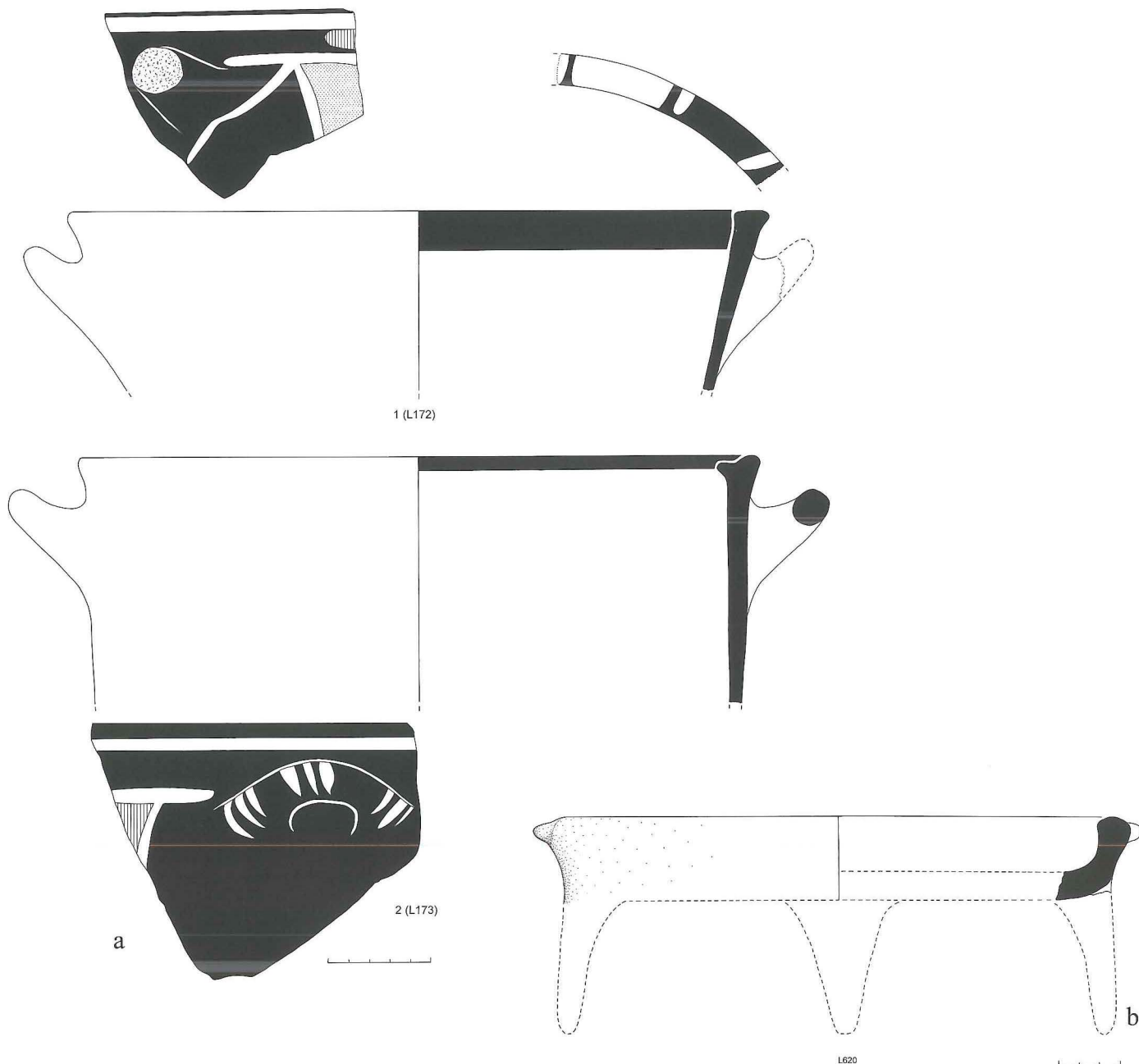


Fig. 6. a) Polychrome *lekanes*; b) Tripod tray.

pedestalled bowl and fruitstand were recovered in the MM IA–B votive pit or feasting assemblage in Room 19 (XIX) in the northwest wing at Phaistos.<sup>35</sup> The consistent presence of fruitstands in the Lakkos samples is striking, given their long development and history of ritual use in the Prepalatial period, and their rarity in Protopalatial contexts. The standard plain versions, produced exclusively in dark/red wash ware and rough-burnished ware

(Fig. 5:3), are large heavy pedestalled bowls, consistent in shape, with a distinctive articulated rim and prominent vertical handles connecting the bowl and foot. They were certainly intended for serving food to a number of diners, and the deeper varieties might have functioned as kraters or bowls

<sup>35</sup> Todaro 2009, 127–8.

for serving liquids as well. More elaborate versions in different shapes, produced in polychrome and white-on-dark ware are rare. The white-on-dark versions are clearly special-function vessels, with concentric rows of cupules in the interior of the bowl, suggesting a ritual use, perhaps for portioning offerings not unlike kernoi (Fig. 5:1–2).

Thus the context and condition of the assemblage suggest the debris from communal rituals involving feasting. The impression of the excavator, however, in her earlier reports was that the Lakkos fill represented occupation debris derived from the clearing of elite houses on the hilltop on the occasion of the construction of the palace, which was then dumped into this spot in Sector III. In this scenario, the acts of destruction and redeposition would have been not only responses to the exigencies or practical concerns of rebuilding at the site, but important processes of reshaping the cultural, and in this case, palatial, landscape. In my view, Tsipopoulou's proposal for the origins of the Lakkos is particularly attractive, especially in light of recent studies suggesting that a critical social group in Minoan society was the household writ large: an economically and socially complex kinship corporate group, operating and replicated on various scales, and materialized in distinctive agglomerative plans of houses that contained ritual apparatuses and attached craft specialists.<sup>36</sup> In light of this work, it might be useful to think of a series of large houses at Petras in MM IB, proximate or co-residential agglutinative compounds,<sup>37</sup> structured in separate neighborhoods, perhaps looking and operating like the houses at Quartier Mu. In such a case, and given that the Lakkos pottery is locally manufactured, could we reconstruct a number of local households, each producing independently (or commissioning the production of) stylistically homogenous drinking and dining vessels for use in both intra- and inter-household communal and ritual contexts? Indeed analyses of kinship-corporate groups have shown that the degree of stylistic homogeneity among artifact assemblages within a household might turn out to be a very useful archaeological correlate of corporate-group boundaries, strength, and coherency.<sup>38</sup> But such a scenario is not yet provable given the extensive rebuilding at

Petras in MM IIA, nor is the Lakkos context itself a probative indicator of original systemic context. In short, such a connection between households and differentiation of ceramic styles, while certainly a fascinating possibility, cannot be made yet for MM IB.

Moreover, if the Lakkos represents debris from houses, one might expect a range of artifacts and features reflecting the actual remains of houses, similar perhaps to the MM IA–B *terminus ad quem* and *post quem* deposits at Phaistos: stone tools, querns, stucco fragments and architectural elements.<sup>39</sup> One might also expect a preponderance of food and food processing debris, as well as pithoi, bowls, *lekanes*, plain wares, and cooking pots; that is, a greater variety of normal household materials. Pithoi, bowls, *lekanes* and cooking wares are found in the Lakkos, but they are relatively rare. And even the *lekanes*, the most common large serving containers, are normally elaborate in form, and are found represented across the ware groups, suggesting that they should be included among the group-specific sets (Fig. 6a). While normal tripod cookpots are also found, the most prevalent are fragments of large tripod trays made in a very distinctive quartz-quartzite fabric; the smallest is about 25–30 cm in diameter (Fig. 6b). Pithoi are extremely rare and the standard closed shapes in the deposit are hole-mouthed and spouted jars and amphorae in dark/red wash ware.

The condition of the Lakkos pottery might also help us understand the process of deposition. The material is extremely fragmentary, but individual sherds are in good condition, with well-preserved surfaces, edges, and breaks (Fig. 7). That is, they show no evidence of extensive or long-term use, surface erosion, or tread wear normally associated with routine discard, secondary use life or long *post-de facto* conditions. Although complete forms are hard to make up, whole or nearly whole vessels were recoverable (Fig. 7), perhaps indicating

<sup>36</sup> Schoep 2002a; Knappett 2009; Driessen 2010; forthcoming; see also Haggis forthcoming on the Prepalatial household structure.

<sup>37</sup> Driessen 2010; forthcoming.

<sup>38</sup> Hayden & Cannon 1982, 148.

<sup>39</sup> Todaro 2009, 127.





Fig. 7. Large fragments of rough burnished (1), white-on-dark (2), spatter (3), and polychrome (4) ware vessels.

that the events of destruction and discard did not involve considerable movement of material or a particularly long span of time. Thus, if we are to imagine an original domestic use context for the pottery, the destruction of such houses must have involved a rather careful and selective destruction and movement of their contents at the time of abandonment, not merely the displacement of discarded household assemblages or occupation debris. Thus, the patterns of wear and breakage give me the impression of a localized event or series of events over a relatively short period, perhaps in an open courtyard or space on the Sector III terrace or someplace nearby.

Given the striking parallels from the south front at Knossos, and the Strada del Nord at Phaistos, we can, however, begin to visualize a MM IB pattern of communal feasting in courts outside palaces. At Petras, though, again, we face a problem of taphonomy. There is no extant palace attributable to MM IB. But at the same time we know far too little about the topography of the site or the houses or other buildings that occupied the site in this phase, that could provide a comfortable archi-

tectural framework in which to contextualize feasting activities. Not dissimilar problems are faced by excavators at Knossos, and perhaps to a much lesser extent at Phaistos.

## Possible contexts of consumption

In the past decade or so, we have begun to recognize that the definition of Minoan palaces is conceptually formed, tending to conflate social practices with single stratigraphic contexts, types of features, and architectural forms. That is, we attract data from individual phenomena and sometimes unique conditions or archaeological contexts, into a conceptual picture of the palace, an interpretive framework that dominates the narrative, shaping an idea of organization, structure, and function, through time and space. If we disaggregate notional palatial functions from our materialist view of single abandonment phases or functional categories of material (MM IIB in Protopalatial terms), such as archives and certain architectural forms, and visualize long-term patterns of cultural production,

we might more easily be able to imagine a place for feasting in the area of Sector III at Petras. An analogous situation can be seen at Phaistos as discussed above, where reasonably coherent buildings frame MM IB feasting in west and central courts, and Todaro has emphasized that these same areas had always, since Prepalatial times, been used as open-air gathering places for the performance of communal rituals. The archaeological analogies of Phaistos and Knossos are thus significant and worth exploring further in respect to Petras, where the Lakkos could reflect one example of a pattern of palatial feasting at a crucial phase-transition visible across the island.

While the Phaistos west wing was constructed in MM IB, a process marked by the destruction of MM IA buildings and the creation of ritual foundation and fill deposits, it is important to remember that it also went through a dramatic monumentalization, or rearticulation of its form in MM II. In my view, MM IIA also marks the construction of Quartier Mu, and I am of course partial to Macdonald and Knappett's interpretation of an original MM IB façade at Knossos, radically rebuilt in MM IIA.<sup>40</sup> Similar to Phaistos,<sup>41</sup> rebuilding at Knossos included a MM IB dedicatory pit in the blocked entrance in Magazine II, and the new paving that sealed MM IB pottery in the MM IIA south front of the palace. That is to say, the practice of building or more likely rebuilding, in MM IIA constitutes a stratigraphic horizon, an island-wide process and phase transition. In sorting out ceramic chronologies, the MM IB-IIA transition may be obscuring or confusing our efforts to understand the formal characteristics and original use contexts of MM IB pottery; on the other hand, the condition of MM IB deposits might help us to understand the transition, that is, the cultural processes involved in reconstructing and transforming Protopalatial palaces. Of course at the other end of the Protopalatial sequence, the continuity of use of buildings

through MM II, and the destructions in MM IIB, have probably obscured the neat stratigraphic identity of MM IIA in many areas of the island, which I think may be a bigger chronological problem altogether.

The building of the palace at Petras in MM IIA, or in my view, the reconfiguration of the palatial landscape, would place the event along with major changes at Knossos and Phaistos and perhaps Malia. It is possible, but not provable, that the pottery and other artifacts in the Lakkos are the remains of a series of communal rituals, feasts, or other events before or contemporary with a palatial reconstruction phase. The condition and chronology of the deposit do however point to a transitional *ad quem* date, similar to that postulated for late MM IA deposits at Phaistos at the very start of MM IB,<sup>42</sup> that is, the same kind of event or change, but a phase earlier than Petras.

In conclusion, the Lakkos represents a period of intensified communal feasting and public ceremony. The great diversity of wares is dissimilar to what we see in Deposit A outside of the south front of the palace at Knossos, the Lakkos demonstrating less sharply vertical, diacritical, or patron-role feasting. In contrast, the assemblage seems to be the result of a series of meetings of local elites, probably configured in corporate affiliations, displaying, and ritually breaking and discarding, distinctive banqueting equipment just before the MM IIA palace was constructed. In their forms, as parts of distinct ware groups, the pots embodied visual symbols that acknowledged and projected group, sub-group, and even individual assertive identities.

<sup>40</sup> Macdonald & Knappett 2007, 172.

<sup>41</sup> Todaro 2009, 127–8.

<sup>42</sup> Todaro 2009.



# Discussion

- Macdonald** Thank you very much Donald. Your paper went far beyond pottery. I just would like to make one comment. Knossian MM IB seems extremely limited by comparison with East Cretan MM IB. The only thing that spices up one of the deposits that we published, Group B, are the imports from the Mesara. By the time we have a fully fledged palace at Knossos the ceramic repertoire actually becomes more limited, which is quite interesting.
- Haggis** Things become extremely standardized. Is that not your impression as well? At Petras this is the case. Once you get beyond MM IB there is a tendency towards simplification and standardization, at least in terms of stylistic diversity.
- MacGillivray** I remember that at Knossos in MM IB, the fine decorated wares include a lot of pieces from East Crete, and it reminds me of the fact that the earliest Minoan pottery in Egypt is also East Cretan. So, the East Cretan potters, these people who were making this wonderful stuff, that we have just been seeing, were the first to have exported Kamares wares as well. This is very interesting. My congratulations, I thought your paper was absolutely brilliant. I think Metaxia is probably going to change the history, on that as well.
- Haggis** The other thing I would add is that Melissa Eaby did the breakdown initially of the fabrics and all the ware groups, and we connected this to Peter Day's earlier work in the valley behind Petras. There is really no indication that we have any significant imports. Sandy, I do not think you have seen this stuff, but Carl Knappett has seen it, and Nicoletta Momigliano has seen it, and they scanned a number of these lots, and they all look local.
- Tsipopoulou** I like very much this systemic approach and I think this is the right approach if we are going to try to start understanding what might have happened then. I would like to point out the importance of the evidence, fragmentary by necessity, as we excavated only trial trenches, of what was found very close to the Lakkos recently, in the test excavations we conducted before the paths for the visitors were constructed. Important activities might have happened in that area, which comprises two terraces in fact, the one where Sector III and the Lakkos are situated, and a second one, as the Lakkos goes also into the Neopalatial lower terrace, where House I.1 is. Do you remember yesterday I showed you this floor with the three MM IB–IIA column bases?
- Haggis** Is that below the Lakkos?
- Tsipopoulou** This is very close to the Lakkos. In fact the Lakkos goes almost to that area, within 3–4 m to where the floor with the column bases was excavated.

**Haggis** You mean the MM IB pots that you showed?

**Tsipopoulou** That is exactly the same pottery. So, on that plateau, which is 15 m lower than the plateau of the palace, there was very important late Prepalatial activity. So the Lakkos is probably connected to that. And there was another trench, Emanuela Alberti excavated that in 2000, and she found exactly the same type of pottery, and that trench is situated between the Lakkos and the room with the three column bases. So, there must have been an important building there, late Prepalatial (early MM IB/IIA) which was destroyed. I do not think much is preserved, after the construction of the Neopalatial houses and the Postpalatial building activities in Sector III. The stratigraphical history of the area is very complex.

**Sikla** Do we know what else the Lakkos contained? Do we have any organic materials? Any tools? Anything else except for pottery from this deposit?

**Dierckx** There were quite a few. Actually there was a large amount of stone tools in the Lakkos. There were lots of whetstones and quern parts.

**Tsipopoulou** I do not remember large quantities of animal bones, some yes, nothing very striking and significant. The amount of pottery was extraordinary. There was almost no soil among the sherds. Ninety large boxes of sherds were collected.

**Haggis** Yes, just what has been excavated so far is about 50,000 sherds.

**Sikla** The reason I ask is because I have a little bit of experience with dumps from Mochlos. I have an EM III–MM IA dump, which is not that kind of dump, the pottery is almost more frequent than soil, but it is much more fragmentary, so it must represent a different process. Almost every dump I dug had lots and lots of animal bones, stone tools and pottery. I know this happened in many different sites with regular house dumps.

**Haggis** There are a number of other items that affect the interpretation. Metaxia Tsipopoulou will be publishing the context and will point this out. We are certainly dealing with the presence of animal bones that are actually food debris, but there is not enough material to make it into a feasting deposit. Even though there are a lot of serving vessels, there is not so much food debris. The presence of stone tools is also interesting. I am now handling hundreds of stone tools from a large excavation. Stone tools do cluster in primary contexts. But in terms of dealing with stone tools as being part of the same processes that form the ceramic assemblages, I would want to do probably something on the taphonomy across the site, to see what the presence or absence is for stone tools, in every level, from the top soil down, before I will be willing to call this a domestic assemblage.

**Rupp** Since I excavated part of it and also nearby, this deposit is – as Metaxia Tsipopoulou showed it yesterday – on top of what I think is a substantial EM III building. So this was an area that was open, and then it was filled in. Metaxia's original idea was that they brought it down from the palace plateau, but it could have been thrown up from



this lower level. It just covers the topography of this area, that was probably a meter lower, at least, maybe two, when the EM III building was in existence.

**Haggis** David Rupp's point is that given the actual stratigraphy of that terrace is very difficult to reconstruct what I want to reconstruct, which is an open area with a pit, into which they poured the debris from a ceremony.

**Rupp** I think it was an open area, but they did not have to put a pit into it. They just threw it on top of it. In other words this was an abandoned EM III building, and probably an open area, where House I.1 was then built.

**Haggis** Does the Lakkos material actually go down into the physical architectural space of the EM III-MM I rooms? I saw the picture of the building, but does the debris actually go down into the space?

**Tsipopoulou** Maybe 1 m down.

### *Greek abstract*

#### **Η κεραμική του Λάκκου και ο MM IB Πετράς**

Η παρούσα ανακοίνωση επανεξετάζει τη σύνθεση, τα ταφονομικά δεδομένα και τη χρονολόγηση της κεραμικής του Λάκκου, υπό το φως των πρόσφατων δημοσιεύσεων Παλαιοανακτορικών συνόλων του Παλαικάστρου και της Κνωσού, και σχολιάζει κυρίως δύο σχετικά προβλήματα: Πρώτον ότι η κατανόηση των κεραμικών φάσεων εξαρτάται από το ανασκαφικό περιβάλλον. Αν και συνήθως κατασκευάζουμε τις κεραμικές τυπολογίες και σκεπτόμαστε για αυτές με όρους ευρέων χρονικών και τοπικών πλαισίων ή μεταβλητών, όπως διαχρονικές αλλαγές ρυθμών, κέντρα παραγωγής, πολιτιστικές περιοχές και σφαίρες επιρροής, στην πραγματικότητα, τα ιδιαίτερα και εντοπισμένα συστηματικά περιβάλλοντα κατανάλωσης μας πληροφορούν για στυλιστικές προτιμήσεις και τρόπους παραγωγής και διανομής, και επομένως για την πραγματική σύνθεση των αρχαιολογικών αποθέσεων. Το δεύτερο πρόβλημα είναι η κατανόησή μας των στρωματογραφικών ασυνεχειών στη μελέτη του κοινωνικού περιβάλλοντος της εμφάνισης, μορφής και λειτουργίας των Παλαιοανακτορικών ανακτόρων. Η απόθεση του Λάκκου αναλύεται υπό το φως πρόσφατων ερευνών, οι οποίες δηλώνουν τη δυναμική ποιότητα των Παλαιοανακτορικών κοινωνικοπολιτικών θεσμών, και όχι τη στατική και ποσοτική διάκριση αρχιτεκτονικών τύπων, αρχαιικών τεκμηρίων ή αγαθών κύρους. Η κεραμική του Λάκκου μελετάται στο πλαίσιο πρόσφατων έργων, τα οποία αντιμετωπίζουν τους μεταβαλλόμενους τρόπους κατανάλωσης, εντός ρευστών και κοινωνικά ποικίλων θεσμών.



# Petras, Siteia: political, economic and ideological trajectories of a polity<sup>\*</sup>

*Kostis S. Christakis*

## *Abstract*

The systematic and intensive excavations at Petras, Siteia have brought to light parts of a coastal Bronze Age town centered upon a palace, the seat of a regional polity. Petras was undoubtedly the main political and economic center of a well-defined region scattered with smaller settlements and farmsteads. In the present contribution, I attempt to reconstruct, on the basis of a varied array of data, the economies of the various centers and how they interacted in a regional and intra-regional framework. I highlight the role of the ruling groups at Petras in the regulation of the economy of their wider area, and their participation in the wider economic and political network of Neopalatial Crete.

## Introduction

The political and administrative geography of Bronze Age Crete has been a topic of vivid discussion. It was accepted that the political landscape of the island was divided into five or six domains controlled by political authorities centered upon the palaces at Khania (not yet excavated but presumed to exist), Knossos, Phaistos, Malia, Gournia and Zakros.<sup>1</sup> Institutions residing in these high-profile buildings were thought to integrate and control political, economic, and ritual activity within their wide hinterland.

In 1992, Metaxia Tsipopoulou and Anastasia Papacostopoulou, discussing old and new data from East Crete, questioned the above territorial division.<sup>2</sup> They suggested, quite convincingly, that the easternmost part of the island could be subdivided into three political territories: that of the region of Siteia, in which Petras was the central place (Fig. 1); the south coast with the central place at Makygialos or Diaskari; and, finally, the Zakros-Palaikastro region.

In the years that followed, systematic research at

Petras revealed additional information confirming this narrative.<sup>3</sup> Moreover, other discoveries from various regions of the island, combined with the adoption of new interpretative tools drawn from recent theoretical thinking, contributed to a better understanding of the political organization of Bronze Age Crete: it is now generally accepted that the political landscape is more complex than the five/six peer polity divisions originally proposed. Besides, the theory that palatial institutions exercised a strong centralized control over most affairs of their domain has come under sustained criticism, and some scholars now place emphasis on alterna-

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<sup>\*</sup> I am grateful to Metaxia Tsipopoulou for giving me the opportunity to participate in the Petras excavation and for the knowledge and experience I drew from it. Thanks are due to David Rupp and Metaxia for fruitful discussions on an earlier version of this paper and to N. Ntolia and D. Maniatakis for figs. 1 and 3 and to Mikros Naftilos editions for fig. 2.

<sup>1</sup> E.g., Cherry 1986; Warren 1985; Soles 1991.

<sup>2</sup> Tsipopoulou & Papacostopoulou 1997.

<sup>3</sup> Tsipopoulou 1999b; 2002; 2007c.



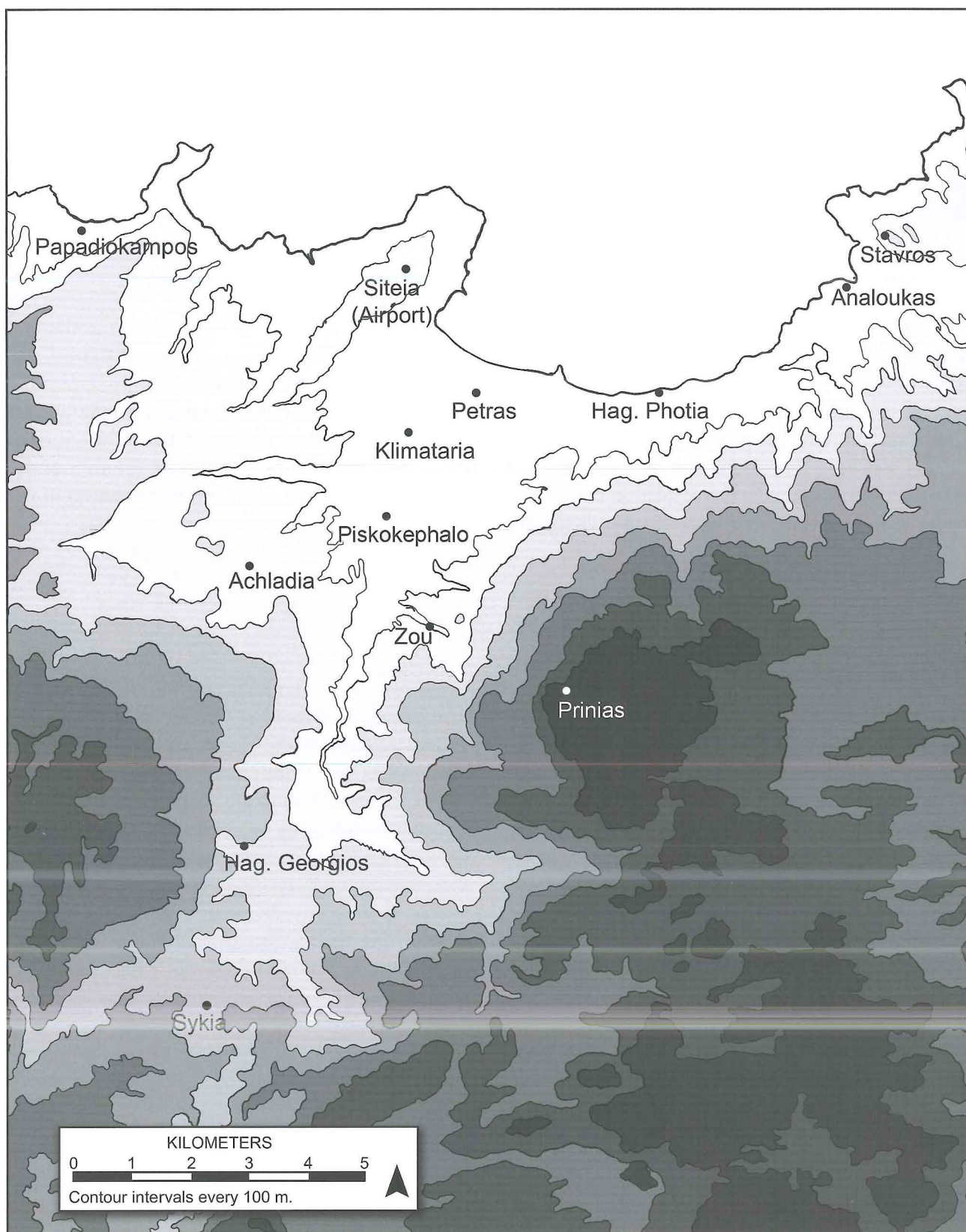


Fig. 1. Neopalatial sites in the Siteia Bay.

tive interpretative models based upon heterarchical power concepts.<sup>4</sup>

This paper, written on the occasion of the celebration of 25 years of archaeological research at Petras, Siteia, collects and critically examines all the evidence, helping us to understand the political, economic and ideological trajectories of the polity centered upon Petras. The overall aim is to point out and account for possible divergences in the political and ideological scenery of Bronze Age Crete, and the region of East Crete in particular. The temporal framework of our discussion is limited: its starting point is the emergence, in MM IIA, of the palatial institution at Petras, ending with its destruction/abolishment at the end of LM IB.

## Geographical multi-determinations

The study of the natural landscape has helped us understand the productive activities taking place in one specific natural unit, as well as the political, social and economic structures within its borders.<sup>5</sup> The natural framework translates into the possibility of producing wealth via control of the land, the slopes, the pastures, the subsoil and even the sea. It also translates into distances and the time required to cover them, and consequently into investment in time and labor.

The desire to use the natural landscape as a framework in an attempt to determine the politico-economic history of the Petras dominion raises at least two preliminary issues. First, that of the sources of historical knowledge. Sources for the second millennium BC are almost non-existent. The earliest – albeit fragmentary – written testimonies regarding the area date from the Venetian period, far later than the time in question. If the first issue concerns the sources, the second concerns the mobility of the landscape from the viewpoint of natural geography. The natural setting is not an unchanging given: the landscape is subject to transformations, though usually at a rate much slower than that of political and economic cycles.<sup>6</sup> It should, therefore, be regarded as a relatively stable given on our scale. I stress the word “relatively”, since natural causes

can bring about major restructuring and changes, affecting events on a historical scale.

Two elements of geographical over-determination will occupy us here: land and sea. The soil quality of Siteia, combined with its abundant subsurface waters and its microclimate, makes it one of the most fertile areas of East Crete.<sup>7</sup> There are extensive references to the remarkable agricultural productivity of the area in the reports of Venetian governors, notarial deeds of the late Venetian period, documents of the Ottoman period and 18<sup>th</sup> century travellers' accounts. Sizeable production potentials are also mentioned in state functionaries' reports from the second half of the 19<sup>th</sup> century.<sup>8</sup> Of course, the quantity of agricultural production within the boundaries of an area is directly linked to the character of the site, whether mountain or lowland, the type of cultivation, and the techniques used.

Might the picture of substantial agricultural productivity be transferred to the second millennium BC? I believe we could more or less accept that the geomorphological framework and its attributes would not have changed radically in the intervening millennia. Of course the types of cultivation, largely determined by complex politico-economic factors, and cultivation methods, did change.<sup>9</sup> We must also take into account that a substantial agricultural production does not necessarily indicate autarky for local populations, since access to cultivatable land is the result of complex social, political and ideological parameters.<sup>10</sup>

The sea is the second element which determines the economy of a region's communities, particularly those living in the coastal zone. The economy of these communities is based on the exploitation of neighboring agricultural land on the one hand

<sup>4</sup> Hamilakis 2002a; Schoep 2002b; 2006.

<sup>5</sup> Asdrachas 2007, 45.

<sup>6</sup> Asdrachas 2007, 46.

<sup>7</sup> Kalomenopoulos 1894, 77–80.

<sup>8</sup> Perakis 2005, 102–213.

<sup>9</sup> E.g., Triandafillidou-Baladié 1988; Greene 2000. For a discussion adopting a diachronic perspective, see Christakis 2008b.

<sup>10</sup> Hastorf 1993, 213–4, 223–5.



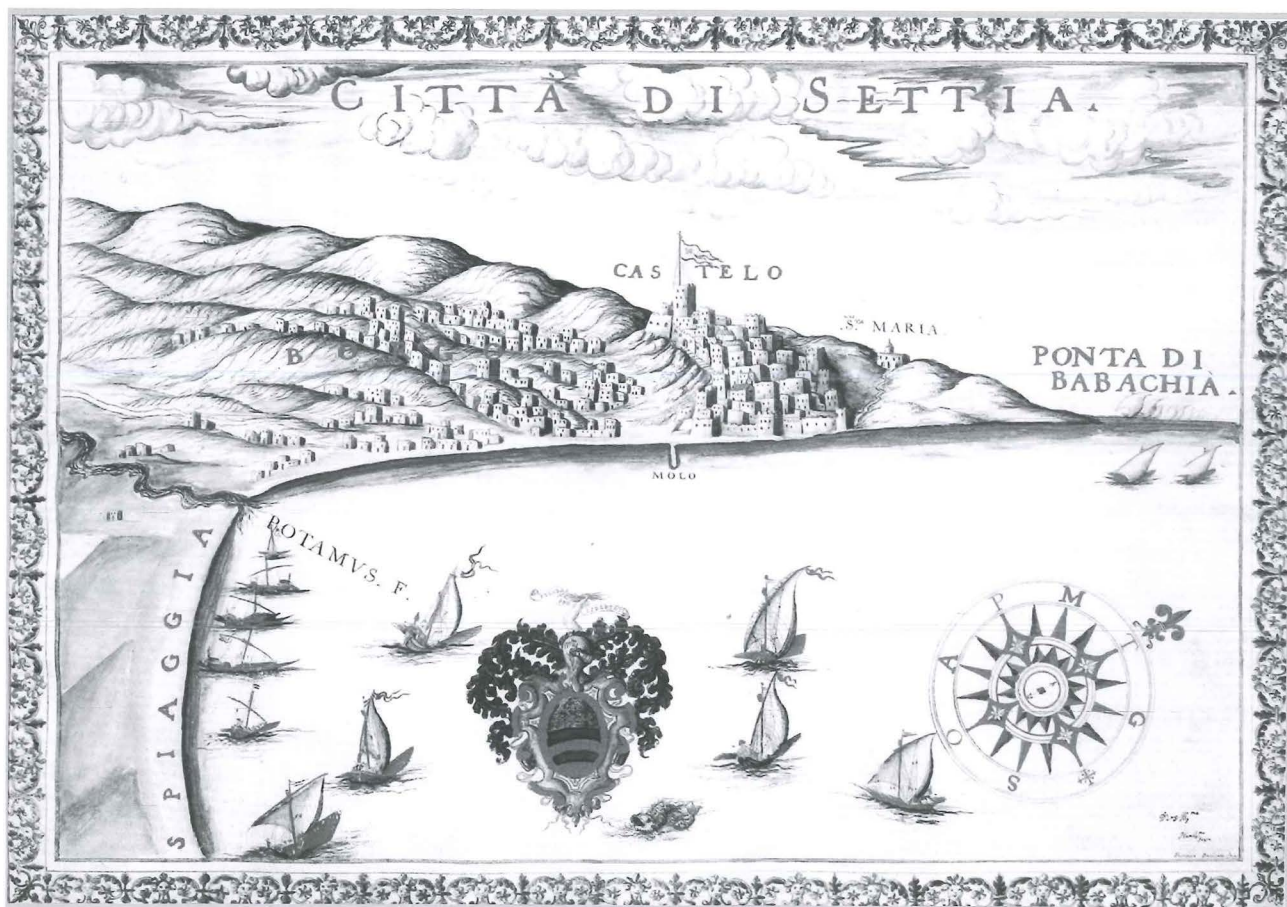


Fig. 2. The port and the bay of Siteia. Drawing by F. Basilicata, 1618 (courtesy of Mikros Nautilus editions).

and marine resources on the other. Even more important, however, is the opportunity the communities have to develop relations with distant areas. Communications by sea, in spite of their difficulties and dangers, are usually the most convenient and permit the transport of large cargoes, which land communications cannot compete with.<sup>11</sup> In pre-industrial Crete and other parts of Greece, movement by sea was the most convenient form of transport.<sup>12</sup> The port of Siteia, in historically documented periods, provided exceptional shelter from north winds (Fig. 2).<sup>13</sup> It was not, of course, one of the busiest harbors on the island, but this is due to the complex political and economic context of the 15<sup>th</sup> to 19<sup>th</sup> centuries.<sup>14</sup>

Geophysical studies have shown that during the Bronze Age the coastline of the Siteia Bay curved in as far as the Klimataria complex, and was just 50 m distant from the wall on the west slope of Hill I.<sup>15</sup> The hills on which the town of Petras arose actu-

ally formed a small promontory, while the natural harbor there was one of the largest in the area. This means that Petras could have formed part of the network of ports along the south, east and north coasts of Crete, including Makrygialos, Palaikastro, Zakros, Pseira and Mochlos, to mention a few – a network which was connected in turn to the rest of the island's naval stations.<sup>16</sup> There would have been smaller anchorages, such as Papadiokampos, Siteia and Stavros, along the bay. Such anchorages, small but well sheltered from north winds, played a decisive role from antiquity to the age of the steamship.

<sup>11</sup> Leon 1972, 13–56; Asdrachas 2007, 65–6.

<sup>12</sup> Tzedaki-Apostolaki 2004; Perakis 2005, 315–66.

<sup>13</sup> Stavrakis 1890, 24.

<sup>14</sup> Perakis 2005, 355–6.

<sup>15</sup> Tsipopoulou 1991a.

<sup>16</sup> For Minoan harbors, Watrous 2007.



## The human web

A place is burdened with its history, the permanence of its settlements, and population influxes, whether resulting from the creation of new settlements or from the installation of new residents in those already extant. The picture we have of settlement distribution and population sizes in the area under discussion is very fragmentary, especially as regards the Protopalatial period. The scantiness of our information is mainly due to the lack of systematic field surveys. The field survey in the Hagia Photia region, covering about 4,000 km<sup>2</sup>, which resulted in the discovery of 10 archaeological sites, is indicative of the picture we would have of the Siteia region as a whole, were such a research project to be implemented.<sup>17</sup>

According to the data available so far, Petras is the largest settlement in the area, with uninterrupted habitation from the Prepalatial period.<sup>18</sup> The size of the settlement in Protopalatial times is unknown, as are any other settlements in the wider Siteia area. In the Neopalatial period, Petras appears to have covered a total area of 2.5 hectares and had approximately 500 inhabitants, if we adopt the model of 200 inhabitants per hectare.<sup>19</sup> The settlements at Achladia, Hagios Georgios, Sykia, Zou, Papadiokampos, Siteia, Hagia Photia, Analoukas and Stavros probably had smaller populations, although their fragmentary investigation does not provide a full picture of their total area and population. Small farmsteads or isolated rural mansions, like those identified in the region of Hagia Photia, completed the web of habitation. Many of these residential centers were located in semi-mountainous areas, fertile but demanding in terms of the labor investment needed to clear the land. Others were built in the coastal lowland zone, in small plains with access to both arable land and the sea. We have almost no information on the centers of the mountainous zone, which would certainly have been suitable for the development of animal husbandry.

The surface survey in the Hagia Photia region demonstrated a slight increase in sites from the Protopalatial to the Neopalatial period. This picture is consistent with the increase in settlements in many parts of the island during the Neopalatial period.<sup>20</sup>

Of course, bearing in mind the limited extent of the surface survey and the difficulty of discovering evidence of the Protopalatial period, due to complex depositional histories, it is not entirely certain how representative Hagia Photia is of the Siteia Bay area as a whole.

An important parameter, with direct political and economic consequences, is the road network connecting the various settlements in the area. Generally speaking, research on the road network of Bronze Age Crete is still at an early stage. The results of the systematic survey in the Zakros hinterland have brought to light a complex system of roads and “watchtowers”,<sup>21</sup> while corresponding evidence from other parts of the island<sup>22</sup> show how promising research in that direction will be.

Modelling terrestrial movement in the area of Siteia is purely hypothetical: it is based on the local terrain and the spatial distribution of various sites. There must have been four key arterial routes of terrestrial communication. The first would have followed the Siteia Bay coastline – as it was in the second millennium – from Stavros and Analoukas, at the east end of the bay, through the area of Hagia Photia, Petras and the settlement at Siteia, before continuing around the Vamvakia Peninsula and Phaneromeni Bay, and ending at Papadiokampos. The second route would have started at the coast, perhaps somewhere between Petras and Klimataria, and crossed the center of the territory, along the Stomion River valley, passing through Piskokephalo, Prophetes Elias, Maronia and Hagios Georgios, and terminating at Sykia or even further away. Another route would have led from Petras, or even from a point on the previous road, to Zou and Sphakia. And finally, a fourth route from the Piskokephalo area would have led to Achladia and Riza.

Of these routes, I believe the coastal road was

<sup>17</sup> Tsipopoulou 1989.

<sup>18</sup> Tsipopoulou 1999b.

<sup>19</sup> For population densities in Bronze Age Crete, see Branigan 2001b; Whitelaw 2001.

<sup>20</sup> Driessen 2001; Christakis 2008a, 4–6.

<sup>21</sup> Chrysoulaki 1999.

<sup>22</sup> E.g., Evans 1928, 60–92.



particularly important. On the one hand, its eastern end would have joined the road connecting the region of Siteia to that of Palaikastro and Zakros, while its western end may have continued beyond Papadiokampos, following the coast and ending at Mochlos and Gournia. On the other hand, the route was the point of contact between the world of the sea and the terrestrial settlements.

This proposed hypothetical sketch of the basic road arteries in the area is largely influenced by the 19<sup>th</sup> century road network,<sup>23</sup> which generally follows that of the Venetian period. It is this diachronicity, due to the close relationship between road network and terrain, which makes our hypothetical reconstruction extremely likely.

These major roads, however, do not cover the smaller, local routes and pathways used by the inhabitants of more remote and sparsely populated settlements. These secondary, peripheral roads would have led to the basic routes and hence to the center and the coast.

These small roads connecting the residential areas also indicate the degree of cohesion of the settlement network as a whole. In order to measure this, we need to know the distances between the large and small residential centers of the domain. Travel times between Petras and the residential centers in the Siteia area range from 20 minutes to 2.5 hours.<sup>24</sup> These distances, bearing in mind that transculturally most people spend approximately an hour travelling per day,<sup>25</sup> are very small and indicate both the regularity of intracommunal travel and the degree of cohesion between the settlements of the network in question. The high efficiency of communication across the region promoted the centralising ambitions of the authorities residing at Petras.

## Polity and economic trajectories

The foundation, at the beginning of the MM IIA period, of the palatial complex at Petras, marks the appearance in the Siteia area of a central political entity similar to those which had appeared – much earlier of course – at Knossos, Phaistos and Malia. Petras is the only palatial center of the Protopalatial period to have come to light in East Crete so far.<sup>26</sup>

The establishment of a central political authority was the outcome of complex and intense social interactions among local clans during the MM I period, leading up to the palace-state formation.<sup>27</sup>

The palace, with its imposing buildings covering the whole northeast side of the plateau, is at the apex of the architectural staircase of the Protopalatial settlement.<sup>28</sup> The complex presents an impressive layout of rooms, further stressed by the large retaining walls and the towerlike projection, both of which are indicative of a very high investment of labour. The overall picture is reminiscent of a fortress and forms part of an architectural tradition typical of the area.<sup>29</sup> Such a hilltop building, rising above an agglomeration of houses, is an imposing sight from both sea and, more significantly, land.<sup>30</sup> Petras is the landmark *par excellence* of the region. Such an impressive spatial framework is found neither at Zakros nor Palaikastro.<sup>31</sup> Evidence for the reconstruction of the settlement around the complex is still very scanty.

The prominent geographical location of the settlement, the semantic dimension of its architectural features and its impressive hieroglyphic archive, all highlight the preeminence of Petras in the political scene, not only of Siteia but Crete as a whole. The group which would have been able to control the economic and human resources necessary for the erection of the palace and the adoption and imposition of a new power system would surely have been that ruling Siteia.

Farming and trade would have been the basic

<sup>23</sup> Kalomenopoulos 1894, 314–8.

<sup>24</sup> The pedestrian travel times given here are from personal experience and historical-documented information (Kalomenopoulos 1894; Pendlebury 1939, 7–16). I have assumed a standard estimate of travel time for the geomorphological setting of Siteia Bay as *ca.* 6 km/hr.

<sup>25</sup> Marchetti 1994.

<sup>26</sup> At Zakros, no palatial complex dated to the Protopalatial period has been identified (Platon 1999a). At Palaikastro a large-scale public building has been found but the data are very fragmentary (MacGillivray & Driessen 1990).

<sup>27</sup> Rupp 2006; Haggis 2007; this volume.

<sup>28</sup> Tsipopoulou 1999b; 2007c; 2010a.

<sup>29</sup> Tsipopoulou 1999b.

<sup>30</sup> Tsipopoulou 1999b.

<sup>31</sup> Cunningham 2001.

sources of economic power, alongside craft activities including weaving. These economic activities cannot be reconstructed due to lack of data. The palace hieroglyphic archive is evidence of the palatial administration's economic control of its polity.<sup>32</sup> The quality, variety and special features of the archive indicate a well-organized administrative system.<sup>33</sup> The nature of the economic transactions is unknown, but it is worth noting that the quantities of commodities registered by the scribes were similar to those at Knossos and Malia,<sup>34</sup> pointing to the wealth handled by the ruling group of Petras.

The question that now arises is for how wide an area was the ruling group established at Petras the basic conveyor of political power and control. The answer – the scarcity of data into account – is largely influenced by the relevant theoretical thinking on the formation and working of state institutions.<sup>35</sup> It is generally acknowledged that any new political establishment is likely to be accompanied by hierarchical reform, where one authority, whether an individual, a group or even a state, is set above another.<sup>36</sup> The most widely accepted political hierarchies are those which institutionalize quality, or those legitimized through broad social consensus within the context of historical and cultural tradition.<sup>37</sup>

Political authority, however, can also be wielded outside hierarchical boundaries, as part of a heterarchical structure of overlapping and even competing political agencies and factions.<sup>38</sup> Such structures have been proposed for many early societies, including those of Bronze Age Crete.<sup>39</sup> More specifically, it has been argued that the palatial groups of the Protopalatial period, acting in complex and changeable political and social contexts, were not the basic regulators of the political, economic and ideological developments in their dominions.<sup>40</sup>

The emphasis on heterarchical and factionalist political frameworks in Old Palace Crete raises many serious issues regarding the archaeological evidence. A full discussion of the relevant criticism is, of course, outside the scope of this paper. My personal view is that, given the general lack of cross-cultural evidence for exclusively heterarchical complex political units, the social politics of heterarchy, factionalism and feasting are not enough in

themselves to explain the power politics of Bronze Age Crete. Hierarchical political structures should certainly not be ruled out in this context.

I would suggest that the palatial political groups were the basic conveyors of political power across most of their dominions, and Petras appears to be no exception. Of course, this does not mean that I exclude the possibility of other groups with competing aims and objectives. I believe, however, that the palatial institutions had managed, particularly in MM IIB, to dominate this complex and changeable political scene and rise to prominence as the basic political players. This dominance, as we can see from well-documented examples from the historic past, was by no means settled: it was in constant need of confirmation and strengthening.

The picture of the Neopalatial period, particularly its final phase (LM IB), is fuller than that of the Protopalatial period. Archaeological research has identified a series of important centers, part of the residential network extending across the Siteia area. Only two complete houses of the extensive Petras settlement have been excavated: the first was inhabited until LM IA (House I.1), while the second continued in use until the end of LM IB (House II.1).<sup>41</sup> Similar chronological variations have been observed in other cases – Gournia, Malia and Galatas, for instance – demonstrating the complexity of habitation patterns within the same settlement. The systematic excavation of the two houses gives us the opportunity to understand their life-cycle and life-course and relate these to the life-cycle and life-history of the households, but it does not help us to form a picture of the settlement as a whole.

<sup>32</sup> Tsipopoulou & Hallager 2010.

<sup>33</sup> Hallager 2010, 174–7, 194, 203–5.

<sup>34</sup> Karnava 2000, 84–6, 240.

<sup>35</sup> For a full discussion, Maisels 2010.

<sup>36</sup> Lake 2009.

<sup>37</sup> Maisels 2010.

<sup>38</sup> Blanton 1998; Blanton *et al.* 1996.

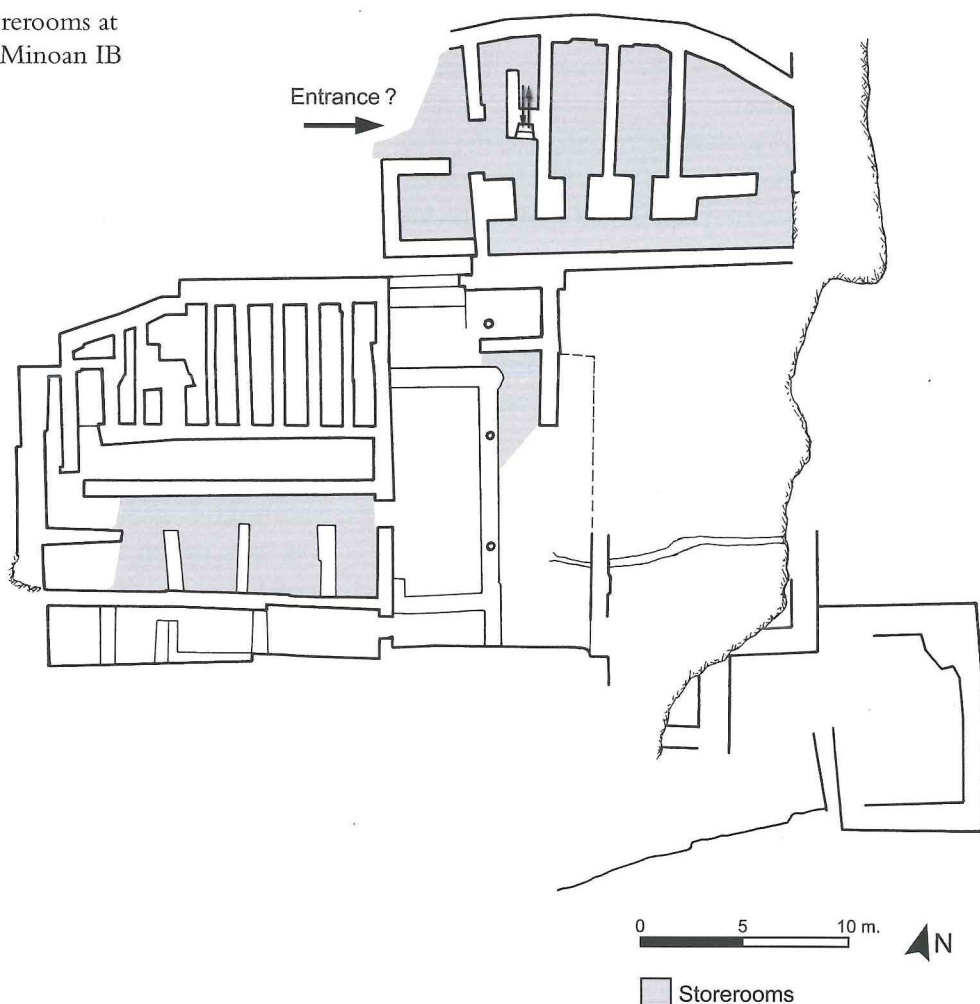
<sup>39</sup> Hamilakis 2002a; Schoep 2002b.

<sup>40</sup> Schoep 2002b; 2006.

<sup>41</sup> Tsipopoulou 2006; Tsipopoulou & Papacostopoulou 1997; Tsipopoulou & Hallager 1996; Tsipopoulou & Driekx 2006; Mavroudi this volume.



Fig. 3. Distribution of storerooms at the palace of Petras (Late Minoan IB phase).



The center of the settlement remains the palatial complex. Following its destruction by fire in MM IIB, the complex was rebuilt on the same orientation.<sup>42</sup> An important feature during the rebuilding of the palace was the annexation of the North Magazines: approximately 36 large pithoi were found, dating from its last phase of use (Fig. 3).<sup>43</sup> Unlike the Protopalatial period, when the storerooms would have been built in an area peripheral to the complex, in Neopalatial times the storage areas were annexed to the palace and acquired two points of access, a main entrance outside the complex and a secondary one on the first story. This layout indicates an extroverted storage strategy presumably intended to facilitate the movement of incoming and outgoing goods. It is worth comparing this to the other palaces, where the storerooms were not only fully integrated into the complex itself but were also generally accessed via an elaborate system

of corridors from the interior of the complex, a layout indicative of the need for greater control of the stored commodities.<sup>44</sup>

It has been argued that certain architectural modifications to parts of the palatial complex during LM IB contributed to an increase in storage capacity, and this has been interpreted as resulting from the need for ever greater storage of goods in a period of insecurity and angst.<sup>45</sup> It must, however, be noted that in order to understand and evaluate these modifications fully, we need to know what these rooms were used for in LM IA.

In any case, the great importance the central authority seems to have placed on the storage of agri-

<sup>42</sup> Tsipopoulou 1999b; 2002; 2007c.

<sup>43</sup> Christakis 2008a, 51.

<sup>44</sup> Christakis 2008a, 123–4.

<sup>45</sup> Tsipopoulou 2002. Cf. Driessen & Macdonald 1997, 52–3.

cultural and perhaps pastoral goods is indicative of the farming basis of the palatial economy of Petras, similar to that of most palatial economies. It is also indicative of the central power's control of production and distribution mechanisms. Of course, despite the long administrative tradition originating in Protopalatial times, no Linear A archive has come to light. Such an archive, however, undoubtedly existed, as indicated by the two tablets found in the area of the palace and by the inscriptions on pithoi.<sup>46</sup> The disturbance of the ruins of the palace in LM III<sup>47</sup> and the use of the area as a cemetery in the Middle Byzantine period<sup>48</sup> have certainly affected the floor assemblages of the palace.

Administrative documents were also recovered in House II.1, and this has been taken as evidence of a probable connection between the group residing in this unit and the palatial authority.<sup>49</sup> Admittedly, administrative documents are not often found in domestic units.<sup>50</sup> Although their discovery is often seen as an indication of a special relationship with the central authority, I wonder whether we should begin to examine the possibility of a private economy, independent or under the partial control of the palace, as in the Near Eastern economies.<sup>51</sup>

Handicrafts also played a major part in supporting the settlement economy. As early as MM I, there are indications of systematic and coordinated textile production, apparently under the control of the ruling group of the settlement.<sup>52</sup> The large deposit of *Murex brandaris* found in a MM I context, actually one of the earliest such deposits in Crete, places Petras among the specialist purple production centers that had arisen in coastal settlements of East Crete, the most impressive of which are those at Pefka in Pacheia Ammos and on Chryssi Island.<sup>53</sup> Weaving intensified during the Neopalatial period, particularly in LM IB, making Petras one of the most important weaving centers in East Crete. This activity was one of the basic occupations of the residents of House II.1, which was turned into a textile-production center during its last phase of use.<sup>54</sup> The flourishing of weaving in a coastal settlement such as Petras seems to have been a general rule in the prehistoric Aegean: archaeological evidence and indirect testimonies in Linear B documents link weaving and harbor settlements.<sup>55</sup>

What is surprising at Petras is the total absence of testimonies concerning the importation, processing and distribution of precious raw materials and the circulation of luxury goods in general. This picture is also found at other complexes which have come to light in the Siteia area. The considerable storage capacities of these complexes, their agricultural landscape, and the evidence for primary processing of agricultural commodities at some of them, all highlight the importance of agricultural production to the local groups. But in these cases too there is no indication of the importation, processing and distribution of precious raw materials and use of luxury goods.

This picture is hard to explain, particularly given that most of the coastal centers of East Crete operated as specialized entry points for precious raw materials for local workshops or even workshops in other parts of the island, and generally as centers for the production and distribution of luxury goods.<sup>56</sup>

Is the lack of such testimonies due to limited archaeological recognition and complex site biographies, or does it reflect actual patterns of economic behavior? Limited investigation and the complex formation process of the archaeological record are certainly two factors preventing us from forming an overall view. Despite these serious drawbacks, however, I believe that there is evidence to suggest that the groups active in the Petras area had adopted different ways of manipulating resources and maintaining power. This conviction rests not so much on artefactual assemblages from the various excavated contexts but rather on the idiosyncrasies of the architectural trends adopted by the elite sectors of local societies.

<sup>46</sup> Tsipopoulou & Hallager 1996; Hallager this volume.

<sup>47</sup> Tsipopoulou 1997b; this volume, Introduction; this volume, 117–31.

<sup>48</sup> Poulou-Papadimitriou this volume.

<sup>49</sup> Tsipopoulou 2002.

<sup>50</sup> Schoep 1995.

<sup>51</sup> E.g., Renger 1979; Van de Mieroop 1997, 157–8.

<sup>52</sup> Burke 2006.

<sup>53</sup> For the centres of East Crete specialising in purple production, see Apostolakou 2008; Apostolakou *et al.* 2009.

<sup>54</sup> Burke 2006; Tsipopoulou 2006.

<sup>55</sup> Tzachili 2001.

<sup>56</sup> Betancourt 2004; Platon 1999b; Soles 2003, 96–9; Wiener 1987.



Due to its location and monumental construction, the palace of Petras was certainly a complex which conveyed powerful political and ideological messages. It was the visual representation of the political authority for the communities of the Siteia region. The Neopalatial palace lacks, however, many architectural features typical of the palatial architectural repertoire<sup>57</sup> – luxury architectural elements such as the extensive use of gypsum, monumental orthostates and fine frescos.<sup>58</sup> As Cunningham observes, the adoption of other elaborate building materials indicates that the absence of ostentatious architectural features may be deliberate, due to an ideological or functional choice rather than lack of economic means or technical know-how.<sup>59</sup> Complex architectural features and luxurious building materials are also absent from other high-profile buildings of the region.<sup>60</sup>

Contrasting with this image is the complex architectural layout and sophisticated building materials of the palace of Zakros and, to a lesser degree, that of Gournia, to mention only the palatial complexes closest to Petras. Elaborate architectural layouts and luxurious building materials are also found in many elite domestic units at Zakros, Palaikastro, Pseira and Mochlos. Most of these architectural trends are inspired by Knossian prototypes, varied enough to indicate some freedom of choice within an island-wide ideological framework of elite status indicators.

Thus, the particular architectural features found in the elite complexes in the Siteia region are certainly not accidental. I think it is generally accepted that, due to its visibility and durability, architecture is a way of conveying a political, social, ideological and symbolic message.<sup>61</sup> Architectural styles reflect, enhance and support sociopolitical organizational structures, and are often used by elites as signifiers of power and status.<sup>62</sup>

Following these lines of thought, it is reasonable to suppose that the elite architectural style at Siteia reflects local needs and trajectories of complexity. Although none can doubt the political, social and ideological impact that the monumental constructions of the region might have had on local communities, there is a clear tendency to resist imitating and elaborating what was considered

the generally accepted architectural vernacular of power.

## Political economy and elite culture

The systematic excavations at Petras have brought to light the seat of one of the many political groups active in the complex and changeable political landscape of Bronze Age Crete during the second millennium. The evidence available to date shows that the dominion of Petras was an independent political entity: there are no indications that it was dependent on a neighboring center such as Zakros and Palaikastro, or one further afield.<sup>63</sup> The palatial elite dominated the political, social and economic activity of the Siteia Bay, both during the Protopalatial period and perhaps after it.

The political economy of the region centered on the exploitation of local sources of wealth and the processing of domestic natural wealth. Regarding Neopalatial, a period better represented in the archaeological record than the Protopalatial, excavation has not revealed any evidence confirming the importation of precious raw materials for the intentional production and processing of elite goods and sumptuous items. If stress on agricultural and pastoral sources of wealth characterises most of the political economies of Bronze Age Crete, the fact that the ruling groups of the Siteia Bay area neither produced nor consumed ostentatious material culture is surely a particular feature of the local economic system, a feature rarely found in the other polities of the island. This particularity of the Neopalatial economic system of the Siteia Bay is difficult to interpret, especially taking into account

<sup>57</sup> Typical palatial architectural features missing from the palace are the Lustral Basin, Minoan Hall, Light Well and Pillar Crypt.

<sup>58</sup> Tsipopoulou 2002; Tsipopoulou & Papacostopoulou 1997; Palyvou 2002; McEnroe 2010, 91.

<sup>59</sup> Cunningham 2001.

<sup>60</sup> Tsipopoulou & Papacostopoulou 1997.

<sup>61</sup> Moore 1996, 1–18.

<sup>62</sup> Emerson 1997.

<sup>63</sup> Tsipopoulou 2002.

the economic structures of the Prepalatial period, which emphasised the distribution of exceptionally ostentatious material culture.<sup>64</sup> The distancing of local groups from generally accepted material expressions of power and status is also apparent in the architecture of politically significant complexes.

A characteristic of the political economies of the island is the emphasis on the production and distribution of “politically charged commodities” – to use Brumfiel and Earle’s term<sup>65</sup> – i.e., of prestige goods confirming the legitimacy of the central power and permitting peripheral leaders and non-palatial elites to preserve or increase their status by symbolically representing their relationship to that power. These practices of political and social aggrandizement appear to have intensified in LM IB, with important consequences for local politico-economic systems.<sup>66</sup>

The economies of the neighboring centers of Zakros and Palaikastro, and those around the Bay of Mirabello, to mention only those nearest the centers of the Siteia Bay area, are based mainly on the importation of precious materials from the East and the production and distribution of elite material culture. The leaders and wealthy groups of these communities had adopted a cosmopolitan and ostentatious lifestyle, influenced to a great extent by Knossian ideological prototypes.<sup>67</sup> Part of the population of these urban centers would of course have lived in poorer economic conditions.

I would suggest that the ruling groups in the Siteia Bay had a different perception of “eliteness” than other groups had. The establishment and maintenance of the power and status of elite groups within the region followed local ideological paths, despite the broad similarities of “minoanness”

which might have occurred. The divergence from the “expected” picture observed in the area of Siteia is strong and hard to explain. Petras, a center in a region favoring the development of a wide range of productive activities, perhaps more than those in other parts of East Crete, lacks, however, the cosmopolitan character of the other centers. Perhaps the reasons for this divergence should be sought in the different ideological strategies adopted. These strategies must have played a larger part in defining local societies than the island-wide trends of political ideology.

For many decades, the study of Bronze Age Crete has been based on targeted efforts to identify similarities in every form of human expression, with the aim of forming generally applicable interpretative patterns of political and cultural development on the island. The material culture of the Neopalatial period in particular was – and still is – regarded as homogeneous, with a broadly common cultural identity observed island-wide. This narrative must be now reexamined in a new light, and our ideas on the relationship between culture and politics reviewed. Cases such as that of Petras highlight the need to seek, study and interpret the *different*: I believe that this is the only way to understand the multicolored horizon of Bronze Age Crete.

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<sup>64</sup> Papadatos, Tsipopoulou, Krzyszkowska and Haggis this volume.

<sup>65</sup> Brumfiel & Earle 1987.

<sup>66</sup> Christakis 2008a, 144–6.

<sup>67</sup> Betancourt 2004; Soles 1995; Platon 1999b; 2004; Wiener 2007.



# Discussion

- Alberti** Tell me about the loom weights, where were they found?
- Christakis** I refer to Brendan Burke's article, at the Cretological Conference in 2002, these loom weights come from MM I levels, and more precisely from the Lakkos.
- Alberti** Do you remember the numbers?
- Christakis** No. I refer to the general conclusions. I am not an expert on loom weights.
- Haggis** I followed all of the comments on the Protopalatial, in your paths of intercommunication. Can you see a change between Protopalatial and Neopalatial? Our tendency is to see, especially the further east we go, an extensive ruralization of the settlements and the restructuring in the Neopalatial. I found surprising that you were not able to draw paths into the area between Prinias and Modi, which is also potentially part of this agro-pastoral hinterland that is feeding the palace.
- Christakis** Do you mean changes within the domain of Siteia or general?
- Haggis** In the domain of Siteia.
- Christakis** I cannot answer your question, because, unfortunately, we have no evidence on what the Protopalatial period looks like in Siteia. No other settlement in the region was excavated and everything is purely hypothetical.
- Brogan** Thanks for your paper. It sets up our own paper. I am very glad about what you did and I hope everyone remembers your paper, when we talk.
- Christakis** I read your article in *Kritiko Panorama*.
- Brogan** It is nice to see Papadiokampos in the picture, and we certainly ask that question. A comment connected to Alberti's question about purple dye. We recently found in a MM II level quite a lot of crushed murex shells, at Papadiokampos, which means that surely there was the processing of murex. It is not in quantities comparable to what we found on Chryssi Island, but surely we had a significant quantity, all crushed. In the houses on Chryssi we found kitchens and in them we had huge volumes of murex that had not been crushed. The point, which has been made in the literature in the past, is that crushed shells suggest production of purple dye, whole shells suggest food consumption. On Chryssi we had good evidence to point to that. It is very clear from the kitchen deposit versus what we have identified as a workshop. At Papadiokampos, it is interesting, from House A we have almost no murex. Whereas we have

tremendous amounts of shells for consumption. These are all top shells and limpets. Also in another house we do have murex, whole, with other shellfish that look like food. But in this other deposit we only have crushed murex, and it has been stored in jars. In any case I think we have purple dye production at the site.

**Tsipopoulou** In the last 20 years, at least, the importance of the regional studies has become clearly understood, and this was something that was in my mind since the beginning of the research at Petras. Many people, some of them present here, know that I tried to convince them to conduct, in the 1980's, an extensive survey over the whole region. And on other occasions, I tried to convince other colleagues to excavate some stratigraphical trenches under the "villas", to check whether they were part of a Protopalatial administrative system as well. Where we stand today it is not possible anymore to conduct a survey, as the ancient landscape is no longer preserved. It has been destroyed by all this terracing to plant olive trees, in the last 15–20 years. We cannot reconstruct the Protopalatial picture of the area anymore.

**Christakis** You are right, it is impossible.

**Tsipopoulou** And when I tried to convince myself, that maybe the Protopalatial period was not so important in the region, there came the hieroglyphic archive. This forces us to reconsider all previous hypotheses, as the archive was a very important factor for the regional administration. We have discussed a lot with Erik Hallager about the significance of the archive, and also about the type of storage this could represent, as we lack the architectural evidence for the Protopalatial storerooms.

**Christakis** The storerooms were not preserved in the limited area investigated. This does not mean that they never existed.

**Tsipopoulou** No, of course not. Furthermore, the hieroglyphic archive was found where one should expect to find it, i.e., in the west wing of the palace. In the same area were the Neopalatial Linear A tablets. Kostas Christakis knows, because he excavated there. The Linear A and hieroglyphic documents were found in different levels in the same trench. I have been thinking a lot about where the storerooms were. We do not know whether they were in the same place as the Neopalatial storerooms complex, which is clearly an addition to the initial plan of the palace. I completely agree with what you said about the extrovertedness of the complex of the North Magazines.

**Christakis** Yes, this is certain.

**Tsipopoulou** And the fact that there is direct communication with the upper floor, I believe this also is quite uncommon.

**Christakis** This feature exists also in other palatial centers, such as Galatas and Knossos. What is unique is that in not one of the known palaces one finds the main access from the exterior. This is a feature peculiar to Petras only.



- Tsipopoulou** There was apparently a path connecting the harbor directly to the magazines of the palace.
- Christakis** The magazines complex is like a later attachment to the original plan of the palace, and this, apparently, means a lot about the character of the economy.
- Tsipopoulou** Erik, maybe you would like to say something about Protopalatial storage?
- Hallager** I think, from what we have discussed, there is not very much to say, because we do not know where the storerooms were. What we do know, I think, from the hieroglyphic archive is that some of the documents have originally been written in the storerooms and then brought to the archive, but we do not know where the storerooms were.
- Macdonald** About the Protopalatial storerooms, you can ask the same question at Knossos. There the Protopalatial storerooms are precisely where the Neopalatial storerooms are, on exactly the same plan, and with probably initially direct access from the west court, going in Magazine 1 or 2, and then into the long corridor, which was always there, and in fact the basic units of the west wing of the palace of Knossos are just as they were in the later Neopalatial period.
- Christakis** Actually the highest quantity of pithos fragments, dated to the Old Palace period come from the area of the West Magazines, so this is another strong argument about the location of the West Magazines complex. The North Magazines at Petras were built directly on the bedrock. Yet, central storage could have taken place also in the periphery of the main building, not necessarily within it.
- Platon** If I am allowed to ask a question about the issue of the concentration of precious artifacts at Petras, or rather the lack thereof. I wonder whether this is related to a chronological element, as, Petras, as was explained, flourished in LM IA and not in LM IB. In the latter period there was storage, and there were also various industrial activities, but the building lacks significant architectural refinement, the opposite of LM IB Zakros. Maybe we are dealing with a strategic change, connected with the different chronology for the *floruit* of the palatial center?
- Christakis** It is possible, but we really are not certain about LM IA Petras either, because of the limited excavated area in the settlement. It is difficult to compare LM IA to LM IB, because we lack evidence. As for the storage, for instance, and sorry Metaxia I will disagree with you, you suggest that in LM IB there is an increase of storage space, but we need to conduct a serious volumetric analysis. The increase consists of *ca.* 1,200 liters. I refer to the capacity of the pithoi found in areas not initially constructed as magazines. It is a rather small increase. And I tend to see the concentration of the storage in a central building, not necessarily as evidence for insecurity, in unstable times, but as a need for the gathering of more goods. You see the coin has two sides.

- Platon** I would agree with that. I believe this concentration was observed elsewhere as well, the only thing that differentiates Petras and this troubles me, is the lack of precious artifacts, and we should think further about it.
- Christakis** We do not have enough evidence to compare two different periods. It is not only the lack of precious artifacts in my view. The most important point here is how the central authority perceived its status. For example the Petras palace lacks the complex architectural form of the Zakros palace. It even lacks various architectural materials that we find at Zakros, such as gypsum. There is a general difference between Petras and Zakros as to why the local elites express themselves in different ways, even on the level of the urban planning. At Zakros and Palaikastro we see “families” (I use the term always in inverted commas), using extravagant artifacts, which were not found at Petras.
- Yiannouli** There are certain features peculiar to Petras, such as the Protopalatial archive and the emphasis on agricultural production and storage, and I just wonder, whether the explanation for these lies not within the settlement of Petras, but rather in the hinterland as you defined it.
- Christakis** Exactly.
- Yiannouli** I believe that this part of your approach was very significant.
- Christakis** One cannot answer the question for sure, because, having focused our research for decades only on central buildings, we are not able, unfortunately, to understand the hinterland.

### *Greek abstract*

#### **Πετράς Σητείας: οικονομικές διαδρομές μιας «ανακτορικής» διοίκησης**

Οι συστηματικές και εντατικές ανασκαφικές έρευνες στον Πετρά Σητείας έφεραν στο φως τμήματα μιας παραθαλάσσιας πόλης της Εποχής του Χαλκού, με κέντρο ένα ανάκτορο, έδρα τοπικής διοίκησης. Ο Πετράς ήταν, χωρίς αμφιβολία, το κύριο πολιτικό και οικονομικό κέντρο μιας καλά καθορισμένης περιοχής, κατάσπαρτης με μικρότερους οικισμούς και αγροικίες. Στην παρούσα ανακοίνωση, επιχειρείται η ανασύσταση, με βάση ένα σύνολο ποικίλων δεδομένων, των οικονομικών των διαφόρων κέντρων και των τρόπων επικοινωνίας σε περιφερειακό και εξω-περιφερειακό πλαίσιο. Υπογραμμίζεται ο ρόλος των κυρίαρχων κοινωνικών ομάδων στο Πετρά για την διαχείριση της οικονομίας της ευρύτερης περιοχής, καθώς και η συμμετοχή τους στα ευρύτερα οικονομικά και πολιτικά δίκτυα της Νεοανακτορικής Κρήτης.







# House II.1 at Petras, Siteia: its architectural life\*

Nektaria Mavroudi

*This constant manipulation of material things,  
this ceaseless war over their meanings...*  
M. Johnson 1996, *An archaeology of capitalism*.

## Abstract

House II.1 is one of two fully excavated domestic complexes of the Neopalatial settlement at Petras. While the study for the final publication is still in progress, a first attempt at reading its architectural life offers some initial important data. House II.1 can be included in a series of large urban buildings of domestic character, which, at the beginning of the LM I period, adopted a number of architectural innovations, until then known only in palatial buildings. House II.1 was contemporary with the neighboring House I.1, which displays vernacular architecture, suggesting that its inhabitants were looking for a social distinction within the settlement. It continued to be occupied after House I.1 was abandoned, towards the end of the LM IA period. Finally, House II.1 also ceased to be used at an advanced stage of LM IB. The modifications to the original plan in its final phase of occupation testify to the changing organization of the life within it, as well as to a possible change in economic activity, towards a more industrial function. It is possible that this was influenced by the radical changes in social and political structures that characterize the LM IB period throughout the island.

## Introduction

The site of Petras covers a total of four low hills at a distance of about 1.5 km east of Siteia. The main MM and LM settlement is organized on Hill I. House II.1 lies on a low terrace on the east slope of that hill, *ca.* 5 m lower than Houses I.1 and I.2 and 3 m lower than a path carved into the bedrock, which is assumed to have connected the town with the sea (Fig. 1). It is one of the two completely excavated domestic buildings of the main settlement; the largest part of its plan was uncovered through a systematic excavation that took place during the years 1989–1991.

Since the complete analysis and publication of House II.1 by the excavator is still in progress, this paper is mainly based on the excavation notebooks and a careful, on-site analysis of its architectural and structural characteristics. However, in attempting

to provide a preliminary chronological sequence of the house's architectural life, as well as a reconstruction of its different functions, all available evidence was taken into account, including the pottery and

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\* I am grateful to Dr Metaxia Tsipopoulou, Director of the National Archive of Monuments, Hellenic Ministry of Culture and Tourism, and Director of the Petras Excavations, for giving me the opportunity to study the architecture of House II.1, providing access to the site and the excavation notebooks and facilitating my work in every possible way. I would also like to express my gratitude to Prof. Katerina Kopaka, for her guidance during the completion of my MA thesis at the University of Rethymnon, Crete; some of the results of this work are presented here. I am indebted to Don Evely for his valuable suggestions after running through the initial English text. My special thanks also to Jan Driessen for letting me reproduce the plan of House Z $\beta$  of Malia, as well as Steven Soetens and Peter Tomkins for providing me with the photo of Hill I of Petras.





Fig. 1. Hill I of Petras, from left to right: Sector III, House I.1 and House II.1, from the east (Photo kindly provided by P. Tomkins, S. Soetens).

movable finds, as well as the already published material from the excavation of Petras.<sup>1</sup>

## Elements of original architectural planning

House II.1's ground floor plan covers some 250 m<sup>2</sup>. It consists of 18 closed, semi-closed or open spaces, and most probably also extended to a first floor (Fig. 2). It is fully adapted to the contours of the

natural limestone bedrock, which has an inclination from the west down to the east (Fig. 3).<sup>2</sup> This natural slope initially led the builders to organize the construction on at least two terraces, as was shown

<sup>1</sup> For the excavations at Petras, Tsipopoulou 1991a; 1991c; 1995; 1997a; 1999a; 1999b; 2002; 2006; Tsipopoulou & Dierckx 2006; Tsipopoulou & Hallager 1996; 2010; Tsipopoulou & Alberti 2011; Tsipopoulou & Papacostopoulou 1997; Rupp & Tsipopoulou 1999; Burke 2006; Alberti 2007.

<sup>2</sup> Mavroudi 2011.

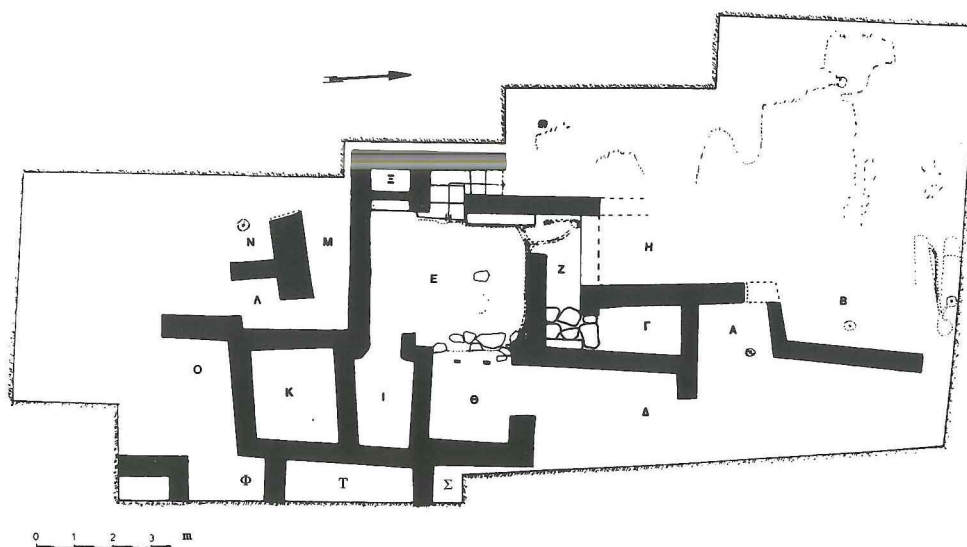


Fig. 2. House II.1, excavation plan 1989–1991 (Tsipopoulou & Papacostopoulou 1997, fig. 4).

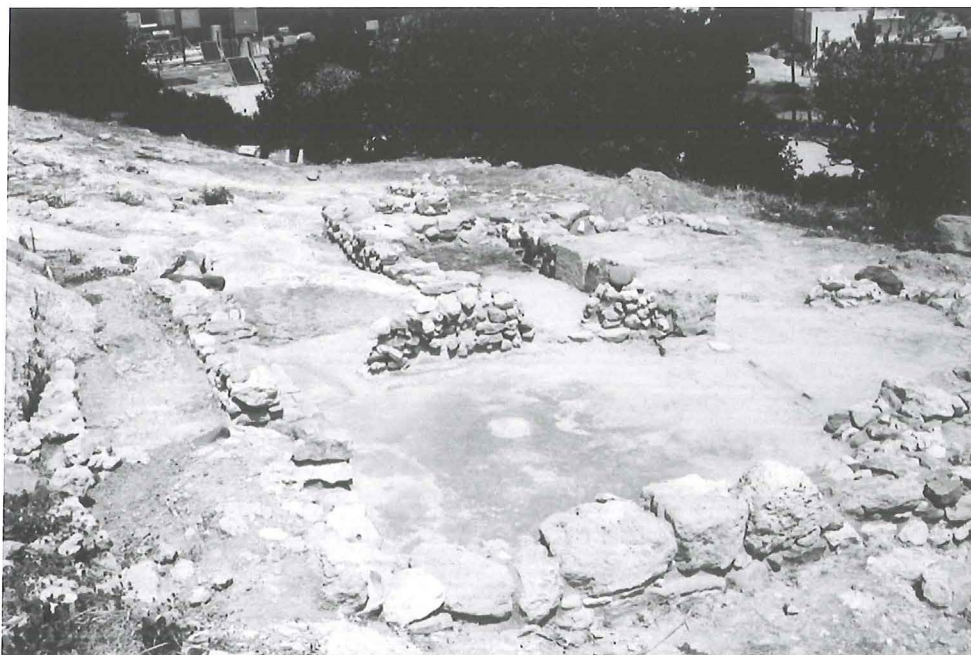


Fig. 3. House II.1 from southwest (general view).

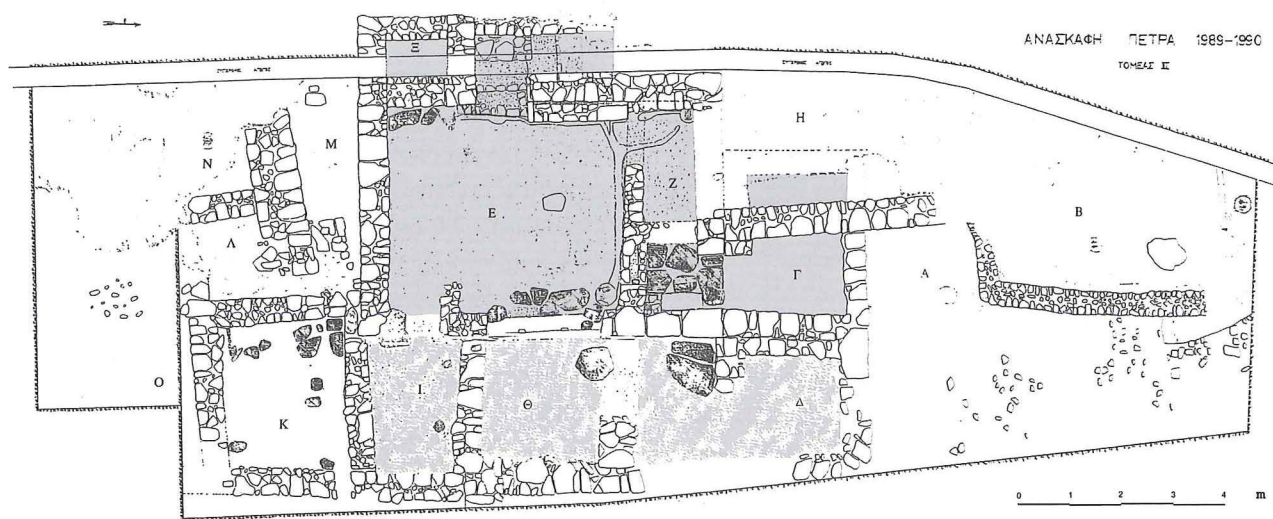


Fig. 4. House II.1, excavation plan 1989–1990. Rooms included in the original architectural plan – presumably also including Rooms I, Θ, Δ (Initial plan kindly provided by M. Tsipopoulou).

during the last excavation period by the discovery of walls continuing lower to the east. On the plan we are able to observe only the ground floor rooms of the western level, which seems, however, to have comprised the main part of the house.

Rooms E, Z, Γ-H, Space Ξ and the west staircase were formed in cavities created by carving out the bedrock and, therefore, must belong to the original architectural plan. The same technique, i.e. the foundation of the walls and floors on the carefully

worked bedrock, was probably used in the creation of Rooms I, Θ and Δ (Fig. 4).

Room Γ originally included Space H, which now appears as a Π-shaped cutting (2.60 m long) in the bedrock on the west, the walls having been previously removed. Later, a new west wall was built on the floor of the existing room, thus decreasing its space significantly. The stones of the new west wall extend over those of the north wall of Room Γ, but without obstructing its organic continuation.





Fig. 5. North wall of Room Z from the south.



Fig. 6. Room  $\Gamma$ , east wall of ashlar masonry (east view).

In the initial phase of the building, Rooms E and  $\Gamma$  most likely communicated by means of a small space that may have been a light well, as indicated by its good quality flagstone floor with plaster between the stone slabs. A wall located at the western side of that flagstone floor separated Room  $\Gamma$  from Room Z.

Although there is evidence for some earlier occupation at the site, the foundation of House II.1 may have been in MM IIIB, as suggested by a pottery sherd decorated in ripple pattern, found under a slab of the floor of Room  $\Delta$ . In any case, it seems that an ashlar masonry wall was built on the east side of Room  $\Gamma$  at the time of the foundation or not long after, i.e. at an early stage of LM IA. It probably extended at least to the southern limit of Room  $\Theta$  and was flanked by flagstone floors on both sides. The main entrance to the house has not been located, but the plan would seem to

indicate its existence on the east side of the building. The use of ashlar masonry, with triangular blocks shaped with particular care on their eastern face, and the remains of a good quality flagstone floor in Rooms  $\Delta$  and  $\Theta$ , probably a corridor, are perhaps elements related to a main entrance in this location.

## Construction and materials

The architecture of House II.1 demonstrates thorough planning prior to its construction. Before the actual building began, there must have been a careful estimation of the static and volumetric needs, for creating the most suitable foundation system for supporting the overall and the partial loads upon the ground floors and upper floors, and for ways to transmit those loads to the ground. Similar matters are determinative, especially when the construction of an edifice is summative – as is the case for Crete in the second millennium BC – and every built part constitutes a constraining fact for the next stage.<sup>3</sup>

For the creation of a level surface, large amounts of limestone bedrock were removed from the western slope, which was then evened out. In contrast, the lower, east level was raised by a fill of earth. The walls of the house are founded directly on the bedrock; indeed, in some cases the bedrock itself comprises their lower parts (cf. the north wall of Room Z, Fig. 5). The walls are constructed mainly from rubble but we also meet ashlar masonry (Fig. 6). The latter is generally believed to serve a need for display in Neopalatial architecture at times for entire buildings, in other cases only for certain areas of a building.<sup>4</sup>

Mud or clay was used in the construction of House II.1 as the binding material for the rubble walls. The walls of the first floor were built of mudbricks.<sup>5</sup> The local soft limestone (*kouskouras*) mixed

<sup>3</sup> Palyvou 1999, 427.

<sup>4</sup> It has been “used for the sake of appearance”, Graham 1972, 153.

<sup>5</sup> In the excavation notebooks, there are often references to “disintegrated mudbricks” in layers mainly attributed to the first floor.





Fig. 7. Room E, from the southeast (general view).



Fig. 8. Space Ξ, southwest corner of Room E from the east.

with small sea pebbles was used for the creation of the plastered floors.

Wood is also present, though, as ever, it is a rather “invisible” element in the Aegean Bronze Age architecture.<sup>6</sup> The impressive extent of its use shows a conscious and advanced provision against earthquake damage. The masons clearly trusted it as a structural component of a building. The clearest indication of its use in the framework of House II.1 is the possible column base of Room E and the *polythyron* stone bases between Rooms E and Θ. Elsewhere in the house we encounter several impressions, holes and cavities suggesting the existence of wood.<sup>7</sup>

## Focal point of House II.1 on the ground plan

Room E dominates the ground plan due to its size, its almost square outline and its central position (Fig. 7). It seems to have been the focal point of the ground floor of the house. It must have served as the central meeting and activity area. A series of other rooms on the ground floor are organized around Room E. They all communicate with it – Rooms I, Θ, Z, and initially also Γ while communication with the first floor was provided by the staircase on the west. The dimensions of Room E (4.40 x 3.70 m) probably demanded a pillar to support its ceiling.<sup>8</sup> Indeed a single slab of irregular shape (0.35 x 0.35 m), found in its northern part, could be seen as

a possible column base. The floor of Room E was covered with a layer of plaster and small sea pebbles at a date later than the creation of the flagstone floors, since it incorporates its slabs in certain areas.

A tripod cooking pot was found *in situ* in the northeast corner surrounded by stones, probably indicating the place of a hearth.<sup>9</sup> On the west side of the flagstone floor two more hearths were located.

The rectangular Space Ξ at the southwest corner, almost 2 m long, was probably a cupboard (Fig. 8). A large number of vessels, mainly conical and globular cups (approximately 100) and well preserved kalathoi, were found inside it. Their good condition indicates that they had either fallen from a low position or that they were placed on shelves in a cupboard.<sup>10</sup>

A jug or amphora sherd with two Linear A signs was found on the floor just in front of Space Ξ.<sup>11</sup>

<sup>6</sup> Palyvou 1999, 425–6.

<sup>7</sup> Wooden doors must have existed between Rooms I–E, Δ1–Δ2 and at the south of Room Γ, while evidence also exists for a piece of wooden furniture on the east side of the flagstone floor of Room Γ.

<sup>8</sup> For the character and the uses of rooms with a central pillar, Michailidou 1986.

<sup>9</sup> For the typology of tripod cooking pots of House II.1, Tsipopoulou & Alberti 2011, 484–92.

<sup>10</sup> For the shapes and uses of cupboards in the Cretan architecture of the Bronze Age, Kopaka 1984, 312–9; Tsipopoulou & Alberti 2011, 466, fig. 5.

<sup>11</sup> Tsipopoulou & Hallager 1996, fig. 14a–d.





Fig. 9. Stone *polythyron* bases, between Rooms E and Θ from the east.

The same area provided the upper part of a pithoid jar decorated with double axes, which may have fallen from the upper floor.<sup>12</sup>

All the above features, along with the existence of a built bench on the west, reveal the importance of Room E.

## Subsequent LM IA alterations

Within LM IA, both the plan of the house and certain architectural features underwent a series of changes. Some walls were demolished, others were built or rebuilt, some spaces significantly decreased in size, other rooms were added and floor surfaces were changed. Some of these changes may have been necessary after a series of natural disasters (e.g., earthquakes), while others seem to have been deliberately carried out, reflecting a shift of social roles in the settlement.<sup>13</sup>

In mature LM IA, the south part of the ashlar east wall of Room Γ was removed for the creation of a pier-and-door partition, as a roughly cut block north of the opening between Rooms E and Θ shows (Fig. 9). It is possible that this act was intended to create a non-typical “Minoan Hall” in this part of the building, with Room Θ serving as an anteroom to the main hall (Room E), and the paved southern part of Room Γ, which at the time communicated with Room E, being used as a light well. The resulting non-axial organization of the space resembles that of House Zβ of Malia, where a

non-typical “Minoan Hall” is also recognized at the southwestern corner of the building (Fig. 10).<sup>14</sup>

With the creation of a *polythyron*, access to Room E could be controlled, while still retaining its central role in the life of its inhabitants. Whoever went into the house from the east entrance could now walk along a paved corridor to reach Room Θ, which possibly served as an anteroom, and through the pier-and-door-partition enter Room E.<sup>15</sup>

At the same time, a single layer of plaster and small sea pebbles covered the floors of Rooms E, Z, I, and most of the staircase. Remains of a plastered floor are also found between Rooms Δ and Θ, incorporating slabs of the previous flagstone floor in that area, a practice also observed in the eastern and southwestern parts of Room E.<sup>16</sup> The lower sections of the walls resting on these plastered floors are constructed from small and medium-sized stones fitted tightly together, while their upper parts are comprised of significantly larger stones. Such a difference in wall-building possibly reflects two different construction phases. This characteristic could therefore lead one to attribute the architectural layout of Rooms E, Z, Ξ, the staircase and at least part of Rooms I and K to the same mature LM IA phase. We cannot be sure about the use of Rooms I and K at this period, but the orientation of their walls shows that they were an addition to the central Room E.

## Final phase of the building

During the last phase of the building (presumably LM IB), it seems that the plan and circulation pattern changed once more. A wall with a foundation

<sup>12</sup> Tsipopoulou & Hallager 1996, fig. 7e; Tsipopoulou & Alberti 2011, 467, fig. 6a.

<sup>13</sup> It seems that almost all Cretan sites suffered at least some disturbance throughout LM IA and LM IB prior to the final LM IB destruction (Driessen & Macdonald 1997, esp. 35–47).

<sup>14</sup> Driessen 1982, 52–3.

<sup>15</sup> The slabs on the south part of Δ, Room Θ, and the east part of Room E could be the remains of such a corridor.

<sup>16</sup> This type of floor covering, as well as the flagstone floor with plaster filling the interstices between the slabs, as is the case for Room Γ, seems to be characteristic of the Neopalatial period; Shaw 1973, 216–21.

deposit framed the opening between Rooms E and  $\Gamma$ .<sup>17</sup> Room  $\Gamma$  could then only be reached through Room Z, after the demolition of the wall previously separating between them. In addition, it was narrowed by a new west wall, which extended to the north to meet the wall between Spaces A and B. This act apparently restricted free movement in the northern area of the house.

In addition, the upper parts of a number of walls (e.g., the north and south walls of Room E, west wall of Room Z, north and west wall of Room  $\Xi$ ) were repaired with the use of larger stones. While this shows a sense of confidence in the previous masonry on top of which the building was continued, it also betrays an element of haste. Another feature connected with the last phase of House II.1 is the “triangular” construction most clearly visible on both the wall on the south side of Room M and the new west wall of Room  $\Gamma$ . This type of masonry refers to the “translation” of stones by the eyes and hands of the builders as triangles, the top of which, on both sides of the wall, always points to the middle of the wall’s width.<sup>18</sup> There is also evidence for the use of Spaces T, O and  $\Phi$  during LM IB, but with a role difficult to specify at the moment.

Furthermore, a characteristic marking the LM IB phase of House II.1 is the appearance of drains and pits alongside the north and west walls of Room E, as well as in Room Z. These were cut into the floor covering of plaster and small sea pebbles. It is possible that this reflects a change in the economic activities right before the abandonment of the building in LM IB.

## Household activities

*To make sense of space, form and content cannot be separated.*

T. Saunders 1990, 194.

Although not a primary focus of this paper, however, a short presentation of the activities taking place in House II.1 will provide substantial help in better understanding its role during the last period of its life.<sup>19</sup>

The preparation and consumption of food and

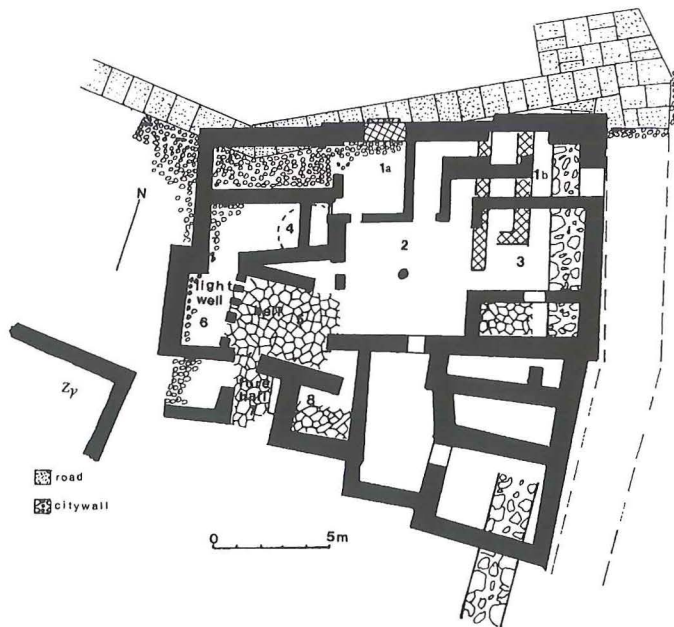


Fig. 10. Plan of House  $Z\beta$ , Malia, with non-axially organized “Minoan Hall” at southwest corner (Driessen 1982, fig. 23).

drink is now indicated in Room E, the once elaborate central hall of the house, by a number of finds such as tripod cooking pots and disks, stone tools, obsidian blades, *gournes*, cups, trays, jugs, and also bones and shells, which were found mainly around the hearths. An intensification of activities that would demand drains and pits is apparent as well.

Room  $\Theta$ , initially serving as an anteroom to Room E, seems to have also undergone a change in function, as it is now connected to food preparation, small-scale storage and restricted industrial activities. Together with the doorless Room K, where fragments of three pithoi and a *nodulus* with four signs of Linear A were discovered,<sup>20</sup> they are likely to have served the increased and varied needs of the central room. The significant number of small and medium-sized vessels for storage and transport found in Room I, where some 60 vessels were located *in situ*, and in the built cupboard  $\Xi$ , with an-

<sup>17</sup> The foundation deposit has been attributed to LM IB, Rupp & Tsipopoulou 1999, 731.

<sup>18</sup> Zois 1997, 44.

<sup>19</sup> References to movable finds are based on the excavation notebooks; also on Tsipopoulou & Alberti 2011.

<sup>20</sup> Tsipopoulou & Hallager 1996, figs. 8, 15.





Fig. 11. a) Room Z, drains and pit in the northwest corner; b) Room E, north drain from the south.

other 100 cups of different types, shows that there was a need for additional storage, perhaps of a more temporary character. Although the total number of vessels identified is likely to increase after further study, it is quite obvious that the scale of storage represented in House II.1 could hardly have fulfilled the need for self-sufficiency.<sup>21</sup> It may be that in times of shortage the inhabitants would be supplied by the adjacent palace building, probably recompensating the palace with products of their own.

A limited capacity for the construction of other classes of artifacts is also suggested by the unfinished kernos, a stone with traces of drill working trace and a feline mould for plastic pottery decoration.

Household rituals could be represented by several finds such as rhyta, an unfinished kernos, bull statuettes and pairs of horns of consecration. To these may be added a pithoid jar with painted decoration of double axes.<sup>22</sup> It has usually been assumed that these elements symbolize authority and thus reflect “palatial” art or propaganda. At the same time, however, they show a tendency of the local “elites” to align themselves with the “palaces”.<sup>23</sup>

The presence of two Linear A documents found in Rooms E and K is worth mentioning. Their discovery possibly places the residents of House II.1 in the literate segment of the population at the time; it shows differentiation in the means of access and

distribution of goods among different groups of people at Petras. It could further support assertions regarding political fragmentation, as observed in the wide distribution and local variety of Linear A documents, and an increase in competition among different groups during LM IA and LM IB.<sup>24</sup>

Small concentrations of loom weights in Spaces A and B and in Room K (in total no more than 43), as well as a few spindle whorls, indicate restricted textile production. It has been proposed that House II.1 served as an industrial workshop for laundering, dyeing and weaving wool during its last phase.<sup>25</sup> Apart from the presence of loom weights, this interpretation was based on the ap-

<sup>21</sup> House I.1 at Petras also presents a similar scale of storage, along with other LM I complexes in the Siteia Bay, such as Klimataria, Achladia-Riza, and Prophetes Elias-Praisos; it corresponds to the storage potential of Type 2 houses of McEnroe (Christakis 1999, 13).

<sup>22</sup> Tsipopoulou & Hallager 1996, fig. 7e; Tsipopoulou & Alberti 2011, 467, fig. 6a.

<sup>23</sup> Driessen & Macdonald 1997, 61–4, 70–4; Crowley 1995; D’Agata 1992, 252; Hallager & Pålsson-Hallager 1995; Rehak 1995.

<sup>24</sup> Driessen & Macdonald 1997; Driessen 2002, 12; Hamilakis 2002a, esp. 183–6, 193; Schoep 2002b, 18–21; Hallager this volume.

<sup>25</sup> Tsipopoulou & Papacostopoulou 1997, 209; Burke 2006, 287–8; Tsipopoulou & Alberti 2011, 466.



Fig. 12. a) Pairs of cuttings in the natural bedrock, northwest of Area B (width 0.45–0.50 m, maximum depth 0.10 m) from the east; b) Semicircular cuttings in the natural bedrock northwest of Area B (0.70 x 0.45 m and 0.55 x 0.22 m) from the east.



pearance of the cloth ideogram found on two loom weights and conical cups,<sup>26</sup> as well as the presence of drains and pits carved in the natural bedrock both inside the house e.g., in Rooms E and Z, Areas A and B (Fig. 11a-b), and in the bedrock lying further to its north (Fig. 12a-b). However, the present number of loom weights indicates the existence of no more than two looms,<sup>27</sup> just enough for the needs of the house's inhabitants.

Secondly, such ideograms are generally supposed to indicate the objects intended of use, both by the potter and also by the user.<sup>28</sup> Together with the simpler pot marks detected at Petras and numerous other sites of Bronze Age Crete, they reveal a complex and developed production system connected to the local needs and conditions. Therefore the ideogram of cloth may, indeed, represent the presence of an administrative and bureaucratic organization, but it does not provide secure proof for the existence of industrial-scale work, exceeding the needs of a household, for the treatment and production of cloth.

Finally, the drains and pits in and around the house are rather small to be connected to the dyeing and washing of wool. Such work usually takes place by river banks or beside natural dams, since plenty of running water is needed for the different stages of wool processing. The adjacent Stomion River would seem the most probable place for

such an activity for the inhabitants of House II.1.<sup>29</sup> Besides, no large basins with an adequate capacity and no remains of coloring material, as in the case of Myrtos,<sup>30</sup> have yet been detected in House II.1. Even so, the morphology of the different cavities and drains in and around House II.1 – if they actually belong to the Bronze Age – shows their connection to smaller scale works involving liquids, probably water. The hearths of Room E, traces of fire in Rooms I and Θ and the numerous cooking vessels are more likely indications of work demanding the heating of water or other materials in a broader household or industrial context.<sup>31</sup>

## House II.1 and “palatial” architecture

The evidence currently available places House II.1 at Petras among the buildings that employed

<sup>26</sup> Tsipopoulou 1995, 940, 944–5 (fig. 4), 971.

<sup>27</sup> Tzachili 1997, 181, 192.

<sup>28</sup> Tsipopoulou 1995, 943–4.

<sup>29</sup> For the need of water in different stages of wool processing, Tzachili 1997, 84–94.

<sup>30</sup> Warren 1972, 53–5.

<sup>31</sup> For the cuttings north of House II.1 and suggestions for their use, Mavroudi 2004, 130–1.



a number of architectural innovations in domestic contexts throughout Crete at the beginning of the Neopalatial period.<sup>32</sup> These exceptional domestic constructions appear to have co-existed with traditional architecture within a settlements.<sup>33</sup> Quite frequently the employment of both traditional and innovative characteristics in a single building is also encountered.<sup>34</sup>

From the time of its foundation in MM IIIB and throughout the LM IA period, House II.1, unlike the neighboring House I.1, gradually incorporated innovative features, such as ashlar masonry and the pier-and-door partition, that reflect a need for distinction through specific functional procedures (e.g., ritualized reception).<sup>35</sup> These features were added to the original plan through a “translation” that displayed regional and probably local characteristics. At any rate, looking at House II.1 within its social surroundings indicates that a change in social dynamics occurred within the settlement, with the emergence of groups of people with a new economic and social status. This phenomenon is attested elsewhere on Crete during the same period, supporting the hypothesis of a significant change in the political and economic conditions, as well as an alteration in social structures, from the beginning of LM I onwards.

During the last chronological phase, the formerly distinct character of House II.1 was compromised. The need for self-sufficiency (intensification of industrial activities, increase of storage space, existence of Linear A documents) and the effort to control internal circulation, visible in a large number of LM IB households, are also apparent here, perhaps symptomatic of their decline by the end of the period.

## Conclusive remarks

...We are shifting from seeing the archaeological ‘site’ as an object, to seeing it as a point of mediation between past and present.

I. Hodder 1999, 198.

The construction of House II.1 is embedded into the system of anonymous architecture, based main-

ly on the schema “prototype-prototype variants”.

*The constructive prototypes are shaped through time encapsulating the experience of many generations and are systematized so that they create a certain code of practices and techniques. These are the limits between which every builder has to operate for a functional, strong and inexpensive construction. The code is inherited from generation to generation and this tradition has the power of law.*<sup>36</sup>

The standardization of constructive solutions, which clearly determine the type of building and materials used, is imposed for practical reasons, but not exclusively so. This should ensure the appropriate adaptation of the construction to the conditions of the natural environment, but also be suited to the various challenges of life and permit the symbolic display of its significance.

The foundation of House II.1 directly on the natural bedrock, for example, conforms to a tried and tested solution that provides stability and durability. It exploits the advantages of the local limestone substratum and is adaptable to the limitations imposed by the specific slope inclination. Moreover, the likely placement of the main entrance to the east of the house would have been suitable for the avoidance of the strong north-west winds that affect the site.

The geometrical outlines (e.g., Space  $\Xi$  and the original Room  $\Gamma$ ), as well as the straight lines and right angles, indicate the existence of rules and conventions in the construction, without which such shapes are less likely to occur. But even when they are abandoned during the later phases of the house, the basic principles of planning do not cease

<sup>32</sup> The term “palatial” is most frequently used to differentiate this type of architecture from “traditional” or “vernacular” construction. Other terms include: “innovating” (Tzedakis & Chryssoulaki 1987, 114), “nouvelle” (Zois 1990, 87), “polite” (McEnroe 1990), “innovative monumental” (Platon 2000, 55) and “formal” (Michailidou 1986, 523).

<sup>33</sup> Platon 2000; Chryssoulaki & Platon 1987; Driessen 1989–90; Shaw 1987.

<sup>34</sup> Driessen 1989–90, 12, 16; Tsipopoulou & Vagnetti 1995; Driessen & Sakellarakis 1997.

<sup>35</sup> Driessen 1982, 57–8.

<sup>36</sup> For the abstract of A. Rapoport 1976, *Ανώδυμη αρχιτεκτονική και πολιτιστικοί παράγοντες*, Athens, see Palyvou 1999, 429.

to be applied. On the contrary, the architectural planning is sensitive to a feeling of proportions and to simple geometric shapes (e.g., the axial placement of rooms); these are separately applied to the different structural entities created in each period.

So it becomes clear that, like a living “organism”, House II.1 lived a life parallel to the life of its users and that such concerns guided the continuous alterations that served their material and symbolic needs.



# Discussion

- Vallianou** A very interesting presentation. I would like to ask about the small Area E at the corner of Hall E. Does it have a small opening at its base?
- Mavroudi** It has no opening, but it can be easily reached, at least at the height it is preserved. In front of it ash was found, so this might be an indication of a wooden door. The vases were found *in situ* inside it and were very well preserved.
- Vallianou** And you said that there were *ca.* 100 cups. We have a similar very small built space in the villa at Pitsidia, and another one exists at Phaistos. Both have a small opening near the floor, and their function is not clear.
- Mavroudi** At Petras we have no opening.
- Vallianou** At Pitsidia we found 130 cups, and something similar at Phaistos, I hoped you could give me some idea about the function.
- Mavroudi** What is important to point out, and I did not report it, because of the limited time, is that this space increased a little during the latest phase of the building, and took up part of the steps of the staircase to the upper floor, apparently because the storage needs in Room E were increased.
- Yiannouli** Your paper was very interesting, especially what you said about the central room with the column base and the *polythyron*. I would like to ask, if I saw this correctly in the last slide you showed, there is a wall in Room M, which is almost double in thickness, than the rest of the walls. What was the purpose of that?
- Mavroudi** Unfortunately this area is not easy to understand as there are various cuttings on the bedrock and pottery clearly not *in situ*. This wall which limits Area M from the south, is one of the best preserved of the building. Where our study stands now, I do not think that we can prove that there was a superstructure in that area. It does not seem, however, to be a simple retaining wall to support the fill, it is too well constructed for that function.
- Tsipopoulou** An observation that might help, from the study of the architecture of House I.1. We have a change in level between the backyard and the main building, and the connection is through a staircase with three steps. We have an open space and from that a paved road starts, probably leading to the palace. The soil in this backyard was very loose, because of the presence of the Lakkos there (excavated in Sector III, and in the west part of Sector I). In order to keep in place this loose soil they constructed a strong retaining wall, which, very characteristically did not last over the centuries and

collapsed, and has been restored by us. In House II.1 maybe we have a similar situation. This wall is oblique to the rest of the walls of the house.

**Mavroudi** It is very close to the contour of the house. And Metaxia is right. It is very well built.

### *Greek abstract*

#### Το Σπίτι II.1 στον Πετρά Σητείας: η αρχιτεκτονική του ζωή

Το Σπίτι II.1 είναι ένα από τα δύο πληρέστερα ανεσκαμμένα οικιακά συγκροτήματα του Νεοανακτορικού οικισμού του Πετρά Σητείας. Ενώ η πλήρης μελέτη για την τελική του δημοσίευση βρίσκεται ακόμα σε εξέλιξη, η πρώτη απόπειρα για την ανάγνωση της αρχιτεκτονικής του ζωής μας προσφέρει ήδη κάποιες πολύτιμες αρχικές παρατηρήσεις. Οι ενδείξεις που έχουν έρθει μέχρι τώρα στο φως τοποθετούν το Σπίτι II.1 στην σειρά επιλεγμένων κτιρίων οικιστικού χαρακτήρα, τα οποία από την αρχή της ΥΜ περιόδου υιοθετούν έναν αριθμό αρχιτεκτονικών καινοτομιών που μέχρι τότε απαντιόνταν μονάχα στα ανακτορικά κτίρια. Το Σπίτι II.1 συνυπάρχει με το παραδοσιακών αρχιτεκτονικών προτύπων παρακείμενο Σπίτι I.1, δείχνοντας τη βούληση των κατοίκων του να διακριθούν κοινωνικά στο πλαίσιο του οικισμού. Συνεχίζει να χρησιμοποιείται ακόμα και όταν το Σπίτι I.1 έχει πάψει να κατοικείται, προς το τέλος της ΥΜΙΑ, ενώ εγκαταλείπεται και το ίδιο, σε κάποια προχωρημένη στιγμή της ΥΜ ΙΒ περιόδου. Οι αλλαγές που παρατηρούνται στην αρχιτεκτονική του κάτοψη κατά την τελευταία περίοδο χρήσης του μαρτυρούν αλλαγές στην οργάνωση των κινήσεων και της ζωής μέσα σε αυτό, καθώς και πιθανή στροφή στην οικονομική του δραστηριότητα προς ένα χαρακτήρα πιο εργαστηριακό. Φαίνεται έτσι ότι επηρεάζεται από τις σημαντικές αλλαγές που επήλθαν στις κοινωνικές και πολιτικές δομές, οι οποίες σηματοδοτούν την ΥΜ ΙΒ περίοδο σε όλο το νησί.







# Vessels in cooking fabrics from Petras House I.1 (LM IA): overview and capacity measures<sup>\*</sup>

Maria Emanuela Alberti

## Abstract

The focus of the present work is the vessels in cooking fabrics from Petras House I.1, which date to LM IA. At this time, a general and systematic study of Minoan cooking wares is still missing. However, since many contributions on the evidence from various sites are available, the main technical, typological and functional characteristics of this class of vessel have been investigated, as well as the major chronological and geographical distribution patterns. As for Petras in particular, the study of the vessels in cooking fabrics from another Neopalatial structure, House II.1 (LM IB), already completed, has allowed for a development of the established typology and some observations on chronological and regional factors to be made. This analysis is now extended to the assemblage from House I.1 (LM IA), where the percentages of various types of cooking pots are different and where various types of trays and *trapezes* (probably to be identified as pithos lids and/or drain-heads) are particularly abundant.

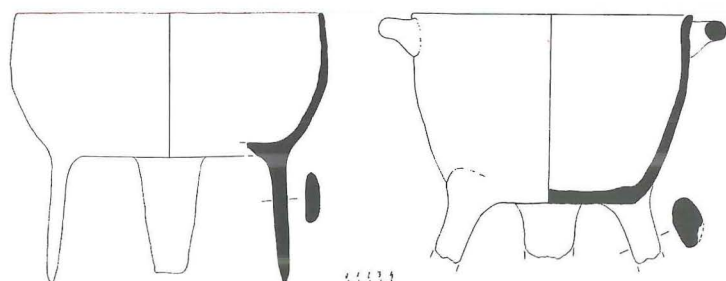
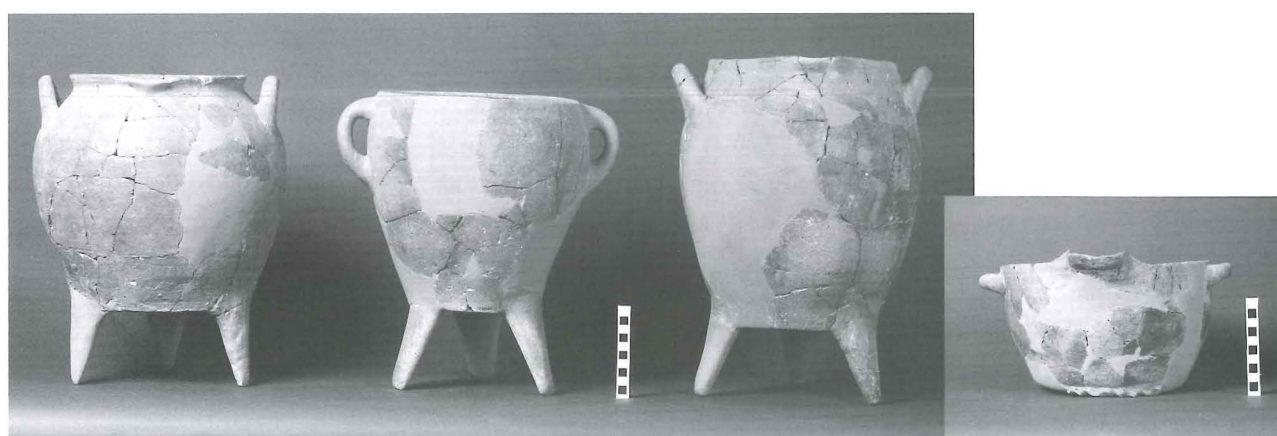
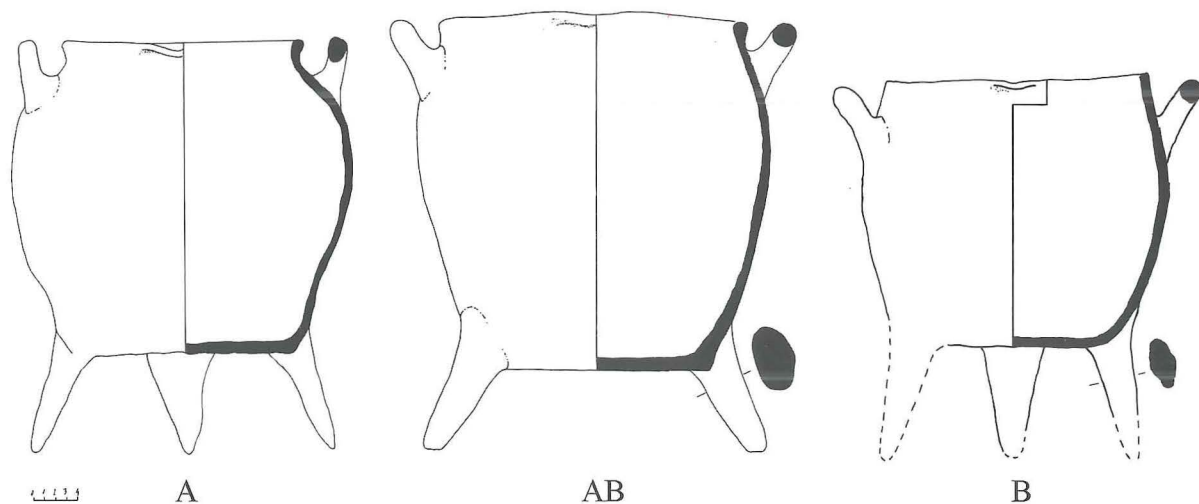
## Introduction

Petras House I.1 (LM IA) yielded a large number of cooking ware vessels. They are very similar to those found in the LM IB Petras House II.1, with some variations resulting from the different composition of the examined samples and chronological factors. However, a major difference should be emphasized: the House I.1 assemblage includes a considerable number of large and thick coarse ware vessels, especially trays and plates. At present, it is not possible to provide a convincing explanation for this fact. In any case, vessels in cooking fabrics can be found widely spread throughout both

also been drawn. Therefore, I do not deal with those topics in the present work. In the previous work I also illustrated the best *comparanda* for each type of vessel; thus, only the most recent published examples will be mentioned here. Due to the continuing refinement of the House I.1 catalogue, minor changes in the numbers of pottery may occur in the future, especially those regarding non-diagnostic sherds. I wish to express my warmest thanks to Stavroula Apostolakou (24<sup>th</sup> Ephorate of Prehistoric and Classical Antiquities) and Metaxia Tsipopoulou (National Archive of Monuments, formerly 24<sup>th</sup> Ephorate of Prehistoric and Classical Antiquities) for giving me the opportunity to study and publish this corpus of material, and to Paola Càssola Guida and Elisabetta Borgna (University of Udine) and Emanuele Greco (SAIA) for their support during my Ph.D. and Postdoctoral studies. A large part of the work at the Siteia Museum was funded by a Ph.D. scholarship from the University of Udine (2001–2005) and a Postdoctoral scholarship from SAIA (2005). Special thanks are due to my colleagues Garifalia Kostopoulou, Maria Psallida and Clio Zervaki for their continuous help and encouragement during all these years of work. Garifalia and Maria worked out the main assessment of House I.1 find contexts: an indispensable and precious task for the final publication. Without the help and assistance of the staff at both the Hagios Nikolaos and Siteia Museums this study would not have been completed. I take full responsibility for whatever errors may be present.

<sup>\*</sup> The present work is complementary to a preliminary study of the vessels in cooking fabrics from Petras House II.1 (LM IB), which is published in the proceedings of the LM IB pottery conference (Alberti 2011). In that contribution I dealt extensively with the general definition of the pottery class, the main problems relating to its use and typology, and the attested regional and chronological variations across the island of Crete. A parallel between House I.1 and House II.1 has





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Fig 1. Petras, House I.1. Cooking pots (top and centre left): Type A, AB and B. Cooking pans (centre right and bottom): curving and flaring profiles.

buildings, and they are linked to both the practical and utilitarian spheres of activities that took place therein. House I.1 contained some large pithoi and a wine-press, while House II.1, in its LM IB phase, yielded good evidence for textile production. Large numbers of stone tools, as well as clay vessels, such as basins and jars, complete the picture.<sup>1</sup>

## Typological overview

As is well known, it is not possible to apply a strict typology to cooking ware vessels, especially cook-

<sup>1</sup> Tsipopoulou & Hallager 1996; Tsipopoulou & Papacostopoulou 1997; Tsipopoulou 2002; Burke 2006.

ing vessels. Shapes vary considerably within one major type. In the present work, however, this major division is maintained among the cooking vessels: **pots** are higher than they are wider, and **pans** are wider than they are higher. Technical characteristics and detailed descriptions of the shapes have been given elsewhere, so only the relevant elements of the evidence from House I.1 will be presented here. It should be stressed that the most convincing parallels for the Petras materials can be found, not surprisingly, in eastern Crete, especially at Mochlos<sup>2</sup> and at Palaikastro,<sup>3</sup> while very few elements are common with assemblages from Kommos. There, even the Type B pots are slightly different. Thus, the known differences between eastern and South-Central Crete (for cooking wares) has been confirmed. However, recently published evidence from Knossos points towards possible similarities with North-Central Crete.<sup>4</sup>

### *Tripod cooking pots, pans and jugs (Figs. 1–2)*

A distinction is generally made between pots with a narrow mouth and a globular profile (Betancourt Type A) and pots with a large mouth and a tronco-conical or straight-sided profile (Betancourt Type B) (Fig. 1).<sup>5</sup> This differentiation is generally thought to be linked to chronological factors: Type B is more common in MM and MM III/LM IA (Knossos, Mochlos and Kommos), while Type A can be found mainly in LM IB (Nirou Chani, Malia, Gournia, Pseira, Palaikastro, Zou and Makrygialos, with a strong presence of eastern Cretan examples). In the Petras assemblage some intermediate examples can be found, which were referred to as Type AB: the body is elongated and curved, the shoulder is smooth, almost non-existent, and the rim is plain. The mouth is narrow. The base is flat as usual and in some cases there is a spout.

There are eight Type A pots from House I.1. Generally, they have a globular profile, pronounced shoulders and flaring rims. Few examples have a more piriform profile, and some are shallower.<sup>6</sup>

For type AB there are only three examples. Some comparisons can be found at Kommos, among Type B examples, and Mochlos, among Type A

examples. A possible MM III parallel has been recently published from Knossos.<sup>7</sup>

As for Type B, the ten examples from House I.1 have a curving profile.<sup>8</sup>

Hole-mouthed cooking pots, Type C, attested in House II.1, are seemingly absent from House I.1.

The presence of pans is more common: there are six medium-sized examples with a curving profile and three medium-sized examples with a flaring profile. Parallels from Palaikastro are especially abundant, from both MM IIIB contexts and other chronological phases (LM IB, LM IIIA1). Some comparisons can also be found at Knossos (MM IIIB, LM II).<sup>9</sup>

In addition to typical cooking pots, five very small and fragmentary examples have been found in House I.1. Their presence is important, since they can complete the range of vessels available at the time, making up a typical “cooking set”.<sup>10</sup>

Seven tripod cooking jugs are included in the assemblage of House I.1, occurring in a range of sizes and being a possible indicator of a metric scale for capacities (see below) (Fig. 2). Cooking jugs are not present in House II.1. Their surface treatment is similar to that of cooking pots. The two largest ex-

<sup>2</sup> Barnard & Brogan 2003.

<sup>3</sup> MacGillivray *et al.* 2007.

<sup>4</sup> Hatzaki 2007a; 2007b.

<sup>5</sup> Betancourt 1980.

<sup>6</sup> Petras P85/91/10, P86/21/1, P86/620, P90/1360, P86/A157, P90/1417, P86/283, P85/501b. Recently published *comparanda*: Palaikastro, Well 605, LM II, MacGillivray *et al.* 2007, fig. 4.14, no. 465.

<sup>7</sup> Petras P86/217, P86/1105+86/941, P85/63/28. Kommos: C900 and C915, Betancourt 1980, fig. 1, Type B; Mochlos IB492 and IB494, Barnard & Brogan 2003, fig. 48, Type A. Knossos, MM IIIB, KS178 Group, Hatzaki 2007a, fig. 5.7, no. 3.

<sup>8</sup> Petras P85/A5, P86/147/1, P86/877, P86/904, P86/A211, P86/A528, P86/1296, P86/896, P86/899, P86/106/3.

<sup>9</sup> Petras P86/1018, P86/1149, P86/991a, P86/992, P89/783, P90/1333, P86/A340, P86/616, P91/63. Recently published: from Palaikastro, LM IB, MacGillivray *et al.* 2007, fig. 3.6, no. 31 and LM IIIA1, MacGillivray *et al.* 2007, fig. 4.20, no. 511); from Knossos, MM IIIB, KS178 Group, Hatzaki 2007a, fig. 5.7, no. 2 and LM II, MUM South Sector Group, Hatzaki 2007b, fig. 6.10, no. 4.

<sup>10</sup> Petras P86/147/1, P86/843a, P86/990B, P89/1489, P95/1489. See an example from Knossos, MM IIIB, KS178 Group, Hatzaki 2007a, fig. 5.9, no. 5.



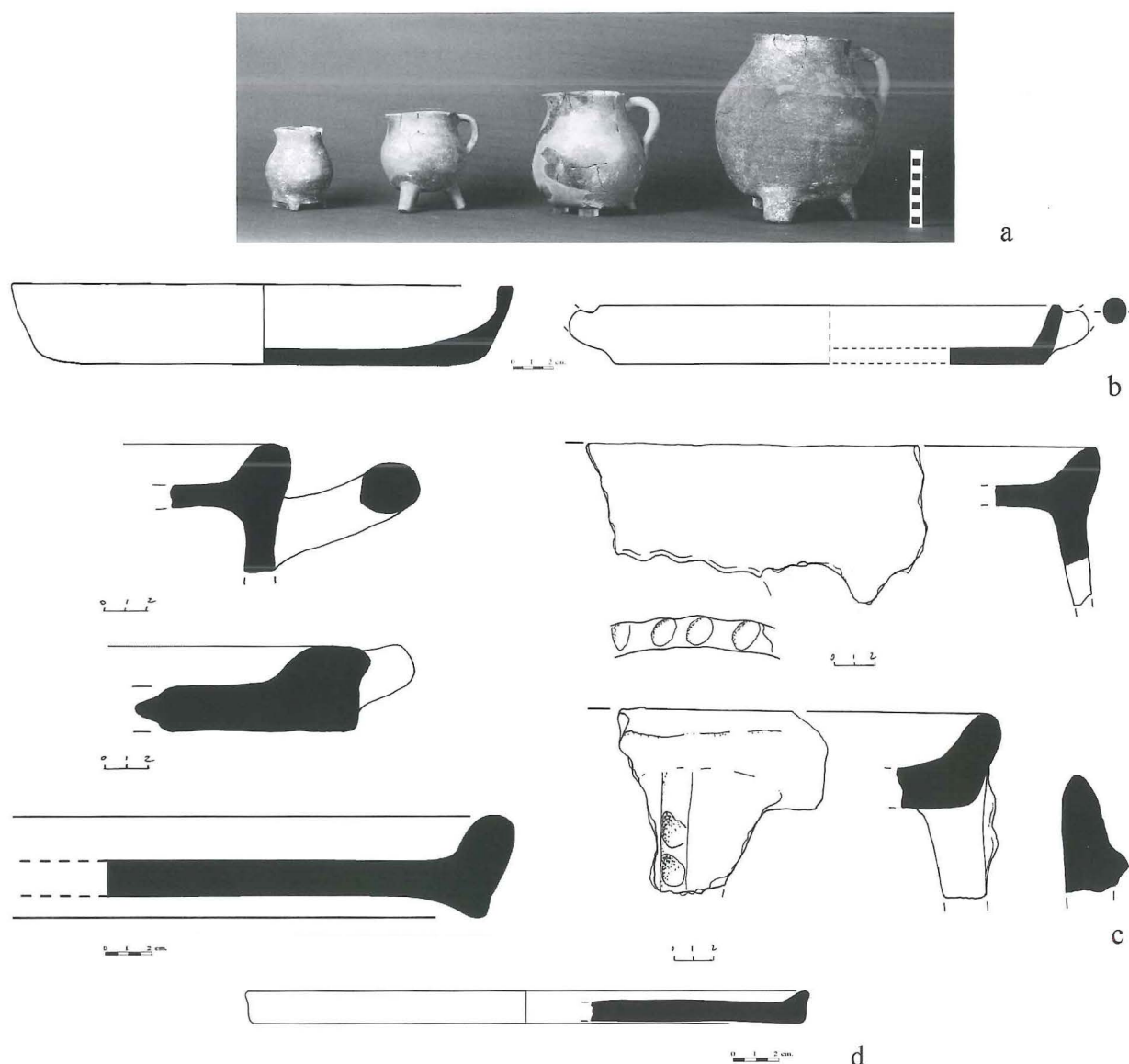


Fig. 2. Petras, House I.1. a) Cooking jugs; b) Thinner cooking trays; c) Thicker cooking trays; d) Thinner dishes.

amples have a trefoiled spout. In most cases, traces of burning are present, especially on the exterior, the base and the front side (below the spout). The overall dimensions range from a height of 11.2 cm and a rim diameter of 5.7 cm to a height of 24 cm and a rim diameter of 12 cm.<sup>11</sup>

In addition to the examples mentioned, there are more than 30 cooking pot sherds (mostly the feet of tripod vessels) that can not fit into any typology.

### *Cooking trays (Fig. 2)*

An important characteristic of House I.1 is the strong presence of cooking trays. A major distinc-

tion can be made between the thinner and smaller, and the thicker and larger examples. This distinction is usually not widely used in publications, but in my opinion, this seems very important as far as the use and the function of vessels are concerned.<sup>12</sup>

<sup>11</sup> Petras: P86/540a, P86/A144, P86/A145, P86/A153, P89/778, P86/1028, P89/983, P86/843. See similar examples from Palaikastro, MM IIIB, Knappett & Cunningham 2003, nos. 290–1, 295.

<sup>12</sup> As usual, Palaikastro and Mochlos offer the best parallel, for both classes of trays: see a thinner example from Palaikastro, LM IB–IIIA1, MacGillivray *et al.* 2007, fig. 3.22, no. 116. See also some thinner and thicker examples from LM IB Mochlos, Barnard & Brogan 2003, figs. 51–2; thicker trays nos. 582, 590

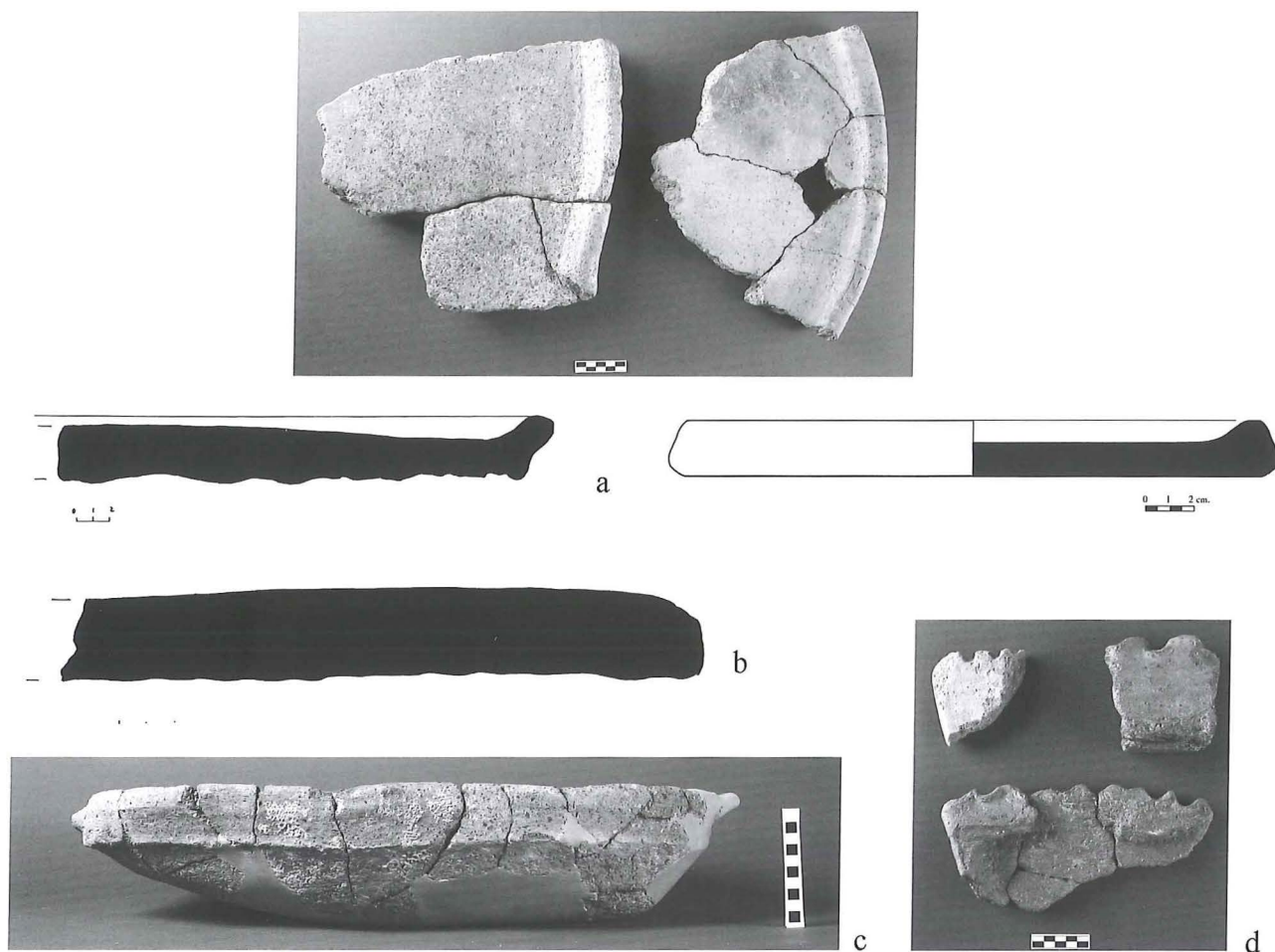


Fig. 3. Petras, House I.1. a) Plates; b) Pithos lid; c) Cooking dish (restored); d) Firestands (Type Scheffer C).

Thinner cooking trays are made of regular cooking fabric. At least 18 examples (including three decorated specimens) with both curving and flaring profiles come from House I.1.<sup>13</sup>

Thicker cooking trays are made of a very coarse cooking fabric with many inclusions. Their dimensions are considerably larger than those of the other trays. At least 50–60 fragments are reported from House I.1, with significant variations in shape.<sup>14</sup> They are generally of tripod form, with very thick legs (long or short). They commonly have horizontal rim handles, but many variations are attested. Some have handles which are either horizontal coils (round in section), pierced lugs or a series of two to three contiguous lugs. Spouts are frequently attested. Many examples have tripod, but trays without legs are also present. They are hand-made. Finally, smaller fragments can easily be confused with the so-called plates or *trapezes*.<sup>15</sup>

and 597. The new classification proposed for trays from the LM III Mochlos assemblage (Smith 2010, 118–21) does not seem applicable to the Petras materials.

<sup>13</sup> Petras: P85/226, P85/232/1, P85/75/1, P85/265, P85/408, P85/449/1, P86/118/2, P90/287/1, P89/71/5.1, P90/1302, P90/1430, P85/23/2–1, P85/294, P88/593, P86/646, P85/538, P86/895, P88/563.

<sup>14</sup> Petras: P85/437, P85/472, P85/505, P85/522, P85/537, P85/574, P85/A285, P85/A348, P85/A537, P86/176, P86/221, P86/260, P86/267, P86/290, P86/293, P86/731, P86/751, P86/767, P86/873, P86/675, P86/956, P86/966/1, P88/662, P88/727, P88/752, P89/784, P89/789, P89/834, P90/75/2, P90/1187, P86/994, P86/1167, P86/1223, P86/1256, P88/569, P88/657, P90/1311, P85/573, P90/1312, P85/22/6, P85/234/2, P88/739, P88/753, P86/1321, P85/A219, P88/560, P86/1013, P88/583, P88/656a, P88/570, P85/282, P86/785, P86/1294.

<sup>15</sup> Non-diagnostic or very small fragments of trays and plates are difficult to distinguish; unfortunately, the number of those items is quite important for House I.1 (ca. 60 sherds).



### *Plates or trapezes (Fig. 3)*

Plates are very important in our study, since at least 60 fragments with a wide range of profiles have been recorded from House I.1. Their use is not clear, but in many cases they could have been used as drain-heads. Indeed some spouted examples are attested: large fragments of plates with simple spouts can almost surely be identified as drain-heads or similar features. The presence of drains is also attested in the house. A few fragments of some  $\Pi$ -shaped spouts have also been found, which could belong to drains or some spouted vats similar to those used as wine-presses (vat-and-jar system).<sup>16</sup> Spouted plates (gutter spouts) seem to be quite common at Palaikastro, where many fragments and one *in situ* example are reported from different contexts and chronologies. Spouted basins are known from many "villas" and other contexts. A recently published assemblage comes from the Mochlos Artisans' Quarter (LM IB). In any case, the large majority of fragments recovered from House I.1 belong to plates with no spout, though some could have belonged to spouted examples. For the latter there is a parallel from Palaikastro (LM IB-II).<sup>17</sup>

### *Pithos lids (Fig. 3)*

A small number of plates (at least six examples) do not have raised sides and have a rounded edge. As usual, their upper surface and the exterior of the edge are water-wiped, smoothed or slipped, while the bottom surface is left rough. Their diameter varies between 30 and 40 cm. They are probably the fragments of large pithos lids.<sup>18</sup>

### *Thinner dishes (Fig. 2)*

Besides the plates, there are also some thinner dishes.<sup>19</sup>

### *Cooking dishes (Fig. 3)*

Cooking dishes are also present in House I.1: a fully restored example, and 25 other fragments. Only four items are larger and thicker.<sup>20</sup>

### *Fire stands (Fig. 3)*

From House I.1, five fragments of Scheffer Type A and three of Type C are recorded.<sup>21</sup>

### *Other shapes and a possible measurement standard (Fig. 4)*

Other shapes in cooking fabrics are recorded from House I.1, although they were probably not used

<sup>16</sup> Petras possible drainheads (P86/693+P86/805, P85/148),  $\Pi$ -shaped drain or spout fragments (P85/754, P86/120) and drain fragments (at least P86/968 and P86/1240). Petras plates/trapezes (rim+base sherds): P86/662, P86/803, P86/804, P86/880, P86/889, P86/908, P86/951, P86/973, P86/974, P86/1004, P86/1171, P86/1195, P86/1210, P86/1220, P86/1228, P86/A173, P86/A341, P86/A343, P88/713, P88/714, P90/1202, P85/71.2, P85/73/7, P85/75/1, P86/977, P85/474, P89/980, P89/919, P86/1323, P86/1003, P85/348, P86/1319, P86/805+693, P85/526, P86/1177, P86/1213, P86/1312, P85/410, P85/493, P86/1226, P86/1250, P85/294/1, P85/412, P85/436, P85/459, P85/499, P85/A369, P86/254, P86/255, P86/259, P86/278, P86/651, P86/653, P86/657.

<sup>17</sup> From Palaikastro: spouted plate (drainage channel/gutter), Building 4, MacGillivray *et al.* 1989, pl. 65c; spouted plate (drainage channel/gutter), LM IB, Well 576, MacGillivray *et al.* 2007, fig. 7.4, no. 73; fragment of spouted plate (gutter spout), LM IIIA2, Well 605, MacGillivray *et al.* 2007, fig. 4.30, no. 639;  $\Pi$ -shaped spout (from drain or basin), LM IIIA1, Well 605, MacGillivray *et al.* 2007, fig. 4.20, no. 514; simple plate, Well 605, LM IB-II, MacGillivray *et al.* 2007, fig. 4.13, no. 450. Vats with  $\Pi$ -shaped spouts are attested, e.g., at Archanes, Kato Zakros, Malia, Gournia, Tourtoulou and Vathypetro, Kopaka & Platon 1993; Palmer 1994, 18–9. At the LM IB Artisans' Quarter of Mochlos, both  $\Pi$ -spouted vats and  $\Pi$ -shaped spouts are recorded, Barnard & Brogan 2003, 56–7, IB288–193, fig. 17.

<sup>18</sup> Petras possible pithos lids: P85/532, P85/539, P85/540, P85/450, P86/790, P90/1402.

<sup>19</sup> Petras thinner dishes: P85/71/2, P85/73/7, P85/294/1, P90/1289, P88/588, P88/712, P85/411.

<sup>20</sup> Petras thicker cooking dishes: P86/128b/4, P86/171a/3, P89/1061, P90/1546. Thinner, completely restored example: P85/364. Other thinner examples: P85/239, P85/243, P85/488, P86/227, P86/282, P86/296, P86/923, P86/1216, P90/1416, P85/94/4, P86/60/3, P86/128/4, P86/171/3, P86/192/4, P88/61/2, P89/234/5, P89/260/3, P89/304/10, P90/59/2, P90/77/12, P90/111/2, P90/151/3, P90/187/5, P90/192/6, P90/240/3. *Ca.* ten other minor fragments are also listed.

<sup>21</sup> Scheffer 1984. Petras Type A: P85/577, P89/304/2, P85/484, P90/1436, P85/512; Type C: P86/1295+616, P86/972).

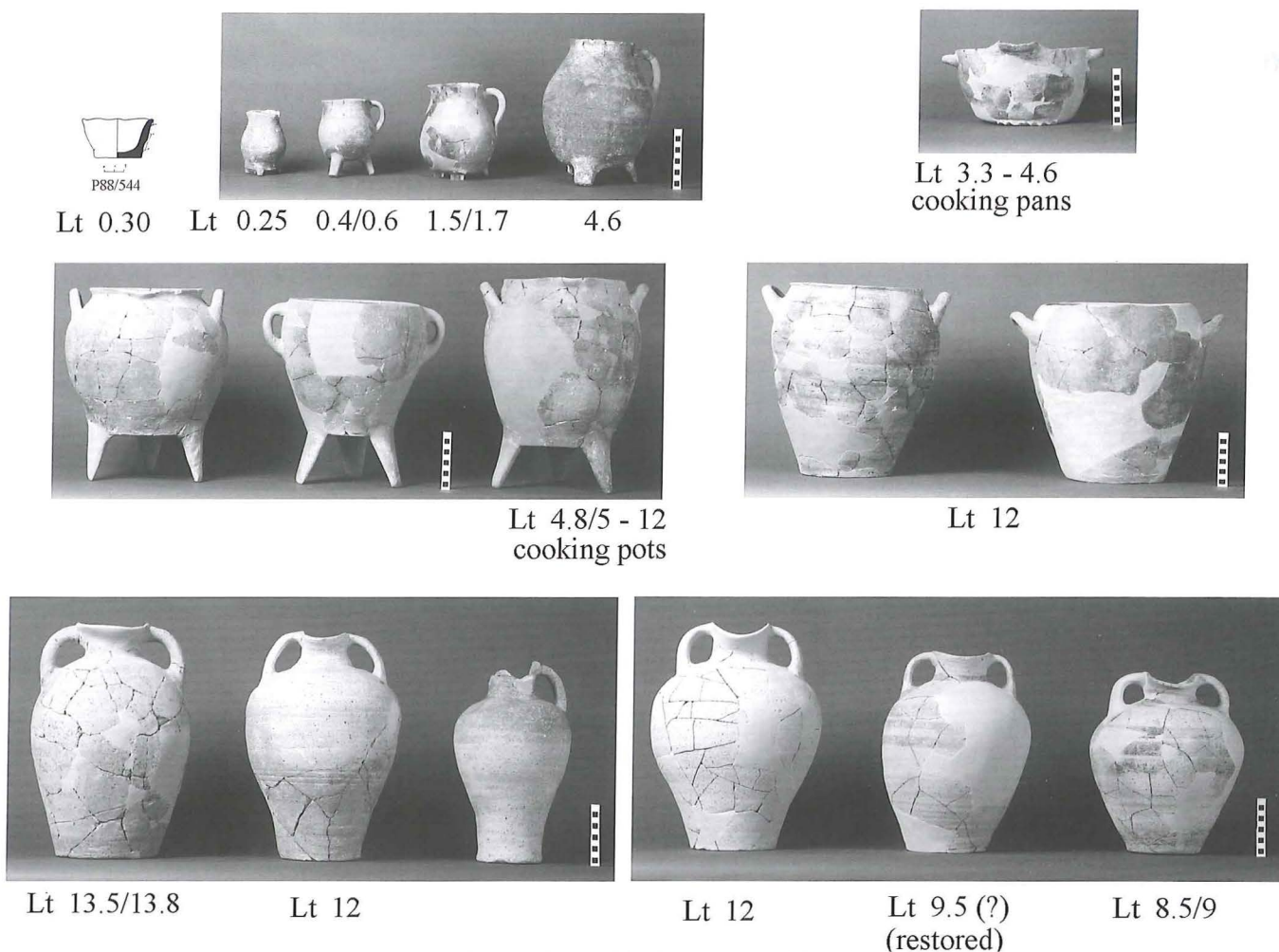


Fig. 4. Petras, House I.1. Capacities in liters (lt).

for cooking: jars, kalathoi and various types of bowls. There are also many utilitarian shapes not in cooking fabric, such as amphorae, jars, basins, impressed and scored basins (“beehives”), etc.

A small handmade coarse cup, with a vertical handle and water-wiped interior and exterior surfaces (P88/544, h. 3.8 cm, rim diam. 6 cm, vol. 0.30 lt.) was quite an isolated find and therefore very puzzling: could it have been a capacity measurement standard?

## Contextual remarks

Some preliminary observations on the find contexts of materials can be made, thanks in particular to the work of my colleagues, Garifalia Kostopoulou and Maria Psallida.<sup>22</sup> Vessels in cooking fabrics were

found in different parts of the building, although some interesting concentrations could be detected. The largest percentage of the materials examined, with the exception of the plates, comes, not surprisingly, from Area Θ, a refuse pit more than 1.15 m deep, which contained enormous amounts of different types of broken pottery.

As to the layers and contexts related to the use of the building, significant concentrations of vessels in cooking fabrics are present in Areas Λ, Ξ, E and Φ. Area Λ in particular yielded important quantities of cooking pots and pans and the large majority of plate fragments. Its basement was probably used for the temporary storage of goods, while the up-

<sup>22</sup> My special thanks go to Metaxia Tsipopoulou, Garifalia Kostopoulou and Maria Psallida for sharing the reconstruction of House I.1 find contexts with me.



Table 1. Capacity measures from Petras House I.1 (restored vases).

Volumes lt	Volumes normalized lt	Unit 0.5 lt	Unit 1.5 lt	Notes
0.25	0.25	1/2	1/6	Small “standard” cup (0.30 lt). Cooking jugs (0.25; 0.4/0.6; 1.5/1.7 lt). Kalathos in cooking fabric 1.6 lt
0.4/0.6	0.5	1	1/3	
(1)	(1)	(2)	(2/3)	
1.5/1.7; 1.6	1.5	3	1	
2	2	4		Small cooking pot
3.3	3	6	2	Pans (3.3; 4.2; 4.5 lt). 1 cooking pot A (3.8 – 4 lt). 1 cooking jug (4.6 lt)
3.8 – 4	4	8		
4.2 – 4.5; 4.6	4.5	9	3	
4.8 – 5	5	10		Cooking pots B (4.8–5; 7 lt)
7	7	14	4? 5?	
8.5 – 9	8.5 or 9	17 o 18	5? or 6	Amphora narrow-based (better as 9 lt)
9.5	9.5	19		Amphora large-based, restored, perhaps 10.5 lt?
10	10	20	6? 7?	Cooking pot A (to be intended as 9.6 lt?)
10.5	10.5	21	7	Ovoid jar. Amphora
12; 12	12	24	8	Cooking fabric jars (12; 12 lt). Cooking pot A (10; 12 lt). Amphora narrow-based
13.5/13.8	13.5	27	9	Amphora large-based

#### Notes

Narrow-based amphorae: 9 and 12 lt, i.e. 3/4 and 1 (“hemikadion”)

Large-based amphorae: 10.5 and 13.5/13.8, i.e. 3/4 and 1 (“heavy hemikadion”)

per storey was possibly the living area of the house, where food consumption was taking place (large amounts of animal bones, sea shells, pouring vessels and stone tools are recorded). The presence of loom weights suggests weaving activities as well. In the southeast corner, three of the cooking tripod jugs (P86/A144, P86/A145 and P86/A153) were found, possibly fallen from the upper storey.

A medium-sized cluster of cooking pots and pans, including some trays, comes from Area E, along with substantial quantities of storage, pouring and drinking vessels, as well as stone tools. The area has been identified as a kitchen or a pantry. The findings from E most probably must be seen in close connection with those from Area F, a nearby courtyard which yielded a similar array of cooking pots, pans, (fewer) cooking trays and dishes, along with important quantities of storage vases and other utilitarian vessels. Stone tools, weaving implements, bones and sea shells are also recorded. It can thus be suggested that cooking activities and other domestic tasks were also carried out in the courtyard when possible, with E

being used on such occasions as a storage or work area.

Another minor group of vessels in cooking fabric is recorded from the upper floor of Area E (mainly trays and cooking dishes, though other types are also present). This elongated area in the ground floor was most probably used as a storeroom for perishable goods.

## Capacities

### *Petras (Fig. 4 and Table 1)*

Since a certain number of vases from House I.1 have been restored, it was possible to undertake a small-scale study of capacity measurements on vessels in cooking fabrics and other classes. The vessels in cooking fabrics were first measured: the results were quite interesting, especially with regard to the series of tripod jugs which gave a sound set of values. In particular, the smallest one had the same capacity as the small handmade cup mentioned above as a possible standard (0.25–0.30 lt.). The cooking

pans, pots and the restored cooking dish were also measured. Then the oval-mouthed amphorae, a class which is theoretically more suited to this type of study, were examined: out of the four examples tested, two have a large base and a capacity of 13.5/13.8 lt. and 10.5 lt. respectively, while the other two have a narrow base and a capacity of 12 and 8.5/9 lt. respectively. Therefore, it seems that the volume ratio in both groups was 1:3/4. Could it be possible that the two different shapes are connected with two different measurement standards? When all of the measurements are plotted together (Table 1) it can be observed that different types of vessels belong to different dimensional ranges: it is quite obvious that cooking pots are normally shorter and smaller than amphorae, etc. Volume values follow the same dimensional grouping. In addition, volumes seem to follow a mathematical series of multiples (with some adaptations). The series of measurements from cooking jugs, the small “standard” cup, the volume differences between amphorae, the mathematic sequence of measurements all point to the existence of interrelated standard capacities of **0.25**, **0.5** and **1.5 lt.**, which are the basis for calculating the capacities of the other vessels. The size of **12 lt.** (i.e., 8 times the larger unit or 24 times the intermediate one) is particularly common.

### *The “kados” and the “heavy kados”: parallels from Malia and Akrotiri (Table 2)*

The value of **11–12 lt.** for amphorae and jars was quite widely used in the ancient Mediterranean, as was its double (*ca.* **22 lt.**), which was one of the standard measures for amphorae at Ugarit (*kd*, later Greek *κάδος*) and other places in the Levant.<sup>23</sup> As for the Bronze Age Aegean, although a systematic review of the evidence is pending, some interesting observations have been made on pithoi from Akrotiri:<sup>24</sup> the analysis of their painted marks pointed to the existence of three standard units, specifically of **22–26 lt.**, **29–30 lt.** and **14 lt.**, the latter being half of the preceding. Unfortunately, no other similar studies are currently available for the Neopalatial phase, and therefore parallels can to be sought only in the evidence from other periods.

Table 2. Malia, Quartier Mu (MM II). Necked jars (*jarres à col*) and amphorae of Type 1: recurrent volumes point to the existence of a series based on the “kados” (19–22 lt, with fractions and multiples) and the “heavy kados” (26–30 lt, with fractions and multiples).

“kados”	“heavy kados”	Recurrent volumes (lt)
1/4		5.5
1/2		10–12
	1/2	13–15 (mostly <i>ca.</i> 14)
1		19–22
	1	26–27
2		40
3	2	63–5
4	3	90–95

A large corpus of capacity measurements from Quartier Mu at Malia<sup>25</sup> has been recently published, although no proper study of the subject has been attempted. Regardless, through the analysis of this important data set some preliminary observations can be made, especially if the different typological pottery groups are considered separately. The first interesting data are provided by the necked jars (*jarres à col*) and amphorae of Type 1 (Table 2): recurrent volumes point to the existence of a series based on two units, one of **19–22 lt.** (with fractions and multiples) and the other of **26–30 lt.** (with fractions and multiples).

The picture is therefore very similar to that from Akrotiri, even if it is dated some centuries earlier. Since a denomination for those units is yet to be found, it is hereby proposed to refer to them respectively as the “**kados**” (**19–22 lt.**) and the “**heavy kados**” (**26–30 lt.**).<sup>26</sup>

<sup>23</sup> E.g., Heltzer 1989; Zamora 2000.

<sup>24</sup> Doulas & Constantinides 1990.

<sup>25</sup> MM II; Poursat & Knappett 2005.

<sup>26</sup> The names are conventional and inspired by contemporary Ugaritic and later Greek standard names. However, the term *ka-ti* occurs at least once in Linear B texts, in PY Tn 996.3, preceding the ideogram \*206<sup>VAS</sup>, which resembles a jar or hydria, Bennett 1955, 108; Ventris & Chadwick 1973, 551; Vandenabeele & Olivier 1979, 257; Aura Jorro 1985, 331.



Table 3. Malia, Quartier Mu (MM II). Jars of Type 2, amphorae of Type 3a and *brocs* of Type 2: the series of measurements has intervals of *ca.* 0.45 lt and is connected to the “kados” standards (shaded standards are not attested in these groups but have been hypothetically restored).

Recurrent volumes (lt)	Unit 0.45–0.5 lt
3	6
3.7–4 (1/8 “heavy kados”)	8
4.5	10
5.7 (1/4 “kados”)	12
6	13
6.5	14
7	15
7.5 (1/4 “heavy kados”)	16
8	17
8.5 (3/8 of “kados”)	18
9.5	20
10	21
10.5 (3/8 of “heavy kados”)	22
11	23
11.5 (1/2 “kados”)	24
12;12	25
12.5	26
13.5	
14.5 (1/2 “heavy kados”)	30
15	
24–25 “kados”	48
29 “heavy kados”	60
36 (3/2 “kados”)	
41 (2 “kados”)	

### *Fractions and multiples from Malia, Akrotiri and Crete (Tables 3–5)*

The capacity measurement system at MM Malia seems to have been quite extensive and complicated. The examination of Type 2 jars, Type 3a amphorae and Type 2 *brocs* produced a series of measures that have an interval of *ca.* **0.45 lt.** and

Table 4. Malia, Quartier Mu (MM II). Amphorae of Types 6 and 9, *brocs* of Type 1, jugs and cups: minor volumes seem to compose a series with very small intervals, of *ca.* 0.10 lt. The standards of 0.25 lt and 0.45–0.5 lt seem to be particularly important. Shaded: recurrent volumes for cups.

Recurrent volumes (lt)	Unit 0.45–0.5 lt
0.10	
0.15	
0.20	1/2
0.24–0.25	1/2
0.30	1/2?
0.3–0.38	
0.4–0.6	1
0.6	
0.7	1+1/2?
0.8	
0.9	2
1.1–1.2	2?, 2+1/2?
1.3–1.4	2?, 2+1/2
1.5/1.7; 1.6	3
1.8–1.9	3 + 1/2?
2	4
2.4–2.6	4 + 1/2?
2.7–2.8	5
2.9–3.1	6
3.3–3.4	7
3.7	8
4.5	10

are also linked to the “**kados**” and “**heavy kados**” standards (Table 3): they cover a range between 3 and 41 lt., including both of the “**kados**” standards, thus providing an idea about the functioning of a system for medium quantities of liquid or dry goods.

Other vessels can illustrate the organization of the measurements for small quantities: Types 6 and 9 amphorae, Type 1 *brocs*, jugs and cups (Table 4).

The smallest recorded volume is of **0.10 lt.** Minor volumes seem to comprise a series with very small intervals of *ca.* 0.10 lt. The standards of **0.15 lt.**, **0.25 lt.** and **0.45–0.5 lt.** seem to be particularly important. The data from other, less numerous vessel groups, such as basins, bowls, tripod jars and bridge-spouted jars fit the proposed series as well.

Table 5. Malia, Quartier Mu (MM II), Akrotiri (LB I) and Crete (all Bronze Age periods). Recurrent volumes of pithoi. For Akrotiri, the proposed ratio based on marks has been accepted, Doumas & Constantinides 1990; Poursat & Knappett 2005; Christakis 2005. Clusters appear in correspondence to the multiples of the “hemikadion” (3, 6, 9 and 12), the “kados” (2, 3, 4, 5, 6, 10 and 20) and the “heavy kados” (10 and 20).

“Kados standard” (“heavy kados” shaded)	Malia Mu (lt)	Akrotiri (lt)	Crete (lt)
1/2 (“hemikadion”)	<i>ca.</i> 11		
3/4 (= 3/2 “hemikadion”)	15.4		
	<i>ca.</i> 17		
1	<i>ca.</i> 20		20–25
“Heavy kados”	27.1		25–35
3/2 of “kados” (=3 “hemikadion”)	37.5		30–40
2	<i>ca.</i> 45		40–45 and 40–50 (cluster)
3 = 4 “heavy hemikadion” (Akrotiri)	57	56.6	50–60 (cluster)
3 (= 6 “hemikadion”)	<i>ca.</i> 60– <i>ca.</i> 70 (various)		60–70 (cluster)
	75		From 70
4	<i>ca.</i> 80– <i>ca.</i> 95 (cluster)	97.3	To 90, 80–90, and from 90
9 “hemikadion”	<i>ca.</i> 105		To 100 (cluster)
5 (= 10 “hemikadion”)	<i>ca.</i> 110– <i>ca.</i> 125	127.3	100–120
6 (= 12 “hemikadion”)	<i>ca.</i> 135–155	144.3; 158.3	100–150 (cluster); from 150
7?	<i>ca.</i> 165		To 170; 160–170; from 160
	<i>ca.</i> 170		
8 (at Akrotiri, marks point to both an 8 and 7 value)	<i>ca.</i> 180	179; 179.2; 178.6	To 180
	187		And to 190
10	190		From 180–190
10 (Akrotiri 7 “heavy kados”)	<i>ca.</i> 215	206.4; 213.3	To 220; 200–230
10			200–250 (cluster)
12? = 10 “heavy kados”			250–300 (cluster)
12? = 10 “heavy kados”			270–290; 280–320
12? = 10 “heavy kados”	<i>ca.</i> 320– <i>ca.</i> 340		300–350 (cluster)
20			400–450
24 = 20 “heavy kados”			500–550 (cluster)
48 = 40 “heavy kados”			900–1,050
120 = 100 “heavy kados”			2,500–3,000

The evidence from pithoi has to be considered when measuring large quantities: the sample from Malia Quartier Mu can be compared with

the data from Akrotiri already presented, and with that from Crete (Table 5); the latter is possible thanks to the recent review of the corpus of Mi-



Table 6. General comparison of capacities in the Bronze Age Aegean (MBA-LBA). In bold, standards which seem to be largely employed. Some characteristics seem to be similar in various assemblages, especially the largest sample (Malia, LM III Mochlos and Pylos). Under a liter, a series of volumes with intervals of 0.10 or 0.20 lt, with clusterin at 0.15–0.16. At Malia also at 0.25 lt. Over a liter, a series of volumes with intervals of ca. 0.45; at Pylos, intervals c

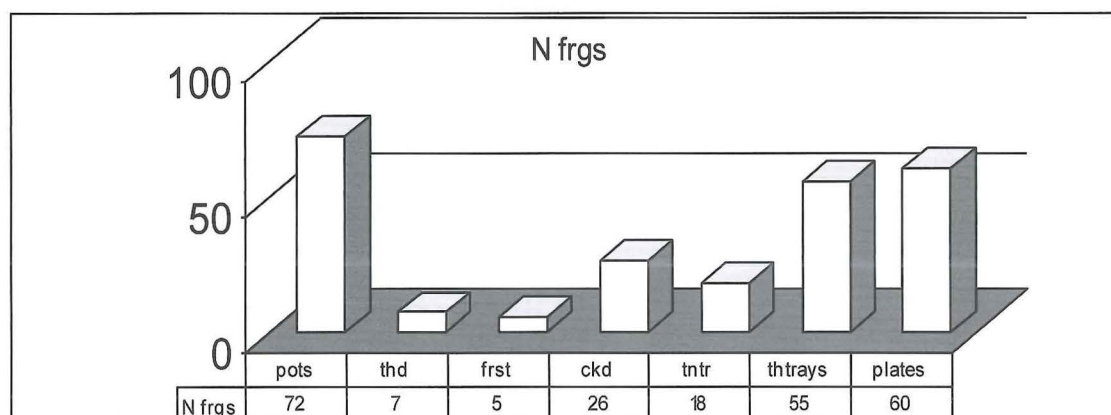
Volume lt	Unit 0.5 lt	Unit 1.5 lt	“Hemikadion”	“Kados”	“Heavy Kados”	Malia Mu MM II	Petras LM IA	Akrotiri LB I	Palaikastro MM IIIB- LM IA	Mochlos LM IB	Mochlos LM III	Pylos LH IIIB/C	Stirrup jars from Pylos and Zygouries LH IIIB
0.07			1/128						skoutelia LM IA				
0.10									skoutelia MM IIIB (0.11 lt)	skoutelia			
0.15			1/64	1/128						skoutelia	cluster	cluster	
0.25	1/2	1/6			1/128		X			ogival cups (0.2–0.3 lt)	X	clusters from 0.25 lt each 0.5 lt, up to 1 lt	
0.34			1/32	1/64									
<b>0.4/0.6</b>	1	1/3			1/64	X	X	possibly attested as standard interval and X					
0.7			1/16	1/32		X		X					
0.8								X					
0.9					1/32	X		X					
(1)	(2)	(2/3)				X		X					
1.1–1.2								X					
<b>1.3–1.4</b>			1/8	1/16		X							
<b>1.5/1.7; 1.6</b>	3	1				X	X	possibly attested as standard interval and X					PY 411 1.36 lt; PY 412 1.48 lt
1.8–1.9					1/16	X		X					
2	4					X	x						PY 696 1.90 l
2.4–2.6												V3? cluster	
2.7–2.8	5		1/4	1/8		X		X					
3.3	6	2				X	X	X				cluster	
3.7–4	8				1/8	X	X	X					
<b>4.2– 4.5; 4.6</b>	9 or 10	3				X cluster amph	X					X	
4.8–5	10						X					X	
5.5	<b>12</b>		1/2	1/4		X		X					PY 401 5.63 l

0.20 and 0.40 lt. For larger units, see Table 5. Sources: Poursat & Cunningham 2005 (Malia, Quartier Mu); Doumas & Constantinides 1990 and Kata-Tomara 1990 (Akrotiri); Knappett & Cunningham 2003 (Palakastro); Barrard & Brogan 2003 (LM IB Mochlos); Smith 2010 (LM III Mochlos); Lang 1964 (Pylos); Darcque 2005 (Pylos and Zygoites).

6.3	14	4				X		X					
7	15	4? 5?				X	X						
7.5	16	5			1/1			X					
8	17					X		X					
8.5–9	18	5? or 6	3/4	3/8		X	X				X		
9.5	20						X				X		
10	21	6? 7?				X	X				X		PY 678 9.91 l
10.5	22	7			3/8 (= 3/4 “hemikadion”)		X			X	x		
11	23		1	1/2		X and pithoi		X			x		
11.5	24		1	1/2		X cluster amph					x		
12;12	25	8	1	1/2 “hemikadion”?		cluster amph	X				x		
12.5	26												
13	27					X					X		PY 402 13 l
13.5	28	9					X						ZYG 3–9 13.0– 14.0 l
13.8– 14.00	29			1 + 1.5 lt?	1/2 “hemikadion”?			pithoi resulting unit			X		ZYG 3–9 13.0–14.0 l
14.5	30				1/2	cluster amph							
15		10	3/2	3/4		X and pithoi (15.5)		X		x	X		PY 817 15.38 l
16			3/2	3/4		X		X					
17	36		3/2	3/4		X and pithoi							
18						X							
20			2	1		X and pithoi		x					
22–24	48	16	2	1		21–24		pithoi resulting unit and X (26 lt)			X		
28–32	60	20			1	jars 26– 33 lt, pithoi 27 ca		pithoi resulting unit and X					
37	72		3	3/2		X and pithoi							
40				2		X							
45–50	120			2		45 ca and pithoi							ZYG 10– 12 45–50 l



Table 7. Petras House I.1, vessels in cooking fabrics. Distribution of vessel types: pots (including cooking pots, pans and cooking indeterminable); thinner dishes; firestands; cooking dishes; thinner trays; thicker trays; and plates (60 undiagnostic plates/trays fragments not included).



noan pithoi.<sup>27</sup> The review embraces Cretan examples from the Early Bronze Age to the end of the Late Bronze Age and illustrates the capacity range according to pithos type.

From the analysis of these three different groups, a coherent picture seems to emerge. Recorded volumes range from 11 lt. to 3,000 lt., including both the “**kados**” and the “**heavy kados**” units, with their fractions and multiples. Volumes especially cluster corresponding to the multiples of the “**kados**” (multiples of 2, 3, 4, 5, 6, 10 and 20) and of the “**heavy kados**” (multiples of 10 and 20). The “**hemikadion**” of 11–12 lt. also seems to be a standard of measurement, with its **multiples** (of 3, 6, 9 and 12).

#### *General comparison of Neopalatial Crete and LB III Crete and Mainland Greece (Table 6)*

The individuated series thus seems to have been used in MM Malia, LB I Akrotiri and BA Cretan pithoi. A general comparison can now be attempted, including Petras and other Neopalatial sites, such as Mochlos and Palaikastro (Table 6). The observations made for Petras are still valid, with an important detail: *the difference between narrow-based and large-based amphorae seems to be meaningful*, since narrow-based examples refer to the “**kados**” **standard**, while the large-based ones to the “**heavy kados**” **standard**. However, the sample is numerically so reduced that more parallels must be found before considering this difference as sig-

nificant. As for Palaikastro, a reduction of the average volume of conical cups from MM IIIB to LM IA is attested (from 0.11 lt. to 0.07 lt.). Conical cups are very small at Mochlos as well (0.1–0.15 lt.), while the ogival cups are a little larger (0.2–0.3 lt.). Anyway, given the poor number of volumes known from these and other Neopalatial sites, no more comments can be made. More information can be found from the Mycenaean period, especially from LM III Mochlos<sup>28</sup> and LH IIIB/C Early Pylos<sup>29</sup> (Table 6, right). Notwithstanding the great chronological difference, it seems that the structure of the capacity measurement system was still intact during the advanced and final Mycenaean times, with the “**hemikadion**”, the “**kados**” and the “**heavy kados**” units and the plethora of minor units, especially the 0.15, 0.25, 0.45 and 1.4/1.6 lt. standards, which are largely attested in the sample. Few large vases from this phase have been measured: however, the existence of both the “**kados**” and the “**heavy kados**” is suggested by the volumes of the stirrup jars from Pylos and Zygouries.<sup>30</sup>

The offered outline is still preliminary and more study and data processing are needed to refine it. However, in general terms, the capacity measurement system of the Bronze Age Aegean seems to

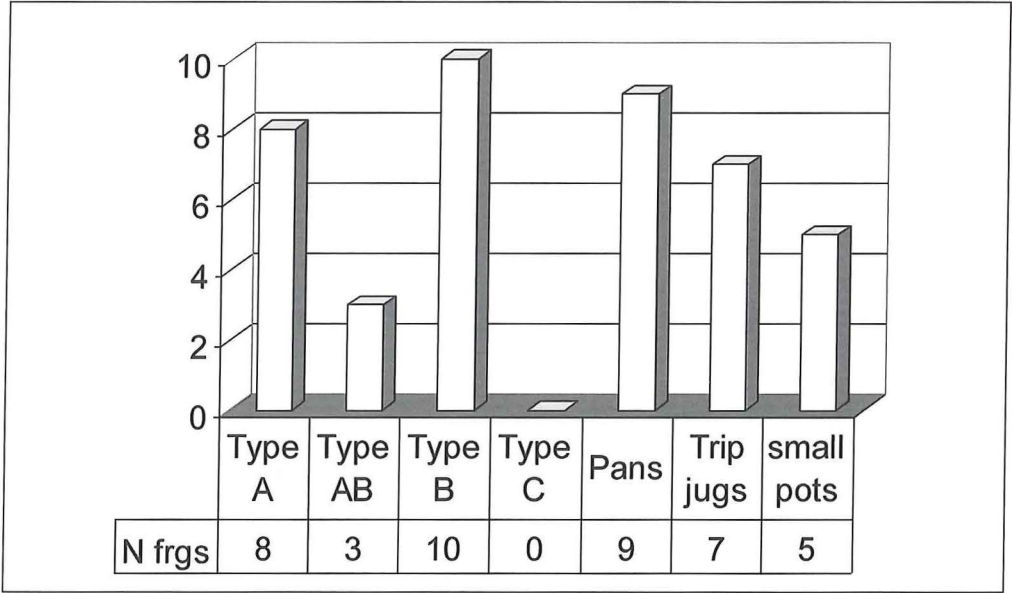
<sup>27</sup> Christakis 2005.

<sup>28</sup> Smith 2010.

<sup>29</sup> Lang 1964.

<sup>30</sup> Darcque 2005, 226.

Table 8. Petras House I.1, vessels in cooking fabric. Types of cooking pots and pans: cooking pots of Type A, cooking pots of Type AB, cooking pots of Type B, cooking pots of Type C, cooking pans, cooking tripod jugs and small cooking pots.



Notes: Type A: Type B: Pans = 1:1:1 ca.

have had a number of constant characteristics over time, at least from MM to the end of LM/LH IIIB (Table 6.1–6). The basic standards are the “**hemikadion**”, the “**kados**” and the “**heavy kados**”. For very small quantities (less than a liter) the system includes a series of volumes with intervals of 0.10 or 0.20 lt., with clustering at **0.15–0.16 lt.**, and at Malia also at **0.25 lt.** Over a liter, the volumes have intervals of *ca.* **0.45 lt.**; at Pylos, intervals are in this case, 0.20 and 0.40 lt. Larger measures are exact multiples of this possible standard of 0.45 lt.: 24 for the “**hemikadion**”, 30 for the “**heavy hemikadion**”, 48 for the “**kados**” and 60 for the “**heavy kados**”. Mathematical ratios between the standards seem, therefore, on preliminarily examination to exist: the main counting unit, however, could have differed according to location and time period (the possible use of the “**heavy hemikadion**” at Akrotiri being an example). The discussion of the absolute value of the measures for dry and liquid foodstuff attested in Linear A and especially Linear B is outside the scope of the present work. However, the data presented and the analysis conducted here could perhaps contribute to this long-standing debate, which cannot be successfully

addressed without an adequate corpus of capacity measurements.

### Final observations (Tables 7–8)

Vessels in cooking fabrics have proven to be quite informative, in regard to daily life, space organization and quantification practices.

First of all, the statistical analysis of the attested types suggests some important equivalence relationships between the various shapes, as well as the possible existence of a “cooking set”. Plotting together the data from House I.1 (Table 7), the major groups within the cooking fabric assemblage are, as already illustrated, cooking pots, thicker trays and plates, occurring in approximately the same numbers. In addition, there is a rough correspondence between the numbers of fragments of cooking dishes and thinner trays, and between thicker trays and plates, but it is impossible to assess if there also exists a functional correspondence.

The typological separation of cooking pots (Table 8) shows an equal number of Types A (globular), Types B (cylindrical), pans, and (perhaps) jugs.



Could it then be possible to hypothesize an ideal “cooking” set consisting of one Type A pot, one Type B pot, a pan, and one small pot? It would have made sense in strictly cooking terms. On the other hand, tripod jugs seem to form a separate series. It is also possible that the set included a fire stand, a thinner dish, one or two thinner trays and one or two cooking dishes.

In addition, it is worth noting the large amount of vessels in cooking fabrics that were associated with the House, especially large pots, pans, thick trays and plates. This raises questions about the activities and the building’s intended use(s). Thus, it seems probable that cooking or other activities involving fire and charcoal were taking place in the structure on a significant scale.

Besides, there was also a substantial need for processing or evacuating liquids, at least judging

from the amount of the recorded plate fragments. As has been seen before, these activities seem to cluster in a restricted number of areas within the House ( $\Lambda$ ,  $\Xi$ ,  $\Phi$  and E).

A better understanding of the scale of activities involved could have been reached through the study of the dimensions of the vases, and especially their capacities, but unfortunately very few vessels were intact or restorable. It is, however, noteworthy that some of the larger cooking pots (Type A) have the same capacity as amphorae and jars (*ca.* 10–12 lt.), possibly due to intense cooking activities (and the standardization of pot volumes). These capacities are linked to the basic “**kados**” unit. In this sense, the collection of pots seems to indicate that Petras shared the same measurement system already in use in other parts of Crete and the Aegean.

# Discussion

**Brogan** That was really cool, what you did at the end with the measurements. And I think Mochlos will have some nice comparisons for you, for the pithoi and the amphorae, and you will be able to find out if that works on a regional scale. The other thing from Mochlos is that when we wrote *Mochlos IB*, we did not have a lot of early Neopalatial deposits to compare with Mochlos. But the 2009–2010 excavations have uncovered six or seven major MM III–LM IA kitchens. So, you will also want to come and look at that, and there you will find those tripod jugs that we never get in LM IB levels; we have them in MM II levels and now in MM III. My question to you is: I have not seen those cooking pans, are they an LM IA or LM IB feature?

**Alberti** Both.

**Brogan** Because at Papadiokampos we do not have that shape at all in LM IB. Because we thought our kitchen stuff was really close to Petras, but that is something very different.

**Alberti** It is only a problem of size, anyway.

**Brogan** Is that common? Do you have a lot of them?

**Alberti** A third of the restorable pots.

**Brogan** So, they are quite a few.

**Alberti** Yes.

**Haggis** I very much enjoyed your paper. The range of things is impressive. What I liked in particular was the juxtaposition in a single assemblage of Type A, Type B and the pans. What occurs to me is that the capacities may be ultimately less important (looking at that limited range of pots) than the possible different functions that is their actual selection, which may show that different shapes may be involved with preparing different kinds of foods in this context. This is something that in Minoan archaeology we have not really even begun to wrap our heads around. There are a couple of problems, one is what is the functional difference between boiling and stewing, and then different kinds of things, meat pot boiling and pot sizing for meat, and then legumes and various plant products. What I am wondering is that if you are picking up a range of vessels that are used for very specific activities, on the whole larger scale, then the ultimate capacity of the large vessels is less important than their actual functions. The biggest problem that I have with cook pots of almost any period is the lack of lids, although we find schist lids or reused pithos sherds, and so on,



which could function as lids, for pot boiling and for stewing, the absence of lids is quite surprising, and I wonder if you knew of any lids or if you would consider what foods they were producing.

**Alberti** I think we have some lids, very, very few. I saw some lids from Petras, not so many. The problem with the difference of shape, is that yes, we can assume a difference in the function. I cook and I cannot perceive the difference in the function. Since I am Italian I would boil noodles in a deep pot and make the tomato sauce in the pan, and probably I would cook lentils in a globular pot. Anyway, as you cook, and also as an archaeologist, you know that you can do anything in any pot. When there is a necessity you use the tool you have. So, I think, from a certain point of view, typologically, if I want to do a serious typological work, then I should separate things, at the same time, in practice they would use anything. I know that at Akrotiri, for example, they found lentils in jugs, something that we could not expect. Furthermore, I think it would be important if we could isolate a cooking set. Perhaps the richest housewives had complete sets.

**Morrison** I just have a question about your ceramic fabrics. Do you have any preliminary results or descriptions of these for your cooking pots?

**Alberti** No, we do not have them yet.

**Morrison** Do they seem to all be the same, or very close to one another? Does it look like they are using one type of clay to produce all these vessels?

**Alberti** I made a fabric classification, but I did not have the opportunity to make a cross comparison with Eleni Nodarou on the samples that she examined. We will find a way to do that. What I saw, personally, and I might be completely wrong, is that we have basically a range of fabrics that are all phyllite, many different phyllite fabrics, and this is the large majority. Possibly there is also some different stuff, that I really do not know if it is different or not. We have grey-black and pink.

**Hallager** Just a short question: I can understand why it would be a good thing to have standard capacities and measurements in storage jars, but what would be the purpose of that for cooking pots?

**Alberti** If you are used to measures, you use measures, anyway. So, I think, we can understand it better in storage jars, because they were made on purpose, if you want, but I think that when I see all the range of cooking jugs, I do not think they were made by chance, they have a rule. If it is conscious or unconscious I do not know, they more or less follow the scale, the same scale the potter follows when he makes jars. I think it is more a question of habit.

**Hallager** But would it not have been much more difficult to make the vases to scale in that way?

**Alberti** I think it is a question of getting used to it. Everything is approximate of course. Not even balance weights are absolutely precise.

**Brogan** If all these are stored in one room could you potentially have cooking beyond the scale of a single household? And do those buildings not have some industrial functions that involve heating, like dyeing. Is there not some textile industry?

**Alberti** We are still trying to understand what these houses were, and what types of activities were carried on. In House I.1 we had wine production, since we had the wine press. We had good indications for textile activities in House II.1 and Nektaria Mavroudi will speak about that. Our probable interpretation of these structures is based on facts. Secondly, "What do we intend for a household?"; "What is big?"; "How much is large?"; "How many are the functions?" There are all these questions. Do we have a good grasp of Minoan society at all?

**Brogan** You can use Mochlos' cooking sets as the norm for a domestic situation, and then see how different you are, and then be able to say "we are something else", if it is true.

**MacGillivray** Your basic unit of around of 11–12 is kind of interesting. Have you thought of comparing it against the Zakros pithos, which has 27 units of wine in it?

**Alberti** I did not think about that. I will do it.

**MacGillivray** Because if it is around 10–11 you get up to around 300 liters, which is what that pithos looks like.

**Rupp** Just an observation, having talked to, and observed potters at work, is that an experienced potter can grab a lump of clay from a pile and throw it, as we have seen, because this is what your pottery studies reveal, to a standard profile and size, and I think that what is happening here is that they know what size they want. Whether or not it is exactly to the liter is not important, but they do not have a continuous scale, they are pretty much on the mark. What the statistical studies all reveal is that in fact, when you see the cluster, that these people are regularly hitting these standards, and multiples of them, because that is what their customers wanted. They wanted standard sizes.



### *Greek abstract*

#### Αγγεία από πηλό μαγειρικών σκευών από το Σπίτι Ι.1 του Πετρά

Η παρούσα μελέτη επικεντρώνεται σε αγγεία κατασκευασμένα από πηλό όμοιο με αυτό των μαγειρικών σκευών, προερχόμενα από το Σπίτι Ι.1 (ΥΜ ΙΑ). Λείπει προς το παρόν μια συστηματική μελέτη των μινωικών μαγειρικών σκευών. Πάντως, καθώς υπάρχουν πολλές δημοσιεύσεις από πολλές θέσεις, έχουν ήδη καθορισθεί τα βασικά τυπολογικά, τεχνικά και λειτουργικά χαρακτηριστικά, αλλά και η χρονολογική και γεωγραφική κατανομή. Ως προς το Πετρά, η ήδη ολοκληρωμένη μελέτη των μαγειρικών σκευών από το ΥΜ ΙΒ Σπίτι ΙΙ.1, μας επέτρεψε να καθορίσουμε μια τυπολογία και να κάνουμε παρατηρήσεις για χρονολογικούς και γεωγραφικούς παράγοντες. Η ανάλυση προχωρεί με την ομάδα αγγείων από το Σπίτι Ι.1, όπου οι αναλογίες των διαφόρων τύπων είναι διαφορετικές, και αφθονούν οι διάφοροι τύποι μαγειρικών δίσκων και τραπεζών.



# Miniature vessels from Petras\*

*Anna Simandiraki-Grimshaw*

## *Abstract*

Vessel studies constitute a popular field in Minoan archaeology, due to the rich chronological, social, religious and artistic information they provide. Within this field, despite some recent studies, miniature vessels remain under-explored. This paper presents miniature vessels from Petras. It argues that, although not extensive, this material is nevertheless significant for the study and comprehension of such Bronze Age vessels in Crete both as artefacts and concepts.

## Introduction

The vessels of Minoan Crete provide rich chronological, social, religious and artistic information. Miniature vessels are one of the most under-researched material culture categories, even though they occur in almost every excavated site. This may be due to their proportionately small presence, their diverse forms, or their seeming insignificance in relation to other classes of vessels. Very few studies have so far specifically targeted them. These include Girella (2002 and 2003), with a focus on miniature vessels from Phaistos and from eastern Mediterranean archaeological, ritualistic and social contexts; and Tournavitou (2009), an exemplary and meticulous study of such vessels from the (Minoan) peak sanctuary of Hagios Georgios sto Vouno, Kythera. Other studies include Botsi (2004), Simandiraki (2011) and Knappett (forthcoming).

However, there is yet to be an extensive study regarding the definition, typology, clientele, uses or occurrences of miniature vessels throughout Minoan Crete. This would contribute new knowledge to the field of Minoan archaeology and to other archaeological areas and eras. More specifically, it would offer:

1. A better understanding of the cognitive processes of miniaturisation;

2. Insights into miniaturised manufacture, and scaled human engagements with material culture;
3. The identification of previously overlooked markers of age, social status, ritual, industry, and foreign exchange or imitation;
4. A typology for quick identification and interpretation in the field.

Recognising the current gap and the need for

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\* Metaxia Tsipopoulou, apart from being a great friend and mentor over the years, kindly permitted me to study, photograph and publish the Petras miniature (Pm) vessels. It is my great pleasure to offer this article as a small contribution to the significant work of the Petras team, which I first joined in 1994. The 24<sup>th</sup> Ephorate of Prehistoric and Classical Antiquities helped further with permissions and access to their material. INSTAP generously supported my museum work on Petras and other miniature material in 2009. Garifalia Kostopoulou was instrumental in providing access to both Petras artefacts and daybooks, as well as making other information available. I benefited greatly from Minoan miniature vessel discussions with Peter Warren, Yiannis Tzedakis, Lefteris Platon, Tracey Cullen and Eleni Tziraki. Iphigeneia Tournavitou, Luca Girella and Carl Knappett also helpfully provided papers of theirs on this topic. Finally, Evi Saliaka offered further support and useful discussions. I also thank colleagues at the 23rd and 25th Ephorates of Prehistoric and Classical Antiquities, Crete, as well as M. Zoitopoulos at Zakros, M. Vlazaki and S. Preve in Khania, who helped me put the Pm vessels into perspective.



further investigation, this subject has intrigued me since my undergraduate involvement with Zakros and Petras material in the 1990s, as well as the Juktas Building B material during my Ph.D years.<sup>1</sup> As a result, I have been conducting a systematic, large-scale study since 2006, entitled *Miniature Vessels in Minoan Crete*. The goals of this project are to:

1. Create a systematic typology of all published miniature vessels associated with Minoan Crete;
2. Study and publish unpublished miniature vessels;
3. Clarify their artistic, religious and social significance;
4. Compile a printed catalogue of miniature vessels, easily usable in the field;<sup>2</sup>
5. Create a sustainable resource for future research in the form of a freely available digital database, including videos and interactive search facilities.

The bibliographic research covers published miniature vessels from all relevant Cretan sites throughout the Bronze Age. It also aims to form criteria for further miniature vessel identification. A cursory conceptualisation drawn from the ongoing literature review was presented in 2006.<sup>3</sup> The subsequent macroscopic study, comprising of physical handling, electronic cataloguing,<sup>4</sup> drawing and photography, has focused on selected material from specific sites. Photography may be mentioned separately here. Apart from being digitally photographed in high resolution for two-dimensional outputs, the vessels have also been photographed for three-dimensional publication. Although this entails additional effort and equipment, it also means that miniature vessel videos will enable users to virtually rotate them.

As the general assumption about miniature vessels is that their contexts are ritual, the sites currently investigated are a mixture of ritual and potentially non-ritual character. The first macroscopic study of miniature vessels was conducted on Petras material in 2007 at the Siteia and Hagios Nikolaos Museums. This continued on a larger scale in 2009, with the generous sponsorship of INSTAP, and included further material from the palace and town of Petras, as well as the Armenoi necropolis, the palace of Zakros, funerary and extra-funerary locales in the Khania, Rethymnon and Herakleion

regions kept in the Archaeological Museums of Khania, Rethymnon, Hagios Nikolaos and Siteia, and the Zakros excavation house.<sup>5</sup> During a short period in the summer of 2010 the study focused on some material from the palace of Galatas and other Herakleion and Lasithi prefecture sites, e.g., Hagia Triada, Koumasa, Marathokephalo, Mochlos, Platanos, etc.

Despite its rich subject matter and research potential, *Miniature Vessels in Minoan Crete* has already faced several theoretical and practical challenges. The main theoretical challenge is the definition of miniature vessels, more acute in certain eras and with certain forms.<sup>6</sup> The practical challenges include the unnecessarily complicated, often conflicting procedures for permits and access by the Hellenic Ministry of Culture and Tourism, as well as the ongoing (and therefore currently incomplete) final publication of several sites with miniature vessels. The study of Petras involves both of these obstacles, which, nevertheless, will be overcome in their own time.

Overall, the project has the potential to open new horizons for a better understanding and a re-interpretation of this class of vessels in the Cretan Bronze Age. It also has the potential for providing a theoretical and practical blueprint for the identification and the study of miniaturisation in the archaeological record of other areas and eras. Indeed, encouraging results are already emerging. The combined bibliographic and macroscopic study of (un)published miniature vessels provides a first glimpse into their range across time: it seems that, although not standardised, they may form thematic clusters, whereby certain miniaturised vessels create sets. This is to be expected to some degree, but a closer inspection of stratigraphic contexts might reveal a more complex picture. This is of great help towards

<sup>1</sup> Simandiraki 2002, 425, fig. 31.

<sup>2</sup> Simandiraki-Grimshaw in preparation.

<sup>3</sup> Simandiraki 2011.

<sup>4</sup> This is done by using an updated version of ARTIFACT, cf. Simandiraki 2002, 285–302.

<sup>5</sup> Simandiraki-Grimshaw 2009.

<sup>6</sup> Simandiraki 2011, 46–8; cf. Grasso 2004; 2006; Botsi 2004; Tournavitou 2009; Knappett forthcoming.

defining miniature vessels, as well as distinguishing cognitive, artistic and practical techniques of scaled imitation,<sup>7</sup> e.g., “shorthands” of larger “originals”, finger trails outlining “faked” attributes, or redundant holes which may have served to thread miniatures together (see below).

## The role of Petras

As mentioned above, the study of the Petras miniature (Pm) material is part of this larger project and, although not extensive, a significant contributor to the study and comprehension of Minoan miniature vessels. It is already becoming apparent that the detailed examination of the techniques, variability, context and provenance of the Petras specimens will add hitherto undetected pieces to the puzzle of their significance as artefacts and concepts. Because the publication of the rest of the Petras site is currently in progress, as is my detailed processing of its miniatures, it would be both unwise and unfair to make this their final publication. Instead, this paper will draw upon some of the already studied Pms as a case study, in order to address issues of definition, miniaturisation and affordances.<sup>8</sup>

Let us first address the issue of identification. I have argued elsewhere<sup>9</sup> that the three usual criteria (absolute size, relational size and usability) are not in themselves adequate for identifying miniatures – I have instead proposed an informed combination of all three, especially of relational size and usability.<sup>10</sup> More specifically, I consider miniature vessels to be imitations of existing or imaginary “proto-types”, the latter defined as recognised vessel types ordinarily occurring on a larger scale. For example, while one would expect a regular-sized pithos of a certain period to be *ca.* 1.5 m tall, a miniature pithos might measure just 5–10 cm.

While searching through the Petras archives and stored material, it becomes obvious that several vessels were preliminarily catalogued as “miniatures”. Upon inspection, it seems that some of these vessels may be more obvious miniature cases than others, and that some vessels not classified as miniatures may indeed fall under that category. For example, Pm #0009–P93/157 (Fig. 1a) is in-

disputably a miniature vessel. It imitates a carinated, one-handled cup with pinched spout but on a much smaller scale than a so-called “original”. Pm #0028–P91/1486 (Fig. 1a) also seems to imitate a one-handled cup, but its scale makes it ambiguous. Is it a miniaturised version of a bigger cup or is it just small? Similarly, Pm #0012–P91/1821 (Fig. 1c) seems like an imitation of a handleless cup with a foot, but is Pm #0014–P91/1501 (Fig. 1c) trying to do the same thing or is it a small vessel? Where does one draw the line?

Furthermore, are kernoi and composite vessels to be considered collections of miniatures? In my opinion, yes. For example, Pm #0055–P96/1337 (Fig. 2f) seems like a sherd from a vessel, the interior of which is covered by plastic decoration resembling miniature, if crude, cups, while the fragmented, but associated, Pms #0056–P05/1255, 0057–P05/1254, 0058–P05/1253 (Fig. 2g) seem to have formed a composite vessel or kernos, whereby three (or more) miniature tumblers were interconnected in a planned-out whole.

Finally, can one consider juglets as miniatures? Although miniature pithoi or cooking pots may have served purposes different to their actual or imagined “originals”, juglets are so overwhelmingly present and seemingly uniform in use (much debated, but nevertheless consistent), that I do not believe they can be considered miniatures, unless one comes across juglets of scales even smaller than *ca.* 10 cm. So, while I consider the identification of Pms #0065–P90/982 and 0066–P89/1052 (Fig. 2c) as miniatures ambiguous, given that they are juglets of some description, Pm #0049–P94/723 (Fig. 2d) may be a miniature on the basis that it might represent a miniature amphora, or, better still, pithos, rather than a juglet.

<sup>7</sup> Cf. Knappett forthcoming.

<sup>8</sup> As a matter of convention, the miniature vessels presented here will display the ID numbers they are given within the *Miniature Vessels in Minoan Crete* project, e.g., Petras miniature #0001 = Pm #0001, followed by their original Petras excavation numbers.

<sup>9</sup> Simandiraki 2011.

<sup>10</sup> Cf. Tournavitou 2009, 213, esp. n. 3.





Fig. 1. a) Cups with handle. (left to right, top to bottom) Pm: #0009–P93/157, 0044–P96/1322, 0028–P91/1486. Photos by the author; b) Footed cups. (left to right) Pm: #0005–P94/1351, 0011–P90/95, 0060–P90/bag 32+P90/bag 67/4. Photos by the author; c) Cups without handle, with foot. (left to right, top to bottom) Pm: #0007–P91/1644, 0014–P91/1501, 0038–P95/2068, 0012–P91/1821, 0015–P91/1672, 0059–P89/160. Photos by the author; d) Cups without handle, without foot. (left to right, top to bottom) Pm: #0006–P93/654, 0001–P89/413, 0020–P95/623, 0050–P88/629, 0034–P94/1523, 0003–P90/1519, 0064–P90/1562, 0062–P90/1296, 0051–P05/1059. Photos by the author; e) Open cups. (left to right, top to bottom) Pm: #0024–P96/1355, 0016–P90/831, 0067–P90/454. Photos by the author; f) Tumblers. (left to right, top to bottom) Pm: #0018–P93/565, 0046–P85/138, 0021–P93/345, 0037–P93/1236, 0035–P95/1122, 0032–P95/1342, 0031–P95/1827, 0033–P90/1230a,b. Photos by the author; g) “Spools”. (left to right) Pm: #0008–P94/1272, 0052–P86/1303, 0053–P94/1882. Photos by the author; h) Brazier. Pm: #0010–P93/563. Photos by the author.

## Preliminary typology of Petras miniature vessels

The previous section used Petras examples to illustrate some of the, sometimes arbitrary, archaeological decisions that may be involved in the definition of miniature vessels. Bearing in mind those reservations, what follows is a preliminary typology of the shapes of the hitherto studied material.

There is a range of open and closed shapes, especially the former, with very limited capacity and potentially liquid contents,<sup>11</sup> although solids should not be excluded.<sup>12</sup>Handled, carinated cups are represented by Pms #0009–P93/157 and 0044–P96/1322 (Fig. 1a). They display a “soft” carination, which, apart from a stylistic trait, may also be due to the inability of the potter to create a sharper carination on such a small scale, especially a wheel-made version. These vessels can be considered double imitations, in that they imitate ceramic carinated cups which, in turn, imitate metal, soldered vessels.

Handleless cups may be distinguished between footed cups (Fig. 1b), cups with a foot (Fig. 1c), cups without a foot (Fig. 1d), as well as open cups (Fig. 1e). Handleless footed cups are different from cups with a foot in that they seem to be a cross between a tall cup and a fruitstand (Pms #0005–P94/1351, 0011–P90/95, 0060–P90/bag 32+P90/bag 67/4, Fig. 1b). They usually have a solidly made, raised, almost cylindrical “stem”, which opens up into what could be considered a cup/bowl. The latter is where, predictably, most breakage occurs. They may or may not be wheel-made. Cups with foot are generally conical, with accentuated, high bases, which are nevertheless not solid (Pms #0007–P91/1644, 0012–P91/1821, 0014–P91/1501, 0015–P91/1672, 0038–P95/2068, 0059–P89/160, Fig. 1c). These cups are, therefore, small versions of raised, wheel-made cups. Cups without a foot generally tend to be plain and conical (Pms #0001–P89/413, 0003–P90/1519, 0020–P95/623, 0064–P90/1562, 0050–P88/629, 0051–P05/1059, 0062–P90/1296, 0034–P94/1523, 0006–P93/654, Fig. 1d). Their walls range between straight and slightly concave. They are wheel-made and they are most often broken vertically, as exemplified by Pm #0020–P95/623 (Fig. 1d). The category of

open cups was created here for specimens in Fig. 1e, because it is my opinion that they represent attempts at generically rendering something between a cup and a bowl (Pms #0024–P96/1355, 0016–P90/831, 0067–P90/454, Fig. 1e). They include both wheel-made and hand-made examples.

Several Pms ( #0018–P93/565, 0035–P95/1122, 0046–P85/138, 0032–P95/1342, 0021–P93/345, 0031–P95/1827, 0037–P93/1236, 0033–P90/1230a,b, Fig. 1f) have tentatively been grouped under the category of tumblers, even though there are several variations between them. It is suggested that the general underlying characteristic of this group is the tendency for a tall, relatively thin, sometimes cylindrical and sometimes concave/flaring form, a trait also discernible even in cases where only bases survive. All specimens are wheel-made, with breakage patterns which are either vertical-diagonal and/or echo the internal striations of the potter’s raising movement.

Another tentative category are “spools”: those vessels (Pms #0008–P94/1272, 0052–P86/1303, 0053–P94/1882, Fig. 1g) which tend to exhibit a short cylindrical and/or incurved profile.<sup>13</sup> Although some exhibit wheel traces, it seems that they were either made with slow speeds or made to look as if they were wheel made. They may be considered as shorter, “squashed” versions of footed cups (see above) and they are mostly solid.

A straightforward miniature example of a tripod brazier is provided by Pm #0010–P93/563 (Fig. 1h). It survives almost intact, having, however, lost what would almost certainly have been its horizontal straight tapering handle. Its off-centre hole is a deliberate in-to-out perforation, made by what was presumably a stick. The only obvious reason for this hole would have been to perhaps append it to other similar items by means of a string (or, more unlikely, to wear it).

<sup>11</sup> Several of these vessel types occur at other sites, e.g., in Hagios Georgios sto Vouno, Kythera, Tournavitou 2009, esp. table 18.1.

<sup>12</sup> Cf. Chrysoulaki 2001, 62.

<sup>13</sup> For Juktas Building B parallels, cf. Simandiraki 2002, 425, fig. 31, Types 1a, 1b, 2a. The final publication of these examples by the excavator may reveal intriguing similarities with the Petras specimens. Also cf. Knappett forthcoming, fig. 10.



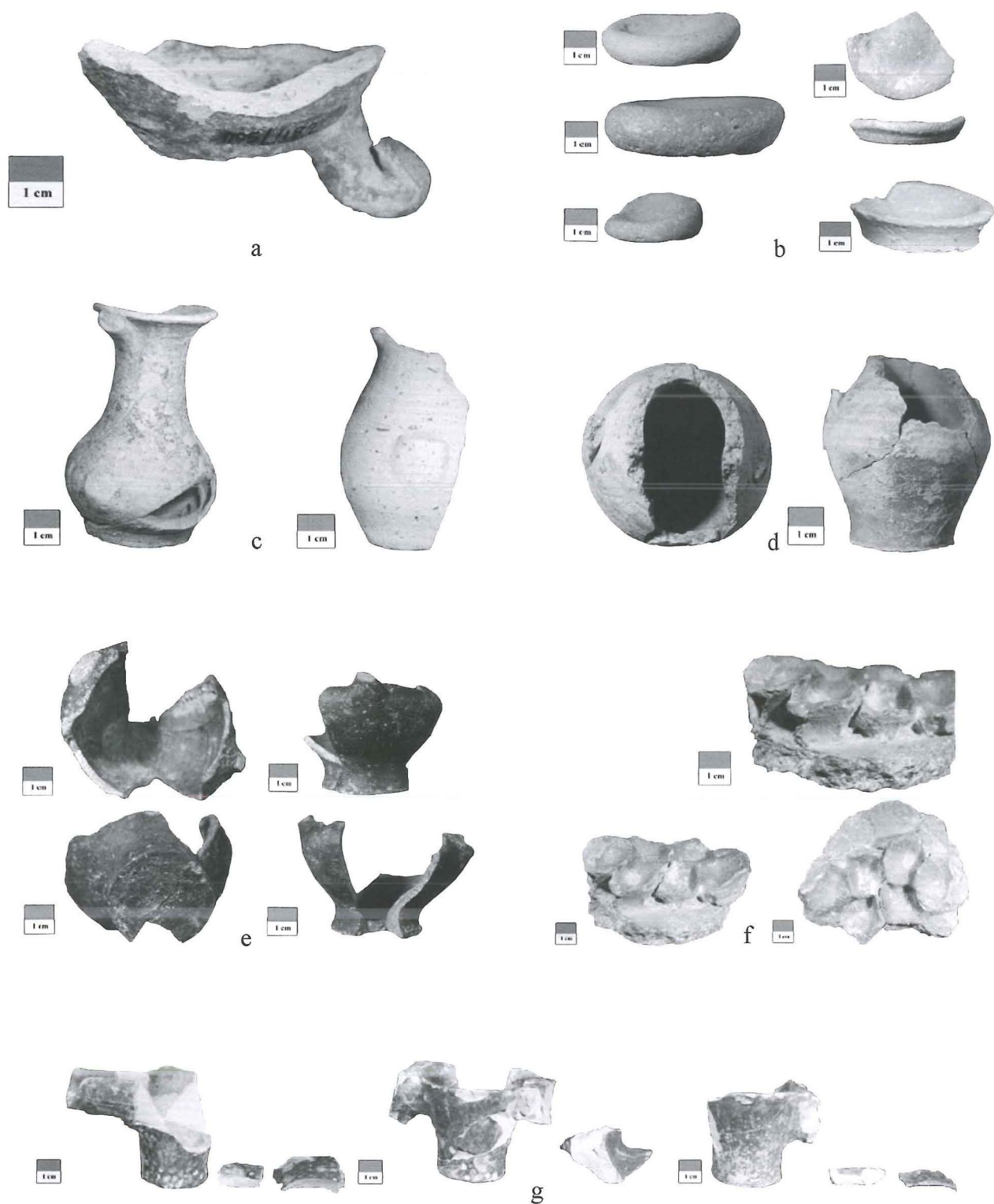


Fig. 2. a) Tripod cooking pot/cup. Pm: #0054-P95/489. Photos by the author; b) Discs/dishes. (top to bottom, left to right) Pm: #0017-P85/A205 (SM 5295), 0026-P85/A16 (SM 5293), 0027-P90/582, 0013-P93/1527, 0061-P91/743. Photos by the author; c) Juglets. (left to right) Pm: #0065-P90/982, 0066-P89/1052. Photos by the author; d) Pithos/amphora. Pm: #0049-P94/723. Photos by the author; e) Bridge-spouted jar. Pm: #0019-P95/1442. Photos by the author; f) Kernos? Pm: #0055-P96/1337. Photos by the author; g) Composite vessel. Pm: #0056-P05/1255, 0057-P05/1254, 0058-P05/1253. Photos by the author.

Pm #0054–P95/489 (Fig. 2a) is another tripod vessel, in this case a cooking cup. This may not be a miniature, on account of the fact that its scale, resembling a modern-day *briki*, may have allowed it have a comparable function to a cooking pot. It is nevertheless considered a miniature here, based on analogous material, e.g., from Palaikastro<sup>14</sup> and Gournia.<sup>15</sup> Compared to some parallels, its surviving leg is longer and tapers outwards, rather than being a stump.

Discs or dishes are represented by a few specimens. Of those, Pms #0017–P85/A205 (SM 5295), 0026–P85/A16 (SM 5293), 0027–P90/582 (Fig. 2b) display a depressed clay pellet technique, while Pm #0013–P93/1527 and Pm #0061–P91/743 (Fig. 2b) are wheel-made. As is to be expected, the pellet variety has almost no breakage patterns, whereas the wheel-made variety has suffered the most losses along the rim.

As mentioned earlier, Pms #0065–P90/982 and #0066–P89/1052 (Fig. 2c) may be juglets, but are included here, albeit apprehensively. However, Pm #0049–P94/723 (Fig. 2d), also mentioned above, is considered a miniature pithos or amphora, and Pm #0019–P95/1442 (Fig. 2e) is, in all probability, a bridge-spouted jar.<sup>16</sup>

Finally, the kernos and composite vessels are represented by Pm #0055–P96/1337 (Fig. 2f) and Pms #0056–P05/1255, 0057–P05/1254, 0058–P05/1253 (Fig. 2g) respectively. In the case of the former, the small, hand-made, plastic, scale-like additions on the inside of the wheel-made sherd are formed by the attachment of depressed clay pellets (cf. larger examples in Pms #0017–P85/A205 (SM 5295), 0026–P85/A16 (SM 5293), 0027–P90/582, Fig. 2b, left column), which are here considered to render schematic cups. What is interesting about the composite in Fig. 2g is that each of the wheel-made vessels that make up the whole was executed individually, and great care was taken in creating the physical relationships between them. This process is more visible on the inside of the composite, which was not meant to be seen: there a multitude of joins and amalgamating gestures can be discerned. In fact, this vessel is not unlike other contemporaneous Minoan composites in that regard, such as that found in Lisht, Egypt.<sup>17</sup>

## Some thoughts

The vessels presented here, and the remaining examples which have been studied thus far, are both hand-made and wheel-made. They span a variety of eras and findspots, and invite interesting comparisons with parallels especially from eastern Crete, e.g., Zakros and Palaikastro. However, these considerations are beyond the scope or extent of this paper. What would be feasible here, following the preceding discussion, are a few thoughts on the ways miniatures, and the Pms in particular, interact(ed) with their makers and users. This has been a particularly neglected side of an already neglected vessel category, with few exceptions.<sup>18</sup>

All the vessels presented here are made of clay, belong to a certain scale, and are three-dimensional. Although these may seem like redundant observations, they carry variable significance. First of all, clay is a “made” material which involves diverse tactile engagements, from pressing wet clay to creating miniature cup handles without being able to roll and attach them. These engagements are different to what would be required for a “normal” vessel, a process entailing different psychomotor skills, more open gestures, different types of pressure and bigger fingers or at least finger movements.<sup>19</sup>

Secondly, the three-dimensionality of these artefacts creates a more powerful impact on the maker and user than would a two-dimensional (depicted) miniaturised version of a pot. In that sense, they are not representations or renditions of something else, even if they condense ideas of bigger vessels. They are three-dimensional vessels in their own right and elicit focused and concentrated entanglements.<sup>20</sup> Such entanglements include simultaneous visual and tactile apprehension of the *entire* vessel, not just part of it. For example, Pm #0049–P94/723 (Fig. 2d), which I have supposed here might be a

<sup>14</sup> Catling *et al.* 1979, deposit B, 30, fig. 19, no. 124.

<sup>15</sup> Botsi 2004, 130, fig. 7.8.

<sup>16</sup> Cf. Tournavistou 2009, fig. 18.3f.

<sup>17</sup> Karetsou *et al.* 2000, 52, no. 28.

<sup>18</sup> E.g., Knappett forthcoming.

<sup>19</sup> Simandiraki 2011, 51.

<sup>20</sup> Bailey 2005, 28–9.



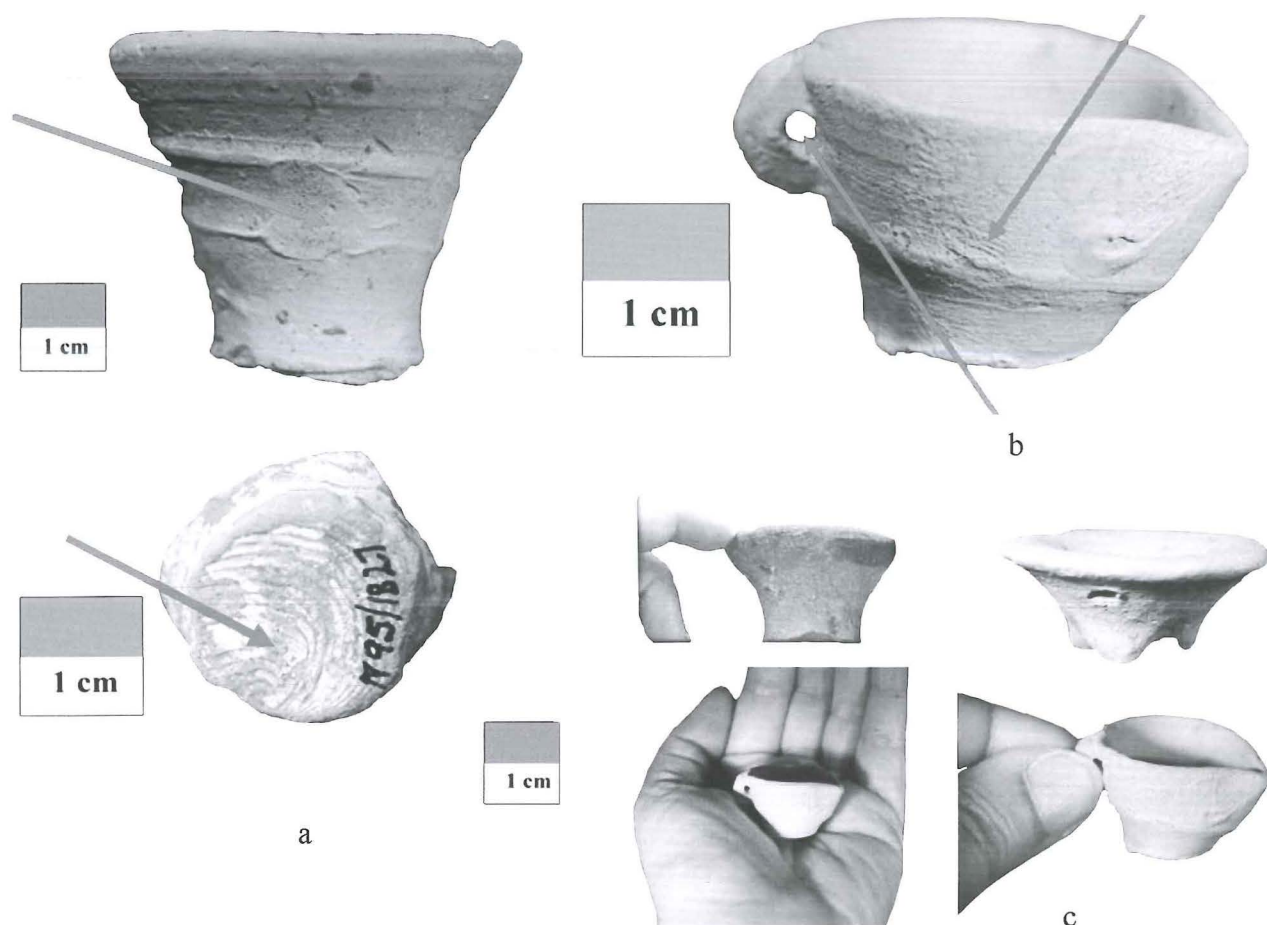


Fig. 3. a) Maker/user gigantism 1. (top to bottom) Pm: #0046–P85/A138 (SM 5294), 0031–P95/1827. Photos by the author; b) Maker/user gigantism 2. Pm: #0009–P93/157. Photo by the author; c) Intimacy. (left to right, top to bottom) Pm: #0011–P90/95, 0010–P93/563, 0009–P93/157. Photos by the author.

miniature pithos/amphora, can be held in the palm of a human hand or completely encased by both hands. Its affordances on the user are quite different from those of a “normal” pithos/amphora in terms of interaction. The user of the miniature pithos/amphora can instantly (physically and cognitively) apprehend the vessel without the need to theoretically stitch together an asynchronic sequence of physical experiences in order to recreate the idea of a “normal” pithos/amphora.

To take this further, Bailey has successfully argued<sup>21</sup> that there are several phenomena which take place during the interaction of humans and miniatures. This is mainly due to the fact that we inescapably use the human body as a measure for judging the proportions of the world around us, because of our default anthropocentric perception. One of these phenom-

ena afforded by miniature vessels is what I would call *gigantism*: the small scale of the miniature consciously or subconsciously magnifies the user’s perception of themselves and changes their physical boundaries. One way in which this happens with the Petras vessels is that, even though they are “shrunk” materialisations of the idea of something bigger, the maker’s trace on them, being of a “normal” scale on a miniature canvas, renders him/her as a giant. Thus, a diminution not only makes this world more approachable and manageable, but also offers an alternative reality, that of the miniature scale,<sup>22</sup> in and out of which we may cognitively and psychologically fluctuate.

<sup>21</sup> Bailey 2005, esp. 33–6.

<sup>22</sup> Bailey 2005, 28, 30.

So, Pm #0046–P85/A138 (SM 5294) (Fig. 3a) has clear wet smudges, made during turning; only they are bigger than on a “normal”-scale vessel. Similarly, the internal, raising striations of Pm #0052–P86/1303 (Fig. 1g) appear bigger than in a larger equivalent. Pm #0031–P95/1827 (Fig. 3a) is a typical example of a vessel cut off the wheel while still spinning, but in this case the string marks are comparable to rope marks on the base of a “normal” vessel. Finally, Pm #0009–P93/157 (Fig. 3b) exemplifies two things:

a) A human fingerprint taking up half the vessel (the “normal” equivalent would be a thumb print the size of a hand!);

b) A manufacturing distillation, whereby the potter could not make the handle as in the “original” (i.e., by attaching a rolled piece of clay), so s/he opted for the same visual effect by pinching a solid piece of clay and then piercing it with a sharp stick.

Bailey also convincingly argues, following the work of DeLong,<sup>23</sup> that another phenomenon which occurs when humans engage with miniatures is a warped sense of time and space.<sup>24</sup> Understanding a miniature requires concentrated inspection, in order to grasp the general idea of the artefact, the processes of abstraction that have resulted in the choice of its characteristic features, the ways in which human–artefact interaction should adapt to the user’s magnified physicality. But such engagement with miniature materiality also miniaturises the relevant cognitive processes, i.e., people perceive time and space as longer and bigger respectively. In other words, thought processes and perception adapt to the miniature scale. What this means for the Pms is that, when the study and appreciation of their findspots is completed, it may, in fact, transpire that they served as notional and temporal nodes,<sup>25</sup> rather than just carriers of symbolism or ritual paraphernalia.

Furthermore, engagement with miniature vessels, especially three-dimensional ones, demands intimacy (Fig. 3c). To quote Bailey, “miniature, three-dimensional objects force their ways into people’s highly emotive, meaningful, signifying, personal spaces”.<sup>26</sup> In other words, miniatures may be seen to have more power and more immediacy over people, because they require proximity, physi-

cal and cognitive attention. Not only that, they also require imagination:<sup>27</sup> the user is forced to read between the omissions of manufacture, to fill in the gaps, to reconstruct the whole idea of the artefact from its abbreviated reality. In that way, a miniature is an interactive artefact not only in the sense of its physical interplay with the user, but also in the sense of its elicitation of the user’s cognitive co-creation of it.

Finally, a miniature vessel is usually impregnated with a perceptual surprise, not unlike Barthes’s<sup>28</sup> photographic *punctum*. It is only when the user, including the archaeologist, fully engages with the miniature, that s/he may be intrigued or surprised by a hitherto undetected, intimate aspect. In the case of Pm #0009–P93/157 (Figs. 1a, 3b), it may be the aforementioned handle. In the case of Pm #0010–P93/563 (Figs. 1h, 3c), it may be the redundant hole, almost certainly created to string the artefact along in a group/assemblage, or to append it on a person’s body.

## Epilogue

In this paper, I did not present a final study and publication of the ongoing research on the Pm vessels (this will follow). Instead, I chose to use them as a case study towards a better understanding of the definition, classification and affordances of miniature vessels more generally. It is hoped that this, in combination with the data from other Cretan sites, will not only continue efforts to address miniature vessels in a systematic manner, but also demonstrate the diverse significance and potential of the material from Petras.

<sup>23</sup> DeLong 1983, 2000, quoted in Bailey 2005, 36.

<sup>24</sup> Also Bailey 2005, 37.

<sup>25</sup> Cf. Tournavistou’s (2009, 220–7, 230) stratigraphic analysis and its ramifications for the (non) ritual identity of miniature vessels.

<sup>26</sup> Bailey 2005, 39.

<sup>27</sup> “the viewers of a miniature are cheated”, as Bailey (2005, 32) puts it.

<sup>28</sup> Barthes 1999. I thank Fay Stevens for introducing me to Barthes’s work.



### *Greek abstract*

#### Μικινύλα αγγεία από τον Πετρά

Οι μελέτες αγγείων αποτελούν ένα δημοφιλή τομέα της Μινωικής αρχαιολογίας λόγω των πλούσιων χρονολογικών, κοινωνικών, θρησκευτικών και καλλιτεχνικών πληροφοριών που παρέχουν. Στα πλαίσια αυτού του ερευνητικού τομέα, παρά κάποιες πρόσφατες μελέτες, τα μικινύλα αγγεία παραμένουν ανεπαρκώς μελετημένα. Το παρόν άρθρο παρουσιάζει μικινύλα αγγεία από τον Πετρά. Επιχειρηματολογεί ότι, αν και περιορισμένης έκτασης, αυτό το υλικό είναι παρά ταύτα σημαντικό για τη μελέτη και την κατανόηση τέτοιων αγγείων της Εποχής του Χαλκού στην Κρήτη ως τεχνέργων και ως συλλήψεων.



# Literacy at Petras and three hitherto unpublished Linear A inscriptions<sup>\*</sup>

Erik Hallager

## Abstract

From Petras there come new Linear A inscriptions. One is a unique clay rod, **PE Zg 6**, which was found in Sector III in an MM III refuse pit with possible remains from cult activities. It consists of a two line inscription with rulers. Both sign-groups are new in the corpus of Linear A. Furthermore inscriptions were found on two pithoi in the North Magazines of the palatial building which was destroyed in the LM IB period. The first, **PE Zb 7**, consisted of two inscriptions on each side of a vertical handle on a restored pithos. One of the inscriptions was probably incised after firing, while the other was inscribed before firing. The second pithos, **PE Zb 8**, which is completely preserved had a single incised sign. These unpublished inscriptions will be presented, together with some general reflections on the long tradition of literacy at Petras.

The evidence for literacy at Petras includes remains from two of the writing systems in Minoan Crete: Cretan hieroglyphs and Linear A. Chronologically it covers the period MM II through LM IB, *ca.* 1700 to 1450 BC (in the traditional chronology) – in other words, 250 years of the palatial period in Crete. The material consists of the remains from a hieroglyphic archive dated to the MM IIB period and different Linear A documents from the MM III through the LM I periods found scattered over the palatial building and in one of the neighboring houses. Most of these inscriptions have already been published<sup>1</sup> and shall only be briefly summarized here.

From the hieroglyphic archive came important inscribed documents. They consisted of two complete clay bars, nine medallions, one complete and several fragmentary crescents and a single roundel.<sup>2</sup> Many interesting observations were made during the study of the inscriptions. In one case the same inscription was found on both a crescent and a clay bar (039-070-086/068) apparently indicating that the crescent was a temporary document from which the information had to be later transferred on to clay bars.<sup>3</sup> Another interesting feature of the inscriptions is that those from Petras displayed a few

peculiarities which may perhaps permit us to talk about a “Petras scribal tradition”. The clearest example is the double axe sign no. 042. At Petras they are all rendered with curved lines with a shaft added – exactly as it is also found on the mason’s mark in the North Magazines<sup>4</sup> (Fig. 1) – and not as a closed horizontal X with a shaft, as is found elsewhere among the hieroglyphs.<sup>5</sup> Another example is the branch sign 029, where the branches are bordered by dots and not strokes as usually seen.<sup>6</sup>

From the preserved material we could identi-

<sup>\*</sup> I wish to thank Dr Tsipopoulou for entrusting me with the publication of the inscribed material from Petras and for the excellent collaboration we have had over the years concerning the publication of this material. Photographs and drawings, are unless otherwise stated, by the author.

<sup>1</sup> Tsipopoulou & Hallager 1996; Tsipopoulou & Hallager 2010.

<sup>2</sup> Tsipopoulou & Hallager 2010, 70–80, 84–6.

<sup>3</sup> Tsipopoulou & Hallager 2010, 156, 164; see also Younger 2011.

<sup>4</sup> Tsipopoulou 1986b, 175–6 with figs. 7–8 and fig. 1 for context.

<sup>5</sup> The only exception is found on **MA/V Yb 1**, cf. Tsipopoulou & Hallager 2010, 176.

<sup>6</sup> Tsipopoulou & Hallager 2010, 176.





Fig. 1. Mason's mark from the North Magazines with the double axe sign 042.

fy at least two scribes in the archive.<sup>7</sup> We do not know how many scribes might have been working at Petras, nor do we know how many were able to read and understand the inscriptions. Probably not very many since Cretan hieroglyphs – like the Linear B script – were, on present evidence, exclusively used for economic documents,<sup>8</sup> and there must have been only a limited number of officials who could have been interested in the knowledge of the script.

At Petras, however, was found one piece of evidence that the script, or knowledge of the script at least, was also used on another media, and probably

outside the sphere of the professional scribes. It is what we might call the Petras doodle (Fig. 2). This is a small flat pebble with lines lightly and deeply incised. There can be little doubt that the main motif, repeated several times, on the doodle is the hieroglyphic sign no. 011 (the animal's head), while the S-sign (or spiral) that plays a role in the script is also present.<sup>9</sup> It is certainly not an administrative document – but who made it and why – must remain an open question.

Before we leave the hieroglyphs, the first hieroglyphic inscription found at Petras must be discussed. It differs from those found in the archive in two respects. Firstly it was made by a different scribe, as is clear when viewed in connection with the signs 011 and 040 – the last of which is not even in the Petras scribal tradition, as the oars of the ship are the usual strokes and not the dots of the “tradition”. Secondly, it had a different find context in that it was found on the floor of the east corridor of the North Magazines in a clear LM IB context. It remains an open question whether the context date is the same as that of the medallion;<sup>10</sup> but regard-

<sup>7</sup> Tsipopoulou & Hallager 2010, 174–5.

<sup>8</sup> An exception is the inscription on an offering table from Malia, **MA/V Ya** 01, cf. *CHIC*, 314–5.

<sup>9</sup> Jasink 2009, 134–7.

<sup>10</sup> Tsipopoulou & Hallager 1996, 23–4, 46.

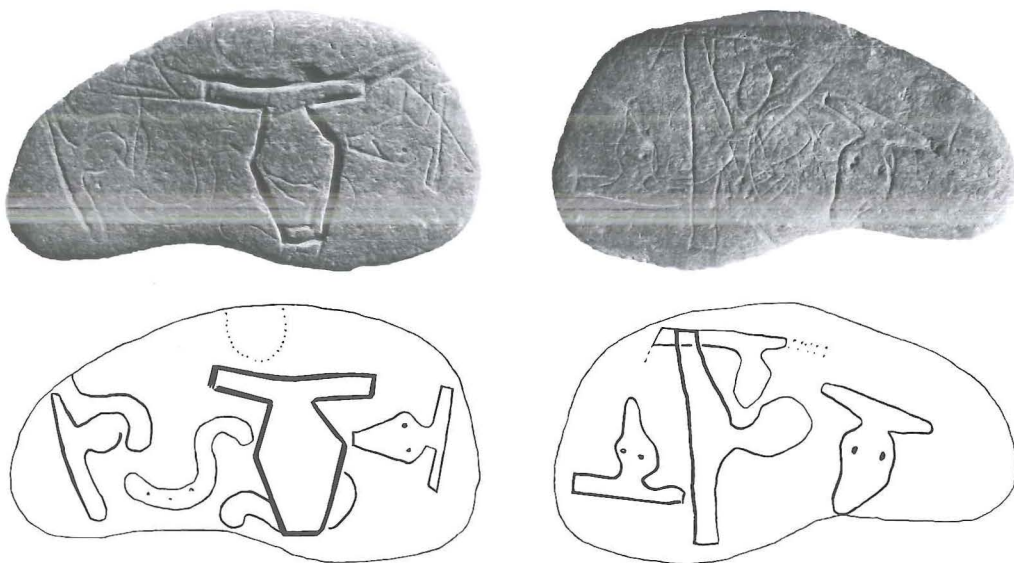


Fig. 2. The Petras doodle (scale 1:1).

less of the date, the uncertainty allows us to keep an open mind to the possibility that – as at Malia, Phaistos and possibly Knossos – the Cretan hieroglyphic was contemporary with Linear A.

And this brings us to Linear A. The first five Linear A inscriptions from Petras consisted of two tablets, one long inscription on a pithos rim, an inscription painted on a closed vessel and an inscribed *nodulus*(?) without seal impression. The tablets were out of context but probably derived from the palatial building, while the pithos was found in the central court of the same building. The *nodulus*(?) and the inscribed sherd were found in LM IB contexts in House II.1.<sup>11</sup>

One point should be stressed in connection with those Linear A inscriptions first found at the site: the different media on which the inscriptions were written (tablets, a pithos rim, a *nodulus* and a painted inscription on a closed vessel). This is not unique for Petras, although inscriptions on pottery are rare. But the interesting thing is that four out of five were inscribed on different media. This, in my opinion, clearly emphasizes that literacy at Petras during the Neopalatial period was at the same high level as we find in the rest of Crete.<sup>12</sup> The hitherto unpublished inscriptions – to which we shall now turn – seem to confirm this.

## The inscriptions

### PE Zg 6 (P00/139), Fig. 3

**PE Zg 6** is a terracotta rod with Linear A inscriptions. The rod was discovered in the only pure MM III deposit from Petras excavated to date, in a refuse pit in Sector III.<sup>13</sup> The contents of the pit are under study, but finds such as several large triton shells indicate that the objects in the pit might have had a connection to religious activities.<sup>14</sup> The rod is complete at the upper end, with slightly rounded corners and a curved depression (or folding?) at the top. The clay is very light grayish-brown (on the reverse) to light yellowish-red (on the obverse) and very roughly tempered. The rod has a coating of finer smoothed clay which has partly peeled off on the obverse. On the obverse are found two sign-

groups in Linear A separated by rulers. The incisions are very fine and medium to deep. The stylus is fine and rather pointed. All dots are very deep. The rod may have been intentionally fired after it was inscribed. W. 6.25, h. [5.5], th. (at top) 2.23, (at fracture) 2.49.

The inscription:

.1 AB 28-06-[•]-04 · I-NA-[•]-TE ·  
 -----  
 .2 AB 59-06-80-46 · TA-NA-MA-JE ·  
 -----  
*inf. mut.*

This object differs, in so many respects, from all other documents inscribed on clay that we felt it necessary to suggest a Zg designation<sup>15</sup> and to label it “terracotta rod” instead of tablet or bar. The shape is different. Part of a ruler is seen in the fracture below the inscription of line 2, which means that the complete object with a third inscribed line would have measured at least 8 cm. No other inscribed document of either MM II/III or LM I date can be compared to such a shape. The closest parallels are **MA 4** and **MA 6**,<sup>16</sup> but they are thinner and narrower, and moreover they are inscribed in the usual way along the longitudinal axis of the document, whereas the Petras object – to our knowledge uniquely – is written at a right angle to the longitudinal axis. In one other respect, **PE Zg 6** differs considerably from all other administrative Linear A documents – that is the clay. Linear A tablets and sealed documents are always manufactured from finely gritted clay. This, however, is not the case with **PE Zg 6**, which is of a rather coarse fabric probably even including small fragments of organic material in the tempering. On the present evidence, there is no feature which can allow us

<sup>11</sup> Tsipopoulou & Hallager 1996, 7-46.

<sup>12</sup> Hallager in 2011, fig. 6.

<sup>13</sup> See plan in Tsipopoulou this volume, Introduction, Fig. 5d.

<sup>14</sup> I am grateful to Dr Tsipopoulou for providing the information on the archaeological context.

<sup>15</sup> In *GORILA* 4, xx and 163 defined as “Inscriptions sur supports varies”.

<sup>16</sup> *GORILA* 1, 272-7.





.1  $\Psi \bar{i} [\cdot] \text{✱}$   
 .2  $\square \bar{i} \text{X} \text{X}$   
*inf. mut.*

.1 I-NA-[-]-TE .  
 .2 TA-NA-MA-JE .

Fig. 3. Terracotta rod, P00/139, PE Zg 6 (scale 1:1).

to compare the Petras object to the “ordinary” administrative Linear A documents, and this observation may also be emphasized by the inscription.

The inscription is, with the exception of the third sign in line .1, clearly readable. No reading for this sign can be suggested here, unless we are dealing with some obscure version of AB 81 (KU) as it arguably contains certain aspects essentials of that sign.<sup>17</sup> AB 28 (I) is drawn as an oval with two

vertical “ears” and a vertical stroke below. No exact parallel to this way of rendering the sign is known. AB 06 (NA) is in both inscriptions rendered in a simple way with a small horizontal stroke with two (perhaps three in line .1) small vertical strokes below. This is a little unusual since the upper part of

<sup>17</sup> I am grateful for this suggestion to Prof. Frederik Waanders.

NA is usually rendered with two horizontal strokes or one horizontal stroke with a dot/circle below. AB 04 (TE) is rendered with four oblique strokes on each side of the vertical one, recalling the hieroglyphic way of presenting the sign.<sup>18</sup> This is also unusual, although a good parallel is found on **KO Za 1d**.<sup>19</sup> The two simple signs, AB 59 (TA) and AB 46 (JE), are rendered canonically, though carefully. The last preserved sign, AB 80 (MA), is very elaborate, while close, but not exact, parallels may be found on **AR Zf 1**, **Zf 2**, **IO Za 2d.1**, **KO Za 1d**, and **PH 7a**.<sup>20</sup> and on an MM III jar from Knossos.<sup>21</sup> **PE Zg 6** is dated to MM III and we may perhaps see early forms in some of the signs, as is the case with TE (recalling hieroglyphs) and ME, for which a close parallel is found on an MM IIB document from Phaistos and on an MM III jar from Knossos. At the end of each sign group is found an intentionally made deep dot which is considered an “end of word”, as it is usually found on Linear A tablets as “word dividers”.<sup>22</sup>

Neither sign-group is previously attested in the corpus of Linear A, nor for that matter in Linear B.<sup>23</sup> The two initial signs, however, of both inscriptions have several parallels in the corpus of Linear A, and these parallels, with a few exceptions on tablets from Zakros, Phaistos and Hagia Triada,<sup>24</sup> are all found on libation tables and offering bowls at sites of religious importance. Thus, we find the I-NA... on a libation table from Palaikastro (**PK Za 11d**) and on stone bowls from Apodoulou (**AP Za 2.2**) and Juktas (**IO Za 6**). The initials TA-NA... are also found on the above mentioned stone bowl from Juktas, where they are likewise found on a libation table (**IO Za 2**). Furthermore, the initials are found on libation tables from Psychro (**PS Za 2.2**) and Prassa (**PR Za 1**). Considering the possible religious context of **PE Zg 6** these initials are hardly a coincidence. Since it is believed that names of gods may sometimes appear on such inscriptions (JA-SA-SA-RA, for example), we thought it worth while to extend our search for parallels among the Minoan names for gods found on the London Medical Papyrus now in the British Museum. In this text we find the name of two probable Minoan deities Razaja/Razija and Ameija/Amija,<sup>25</sup> but none of them, neither RA-ZA-JA/RA-ZI-JA nor

A-ME-I-JA/A-MI-JA fits the sign-groups on the Petras inscriptions.

**PE Zg 6** is unique among Linear A inscribed artifacts. The only other inscribed object to which it may perhaps be compared<sup>26</sup> is **KO Za 1** (HM 2627), a small oblong stone block measuring 11.5 x 8 x 6.8 cm which has, on the upper edge, a continuous inscription consisting of six sign-groups. The religious importance of this stone block can hardly be doubted since most of the sign-groups here are repeated over and over on other inscribed, religious(?) stone vessels from all over Crete.<sup>27</sup> Also the site of Kophinas is believed to be a sanctuary.<sup>28</sup> The meaning of these inscriptions is not known in any detail, although names of gods or religious formulas would be an obvious choice. Regardless, they clearly fall within the category of *inscriptions votives*.<sup>29</sup> Unfortunately, the lower part of **PE Zg 6** is broken away, but with the above parallels it is very tempting to see it and its inscription as analogous to **KO Za 1**, and in a wider perspective, to the inscriptions found on the religious(?) stone vessels. If this analogy holds true, it might also explain why the terracotta rod was perhaps intentionally fired after the inscription, since in the case of the Petras piece, clay had been substituted for stone.

<sup>18</sup> CHIC, 395.

<sup>19</sup> GORILA 4, 19.

<sup>20</sup> GORILA 5, XLI.

<sup>21</sup> Macdonald 2000, 64, fig. 39.

<sup>22</sup> Word dividers on tablets occur either as a dot or as a small vertical stroke.

<sup>23</sup> The closest parallel in Linear B is *i-na-o-te* found on **MY Ge 604.2** which is said to be the dative of a personal name (cf. Ventris & Chadwick 1973, 548).

<sup>24</sup> **PH 6.1**, **ZA 10a.1** and **HT 7a.4**, **10b.4** and **98a.2**.

<sup>25</sup> Haider 2001, 479-82.

<sup>26</sup> I suggest this possible parallel against the better advice of Jean-Pierre Olivier, to whom I am grateful for discussions.

<sup>27</sup> Thus 08-59-28-301-54-57 is found on **IO Za 2a.1**, 3, 7; **IO Za 4**; **PK Za 12**; **SY Za 1**, 2a, 3; and **TL Za 1a**. 28-01-08 may perhaps be found on **IO Za 2b-c.2**. 28-39-06-80 is also found on **AP Za 2.1**; **IO Za 2d**; **VRY Za 1a** and perhaps also **PK Za 8c**. 10-06-77-06-41 is also found on **PK Za 8**; **SY Za 2b**; **TL Za 1b** and **IO Za 2c-d.1**. 41-26-04 is re-found on **IO Za 2a.2**; **SY Za 3**; **VRY Za 1b** and a related inscription is found on **PK Za 11d**.

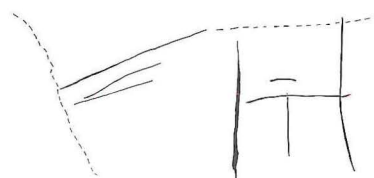
<sup>28</sup> Cf. Raison & Pope 1980, 241 with further references.

<sup>29</sup> Karetsou *et al.* 1985, 144.





a. 𐎶



A



b. 𐎶𐎶 []



JA-WA-100/102 [•]

Fig. 4. Pithos P89/533 (SM 12069) and **PE Zb 7a, b** (scale 2:5)

**PE Zb 7** (P89/533, SM 12069), Fig. 4

The inscriptions:

A

[•] JA-WA-100/102 [•]

lique stroke in the central part. In front of this, in the upper left part is incised a “hook” turning slightly downwards.

Inscription **a** must be considered as an isolated AB 08 (A) and may have had the same function on **PE Zb 8** (cf. below), while the combination JA-WA-100/102 [•] is seen for the first time. JA-WA-[ is also found on **KN Za 18**, but there is no way to determine whether they originate from the same sign-group. The stylus (es) used and the deepness of the incisions in the two inscriptions seem to indicate that they were done by two different persons. Inscription **b** was certainly made before the pithos was fired, while inscription **a** appears to be a graffito (i.e., done after the pithos was fired).

<sup>30</sup> On the inscribed stone vessels from Juktas the sign has from the canonic three up to six vertical strokes.

<sup>31</sup> **HT 119a.1**; **HT 89.3** and KH Wc 2117 – if correctly interpreted in the *GORILA* (5, 47).





Fig. 5. Pithos SM 11906 (not to scale) and **PE Zb 8** (scale 1:1). Photo of pithos: Chronis Papanikolopoulos.

### **PE Zb 8** (*SM 11906*), *Fig. 5*

**PE Zb 8** is a completely preserved pithos; just above the relief bands is a very lightly incised sign in Linear A: AB 08 (A). The stylus used was rough with an almost split end. Dimensions of sign: h. 2.58, w. 2.34.

The inscription:  
AB 08 A

Palaeographically there is no peculiarity about the sign. Isolated signs on pithoi are very rare, and when they do occur they seem to be ideograms (WINE and FIG known from Knossos only).<sup>32</sup> Since AB 08 does not occur as an ideogram, it would be tempting to see it as a kind of abbreviation – as it is apparently used on **HT 37.5**.

### Comments

The new inscriptions from Petras have added three new “words” to the corpus of Linear A, although only 12 complete, and one unreadable, signs were found. Four of these signs appear for the first time in the Petras material: AB 28 (I), AB 04 (TE), AB 80 (MA), AB 46 (JE) and AB 54 (WA). With the exception of WA, the new signs are found on the clay rod, which is older than the Linear A tablets. The only sign found on both the clay rod and the tablets is the NA, which is executed in two different ways. More interesting may perhaps be a comparison between the inscriptions found on the pithoi, since they are probably of an approximately similar date. The material, of course, is too small to draw

<sup>32</sup> For the WINE ideogram: Boskamp 1996, 103–8 and pl. 25b; Hallager 2002, 64 and fig. 3. For the FIG ideogram: *GORILA* 4, 82 (**KN Zb <39>**).

any conclusions, but it may be said that the A's on **Zb 7** and **Zb 8** are differently executed from the one found on **Zb 3**. The A 100/102 found on both **Zb 3** and **Zb7** (if rightly interpreted here) are differently executed and even turn in different directions. JA found on both **Zb 3** and **ZB 7** is in both cases a very slim version of the sign, but otherwise the lines of the sign are drawn differently on the two pithoi.<sup>33</sup>

Of the three new Linear A inscriptions from Petras, **PE Zg 6** is unique. Its physical appearance, with a very roughly tempered clay, and the inscriptions which, go across and not along the axis of the document, make it very difficult for it to be considered an ordinary Linear A tablet as found elsewhere in the MM IIB to LM IB periods. It certainly does not seem to belong to one of the ordinary administrative documents, while the inscriptions and the context may point in the direction of an "*inscription votive*". Whatever the correct interpretation, **PE Zg 6** is the oldest Linear A inscription yet discovered at Petras, and from a palaeographic point of view it certainly has "archaic" traits pointing to the hieroglyphic scribal tradition also attested at the site.

Linear A inscriptions have been found on two further pithoi, both coming from the North Maga-

zines, and both interesting and unusual. **PE Zb 8**, and possibly **Zb 7**, falls into the category of a single incised sign (an ideogram?) probably indicating the intended contents of the pithos, while **PE Zb 7** in all likelihood was both inscribed before and after firing, which makes it unique.

To sum up, I think that the inscribed material from Petras falls very clearly within the tradition seen elsewhere on Crete. The hieroglyphic inscriptions all fall within the administrative/economic sphere, while there is a much more varied use and knowledge of the Linear A script in the Neopalatial period. This is shown by the clay rod, the painted inscription and, in my opinion, also by the pithos with the double inscription. The reason for the double inscription is open to debate, but obviously some supplementary information was needed on this pithos. Even though Petras has not yet revealed many Linear A inscriptions, such a practice seems to show that the script was used when considered necessary, and the presence of people to do it and read it may again emphasise the importance of the site of Petras.

<sup>33</sup> For the previous Linear A signs from Petras compare Tsipopoulou & Hallager 1996, fig. 17.



# Discussion

**Macdonald** I was very interested to see **PE Zg 6**, the rod. The MA sign you showed that I think looks like a cat, has a very good parallel on the jug from the area of the Hellenistic kilns, KS178, MM IIIB from Knossos. There is, in fact, a group of four signs, they must be published, I certainly published a photograph of them, and have got a number, I think, as an inscription; it would be worth looking at that.

**Hallager** Thank you, I will certainly do that.

**Macdonald** And it is the third sign in the group, but I cannot remember all the different signs. I want to ask you generally about Linear A and MM IIIB. It was Evans' opinion that the greatest proliferation of Linear A on objects, other than tablets, was a MM IIIB phenomenon, and that was the period when people had the widest knowledge of the script. I wonder if you have any comments on that.

**Hallager** I would say that I see no reason to agree with Evans, because of what has been found painted on vases, of what was inscribed on metal, etc. From what I remember now, and anyway the latest inscriptions of this kind are coming from LM I contexts, and most of them even from LM IB contexts.

**Macdonald** The earliest of course are the inscribed cups from Knossos.

**Hallager** They belong certainly to the MM III deposits.

**Ferrence** On **PE Zg 6** again do you happen to have a date for that, did I miss that?

**Hallager** The chronology is MM III. Metaxia Tsipopoulou talked about this pit where they were found, as the only MM III pure deposit preserved at the site.

**Tsipopoulou** It was not a pit, it was a basement room filled with this deposit which was homogeneous, MM III. I did not have the time to present a paper about it at the MM III Conference. Many of the shapes of this deposit were parts of rhyta. There were also special cups with parallels from Symi.

**Hallager** Metaxia, I would like to ask one thing which I believe I did not ask you before. In this deposit were there clear signs of fire, do you have charcoal, burnt things, because that would be a further argument that this piece was fired before its use?

**Tsipopoulou** No.

- Haggis** I liked the idea of looking at diachronic change in the sense of literacy, based on the diversity of context and functions in the Neopalatial period. Going back to the Protopalatial period, could you comment on the use of individual hieroglyphic signs on vessels?
- Hallager** What is found on vessels is mainly on the Chamaizi pots.
- Haggis** Has Erik seen the individual sherds in the Lakkos? There are three that I can think of, and they have single signs.
- Hallager** No I have not seen them.

### *Greek abstract*

#### Τρεις αδημοσίευτες επιγραφές Γραμμικής Α από τον Πετρά

Υπάρχουν τρεις νέες επιγραφές Γραμμικής Α από τον Πετρά: η πρώτη είναι μια μοναδική πλήλη ράβδος, **PE Zg 6**, η οποία βρέθηκε στον Τομέα ΙΙΙ, σε ένα ΜΜ ΙΙΙ λάκκο, με πιθανά λείψανα τελετουργικής δραστηριότητας. Αποτελείται από επιγραφή δύο σειρών με γραμμές. Και οι δύο ομάδες σημείων είναι νέες στο *corpus* της Γραμμικής Α. Επιπλέον, βρέθηκαν επιγραφές σε δύο πίθους των βορείων αποθηκών του ανακτορικού κτιρίου που καταστράφηκε στην ΥΜ ΙΒ. Η μια, **PE Zb 7**, αποτελείται από δύο επιγραφές εικατέρωθεν μιας κάθετης λαβής του αποκατεστημένου πίθου. Μία από τις επιγραφές είχε πιθανόν χαραχθεί μετά το ψήσιμο, ενώ η άλλη πριν. Ο δεύτερος πίθος, που σώζεται πλήρης, **PE Zb 8**, είχε μόνον ένα εγχάρακτο σημείο. Οι τρεις αυτές αδημοσίευτες επιγραφές παρουσιάζονται με μερικές γενικές σκέψεις σχετικά με τη μακρά επιγραφική παράδοση του Πετρά.







# Death in Petras: two men fighting on a LM IA lentoid seal\*

David W. Rupp

## Abstract

In the floor deposit of a LM IA building in the Neopalatial settlement at Petras was found a soft stone, possibly serpentine, lentoid seal, P05/941. The scene engraved on the convex surface is that of two men fighting with daggers (*Kampfszenen*). 16 Minoan and Mycenaean seals and seal impressions, a Mycenaean fresco and a *dubitandum* are given as parallels and *comparanda*. The Petras seal is the earliest securely-dated example with this theme. As a postscript, two seals depicting men carrying a spear or a stick are provided as additional *comparanda* for a previously published EM III steatite seal from the Lakkos deposit in Sector III of Petras settlement (Rupp 2006).

## Introduction

In the course of excavating the test trenches along the proposed line of the paths for those visiting the excavations at Petras (Fig. 1), a number of interesting architectural remains were encountered.<sup>1</sup> Near the entrance gate to the site, in Test Trench 49 (Fig. 2), a small section of a simple LM IA building with its associated floor was uncovered in 2005. In Locus 8, the packed earth floor just above the prepared bedrock surface, at an elevation of 16.52 m A.S.L.,

\* This paper would not have been possible without the constant support and encouragement of Dr Metaxia Tsiopoulou. She gave me permission to study and to publish the seal. Dr Yiannis Papadatos (then 24<sup>th</sup> Ephorate of Prehistoric and Classical Antiquities) excavated the trench and supplied the notes and images. Douglas Faulmann (INSTAP Study Center for East Crete, Pacheia Ammos, Crete) executed the drawing, Chronis Papanikolopoulos (INSTAP Study Center for East Crete, Pacheia Ammos, Crete) took the images, and Garifalia Kostopoulou provided logistic assistance for the excavation notes and imagery.

<sup>1</sup> Tsiopoulou this volume, Introduction.

- Middle Minoan
- Late Minoan I
- Late Minoan IIIA
- Paths for the visitors
- Signs for the visitors
- Fence of the archaeological site
- ▽ LM IA lentoid seal - P05/941

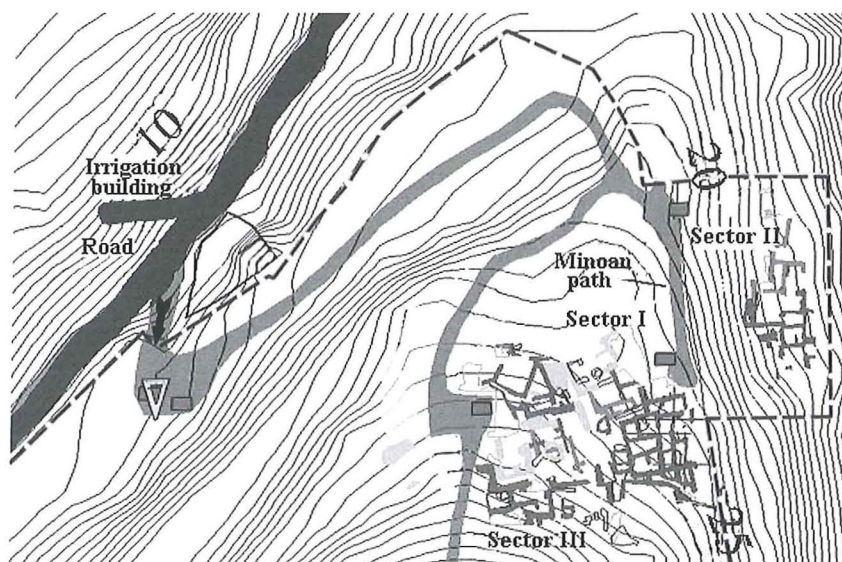
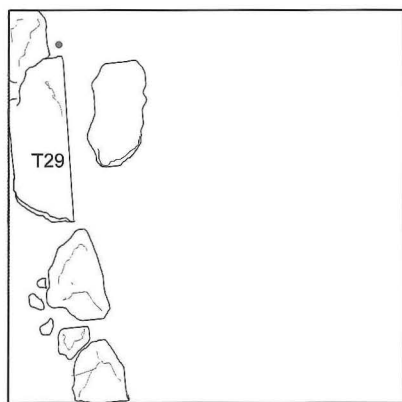


Fig. 1. Topographical plan of Petras-Siteia, indicating the location of Test Trench 49.



PETRAS 2005  
ENCANCEMENT  
TRENCH - 49 L 8

• P05/941



0 1m

Fig. 2. Plan of Test Trench 49 at Petras (drawn by Gari-falia Kostopoulou).

a lentoid seal<sup>2</sup> was found next to the interior face of the wall. Other test trenches excavated in this area demonstrate that the Neopalatial settlement extended down to this level of the hill.

## Archaeological context and chronology

Unfortunately the sherds on the floor surface were not particularly well preserved. While the majority could be securely dated to the LM IA phase, there were also some MM II sherds.<sup>3</sup> The number

of sherds recovered was 63, with a total weight of 2.05 kg. Only 25 of them were diagnostic (Figs. 3–4). Shapes included three pithoi (body and base), the base of a pithoid jar, two amphora handles (P05/368/6), three handles from bridge-spouted jars (P05/368/8), six sherds from cooking pots – base (P05/368/4), legs (P05/368/3) and handles – three bowls (P05/368/2, 5), two handleless conical cups (P05/368/1), two straight-sided cups and the spout of a side-spouted jug (P05/368/7). As for the decoration, the three pithos sherds have relief decoration; there are four monochrome sherds; five with dark-on-light decoration (mostly bands), one with ripple pattern (on a bowl), and one light-on-dark.

## The description of the lentoid seal

The lentoid seal (Fig. 5a-b) is carved from a soft stone, mottled blackish brown with lighter patches, probably serpentine. It is 1.61 cm in diameter and 0.6 cm thick at its widest point with convex faces. The string hole is on the vertical axis of the composition and has a diameter of 0.25–0.30 cm.

<sup>2</sup> P05/941.

<sup>3</sup> Metaxia Tsipopoulou and Melissa Eaby read and dated the pottery.

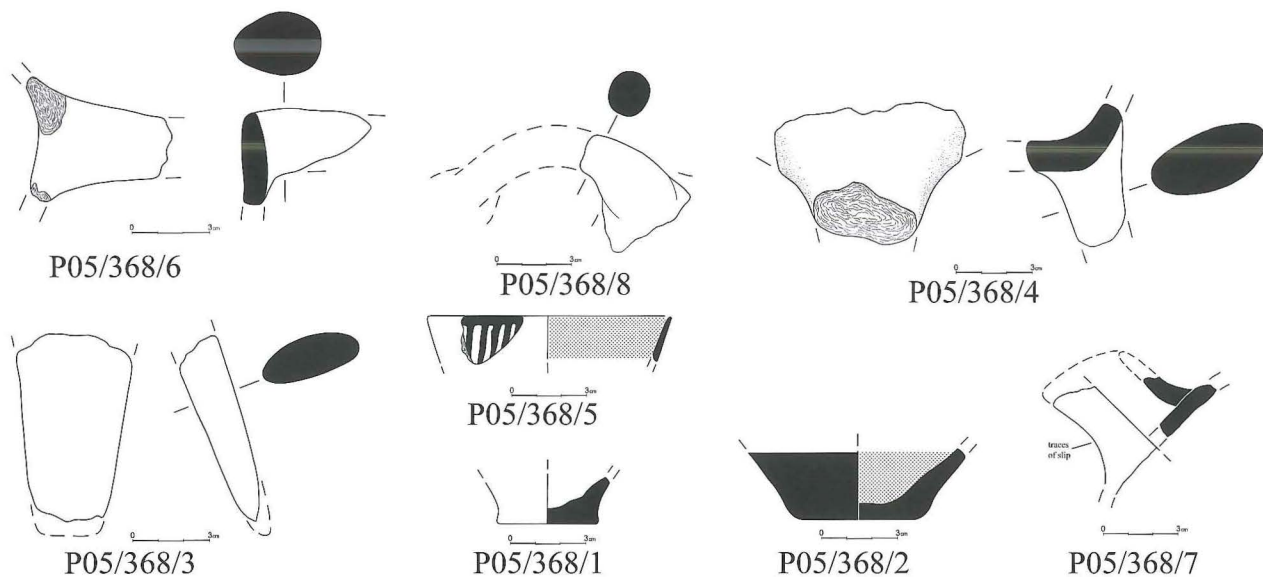


Fig. 3. Profile drawings of diagnostic sherds in Locus 8 of Test Trench 49 (scale 1:3; drawn by Kostas Chalikias).

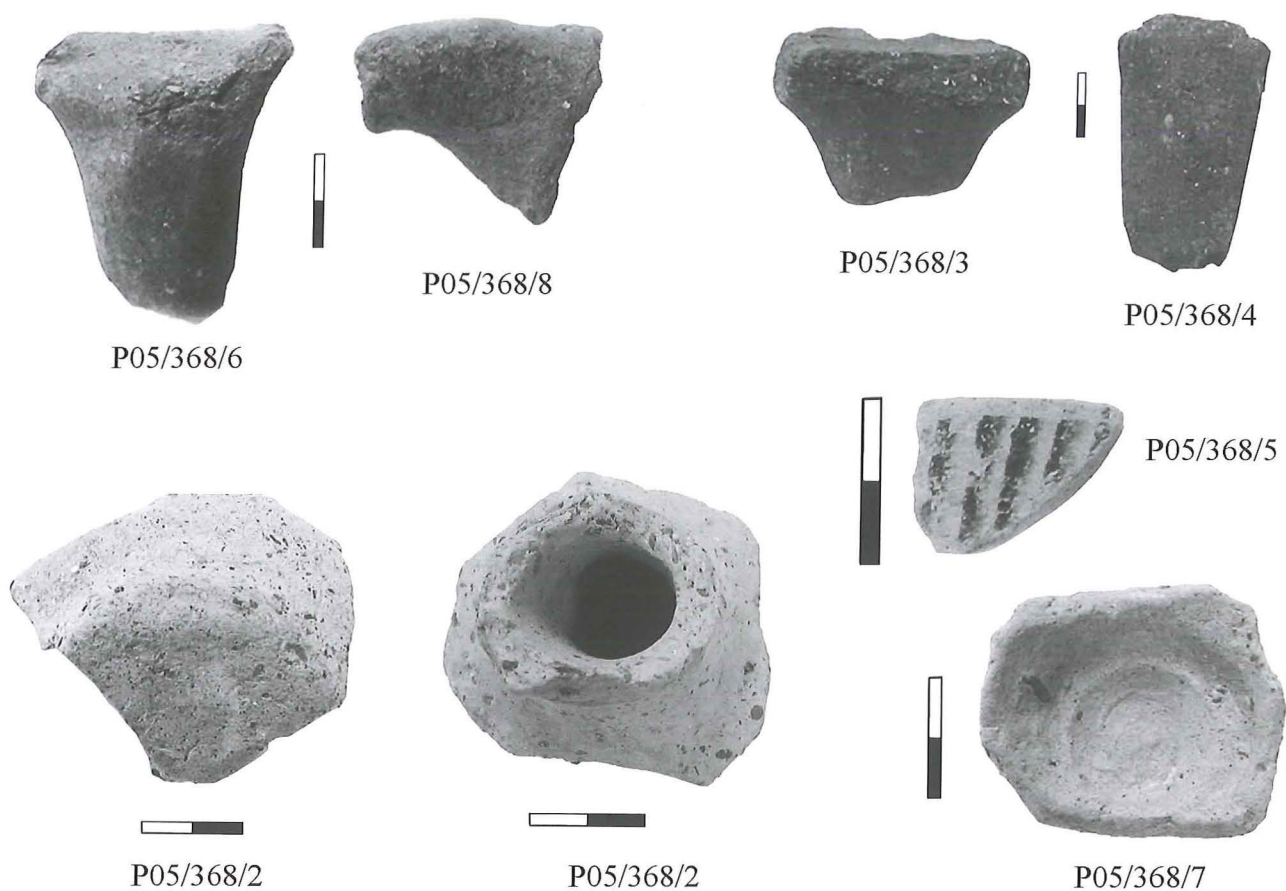


Fig. 4. Photographs of diagnostic sherds in Locus 8 of Test Trench 49 (taken by Clio Zervaki).

## The imagery and composition of the seal

The seal's engraved image (Fig. 6), most likely two men duelling with daggers, while schematic and crudely executed, is rendered in dynamic, centrifu-

gal fashion. The right, dominant figure is striding to the left. His head, looking right, is little more than a pointed dot, facing right, with a linear projection at the back. The neck and the torso are a series of linear and curvilinear gouges. The figure's right arm reaches to the left behind or over the left

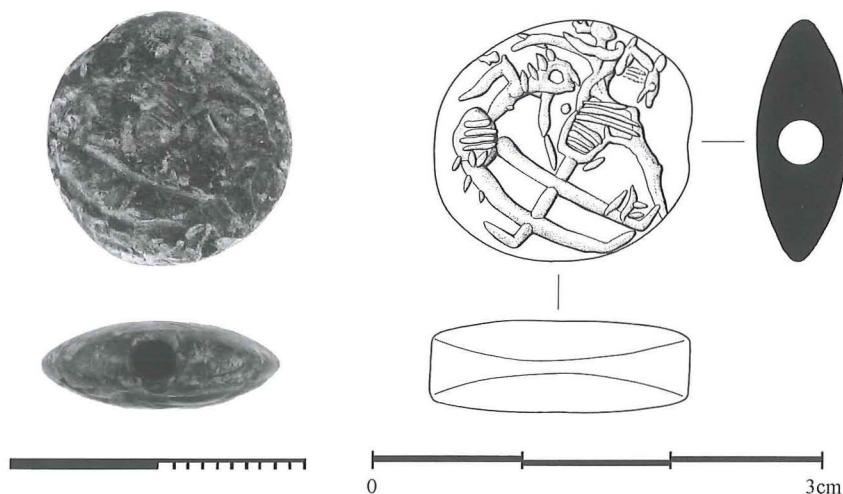


Fig. 5. a) Photographs of the lentoid seal P05/941 (taken by Chronis Papanikolopoulos); b) Drawing of lentoid seal (scale 2:1).





Fig. 6. The impression of the lentoid seal P05/941.

figure's head. The left arm's disposition is difficult to discern. The figure appears to be holding a linear object pointed downward in his left hand. The pelvic girdle is depicted as an irregular shape filled with six horizontal, parallel lines. This might be a kilt. The legs are straight with a right foot and a possible left knee indicated.

The left-hand figure is shown as collapsing towards the left. His head, facing to the right, is rendered as a circle with a large dot for an eye and a slight incision on the right to indicate the nose/mouth. Three short lines project backward from the head. The neck and torso are rendered as a slightly curving line that tapers downward. There is a short linear gouge at the neck. The outstretched right arm is bent at the elbow. The hand/end appears not to hold anything. The left arm reaches downward behind the other figure's right leg. The hand appears to be holding a short linear object, possibly a schematic dagger. The amygdaloidal-shaped pelvic girdle is depicted with four horizontal parallel lines above three short gouges radiating from the crouch. The long legs curve to the right with each foot indicated.

## Stylistic comparisons for the imagery and the rendering of the figures

The closest comparison for the overall theme of warriors fighting (*Kampfszenen*),<sup>4</sup> the composition, the schematic rendering of the figures and the date is found on a lead string seal impression from an amygdaloid soft stone seal found at Hagia Triada (Fig. 7a) in an unknown context.<sup>5</sup> It is dated to LM I. The composition shows two warriors fighting in the same manner as depicted on the Petras seal. The major differences are, first, the possible sword in the right hand of the right figure, in addition to the up-raised weapon in his left hand, as well as his thrusting stance. Second, the left figure's left arm is raised and appears not to hold a weapon. The general rendering of the heads and the bodies is more life-like and better executed on the Hagia Triada sealing. The decoration of the pelvic girdles with a series of horizontal parallel lines has similarities. When the two seals are compared, the Petras seal carver appears either to have misunderstood the details of the composition of the prototype and/or was artistically incapable of copying it in a competent fashion.

A reddish brown carnelian lentoid seal from the Schliemann Collection (without number) at the Numismatic Museum in Athens<sup>6</sup> takes the basic composition and modifies it by transforming the right-hand figure into an upright warrior carrying a figure-8 shield in his left hand and a sword in his right (Fig. 7b). The style of this LM I seal is very impressionistic in different manner from that seen on the Petras seal. A red jasper lentoid seal from the collection of Richard B. Seager (probably from Crete),<sup>7</sup> classified as one of the *gemmae dubitandae*, has the same composition (Fig. 7c). The warrior with the figure-8 shield has a short sword in his

<sup>4</sup> Pini 1989, 203.

<sup>5</sup> CMS II.6, no. 16, Herakleion Museum, inv. no. 1653 (with bibliography); Pini 1989, 205, no. 7, fig. 2.

<sup>6</sup> CMS V.1, no. 180.

<sup>7</sup> CMS XII, no. 13D, New York, Metropolitan Museum of Art; Pini 1989, 204, no. 5.

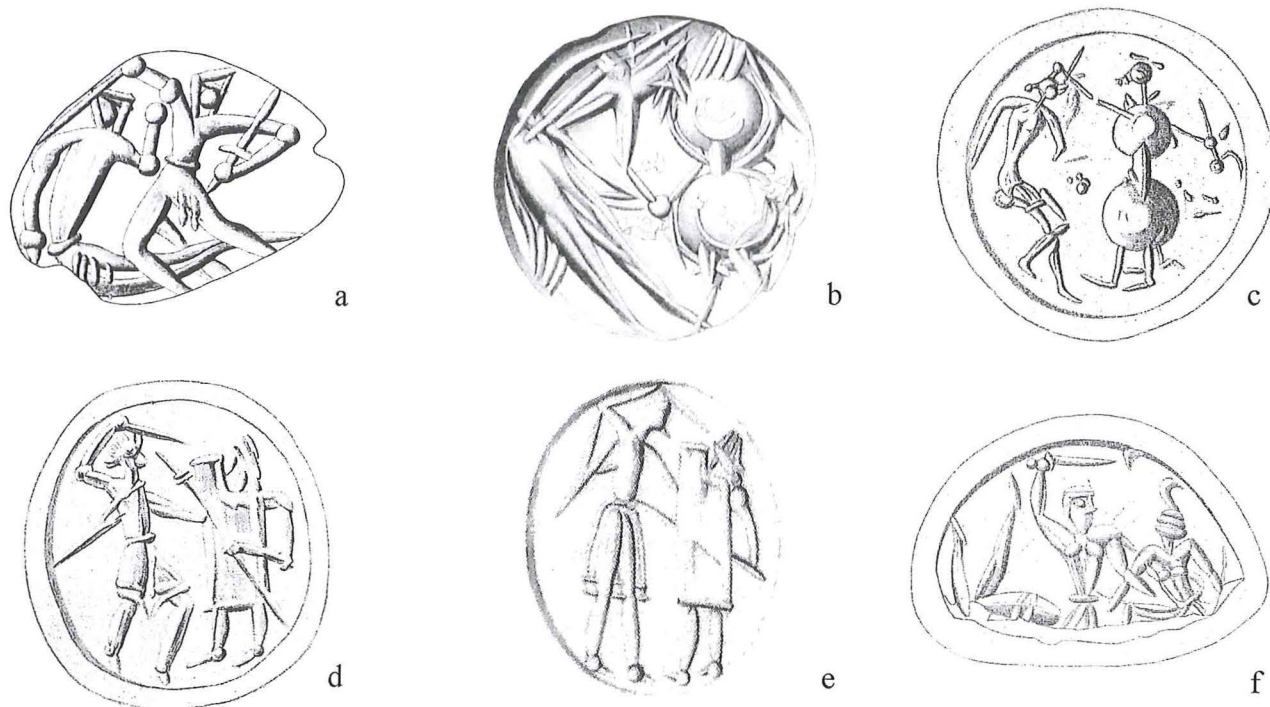


Fig. 7. a) CMS II.6, no. 16, Herakleion Museum, inv. no. 1653; b) CMS V.1, no. 180, Schliemann Collection (without number), Numismatic Museum, Athens; c) CMS XII, no. 13D, New York, Metropolitan Museum of Art; d) CMS VII, no. 129, London, British Museum, inv. no. (GR/R) 1874.4–5.5; e) CMS XII, no. 292, New York, Metropolitan Museum of Art, inv. no. 26.31.262; f) CMS IX, no. 158, Paris, Cabinet des Medailles, inv. no. 3377.

right hand and appears to be grasping or hitting the head of the left-hand figure. The left-hand figure appears to be starting to fall with his legs crossed as seen on the previous seals. A similar composition, with a tower shield replacing the figure-8 shield is seen on a carnelian lentoid seal from Crete (Fig. 7d).<sup>8</sup> The rendering is less schematic with the left-hand attacker brandishing a sword in his right hand over his head. Pini dates this seal to LM I/II.<sup>9</sup> A very similar composition is depicted on a cloudy chalcedony lentoid seal of the same general date (Fig. 7e).<sup>10</sup> The shorter right-hand warrior with a boar's tusk helmet and a tower shield thrusts a spear upwards toward the midriff of his opponent. The taller left-hand figure, possibly wearing a kilt, has his right arm over his head with a sword ready to strike. His left arm extends towards the other warrior.

The general theme of two warriors fighting alone is sometimes incorporated into depictions of a larger battle and/or a siege in the LM I imagery repertoire.<sup>11</sup> A fragmentary mottled blue chalcedo-

ny LM/LH I-II lentoid seal depicts a combat scene with three figures (Fig. 7f).<sup>12</sup> The central warrior faces to the right with a sword raised over his head in his right hand. His opponent to the right wears a boars' tusk helmet with a plume and appears weaponless. The composition of these two figures is the same as Fig. 7c and Fig. 7d. The left-hand figure is shown upside down with his legs bent. In the confined space of the lentoid, this pose probably indicated the figure as dead, as there is no room for his body to be depicted horizontally. A *nodulus* seal impression made from a LM I convex oval

<sup>8</sup> CMS VII, no. 129, London, British Museum, inv. no. (GR/R) 1874.4–5.5; Pini 1989, 206–7, no. 10.

<sup>9</sup> Pini 1989, 206–7, no. 10.

<sup>10</sup> CMS XII, no. 292, New York, Metropolitan Museum of Art, inv. no. 26.31.262; Pini 1989, 207, no. 11.

<sup>11</sup> Hiller 1999.

<sup>12</sup> CMS IX, no. 158, Paris, Cabinet des Medailles, inv. no. 3377; Pini 1989, 207, no. 12.



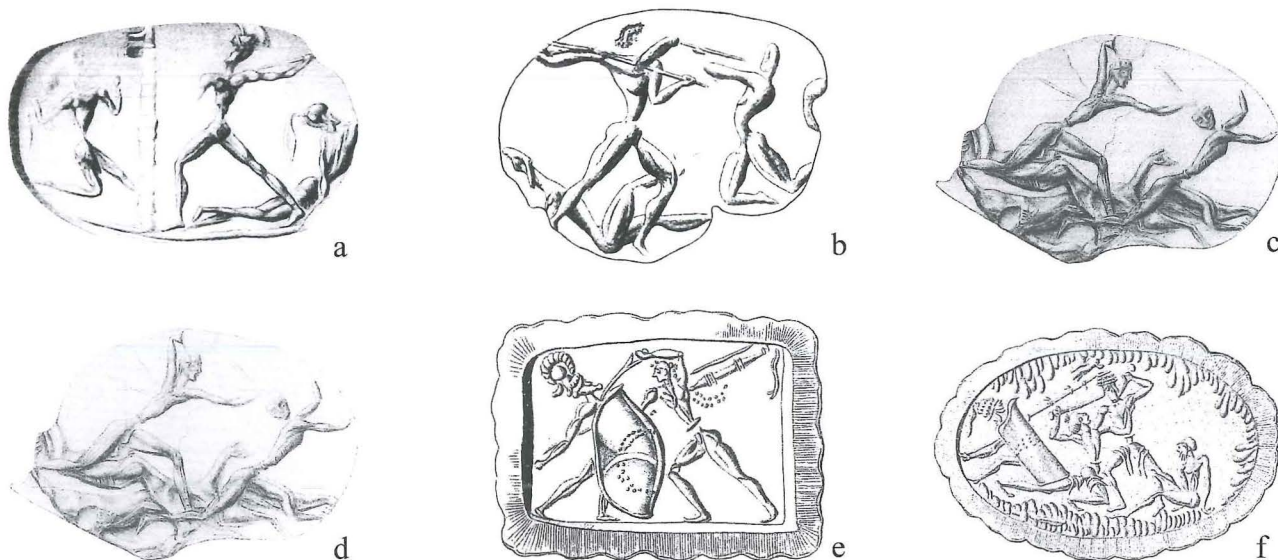


Fig. 8. a) CMS II.6, no. 17, Herakleion Museum, inv. no. 483; b) CMS II.7, no. 20, Herakleion Museum, inv. nos. 7/1–3, 8/1–2, 61/1–2, 69; c) CMS II.6, no. 15, Herakleion Museum, inv. nos. 526/1–3, 595, 596 (5 pieces); d) CMS II.8, no. 279, Herakleion Museum, inv. nos. 369 (KN Wc 51) and 1275; e) CMS I, no. 11, Athens, National Museum, inv. no. 35; f) CMS I, no. 16, Athens, National Museum, inv. no. 483.

seal ring was found at Hagia Triada (Fig. 8a).<sup>13</sup> It displays a variation of the composition seen on the Petras seal. Here the dominant nude figure with a crested helmet is on the right and is about to throw a spear to the left at the probably unarmed opponent dressed in a loincloth and moving to the right. A column-like element separates them and there is a fallen warrior wearing a helmet with a tassel lying at the right edge. The rendering of the bodies and the poses is more naturalistic.

Four lead string seal impressions made from a slightly convex oval metallic seal ring, were found in an LM IB context in Room VII of House A at Kato Zakros (Fig. 8b).<sup>14</sup> These display another variation of the composition, where the right-hand warrior faces left to confront the dominant attacking warrior. Both have spears in their right hands posed for throwing. On the left lies a fallen warrior. The artistic execution of the scene has many close similarities to the previous seal impression.

A more complex composition, executed in a more artistically carved fashion, is seen in five well-known examples of LM IB clay hanging nodule seal impressions from an oval metallic seal ring from Hagia Triada<sup>15</sup> (Fig. 8c) and impressions from the

Final Destruction Deposit at Knossos (two)<sup>16</sup> (Fig. 8d).<sup>17</sup> In these seal impressions, the dominant figure is on the left, accompanied by a dog,<sup>18</sup> holding

<sup>13</sup> CMS II.6, no. 17, Herakleion Museum, inv. no. 483 (with bibliography); Pini 1989, 208, no. 14; Krzyszkowska (2005, 140, no. 248) sees this as a ritual combat due to the presence of the central pillar. Marinatos (1993, 215, fig. 222) interprets this scene slightly differently. She sees this as a contest, "...almost reminiscent of gladiatorial games", and possibly "...the setting is urban/architectural".

<sup>14</sup> CMS II.7, no. 20, Herakleion Museum, inv. nos. 7/1–3, 8/1, 61/1,2, 69 (with bibliography).

<sup>15</sup> CMS II.6, no. 15, Herakleion Museum, inv. nos. 526/1–3, 595, 596 (five pieces); Pini 1989, 203–4, no. 2, fig. 1; Hallager 1995, 14–5, fig. 11; Weingarten 2010, 407, fig. 4b.

<sup>16</sup> CMS II.8, no. 279, Herakleion Museum, inv. nos. 369 (KN Wc 51) and 1275 (with bibliography); Hallager 1995, 14–5, fig. 11.

<sup>17</sup> While Weingarten (2010, 410, fig. 7d) argues that these two impressions are from a monumental "replica" ring, Krzyszkowska (2005, 140, 189–90, n. 97, no. 371) dismisses the possibility of such a concept, believing that all of the impressions were made from the same ring. Hallager (1995, 15) appears to support her position.

<sup>18</sup> Marinatos (2005, 156) notes the association of dogs with warriors in the context of war and the hunt, in the formation of "the prestige of manhood".

the hair of a frightened unarmed man to the right, who is attempting to flee over a pile of fallen warriors. The left-hand warrior is about to smite the right-hand one. The rendition of his face frontally "...is exceedingly rare in Aegean art and mainly the head only."<sup>19</sup> Lyvia Morgan believes that "...the frontal face is applied to one who is about to die."<sup>20</sup> The weapon is in the attacker's right hand. There is a dynamism in the composition lacking from the other attempts at this theme. The Knossian ring probably was made in late LM IA, or possibly early LM IB.<sup>21</sup>

## Mycenaean parallels

From the Mainland come a number of seals that offer additional insights on the theme of duelling fighters and its artistic execution. A more sophisticated version of the two warriors in combat is seen on two gold rings from Grave Circle A at Mycenae. The first, from Shaft Grave III, is a rectangular cushion ring<sup>22</sup> which depicts the right-hand figure, with a sword in his left hand, at the neck/upper torso of the warrior to the left (Fig. 8e). His right hand is hidden behind his opponent's ovoid shield. The left-hand warrior is leaning backward, holding a very long spear in his right hand. He wears a large crested or plumed helmet. The bodies and legs of the two figures are aligned in a parallel fashion. On the second convex oval signet ring, from Shaft Grave IV,<sup>23</sup> the so-called "Battle in the Glen", the right-hand combatant with a boars' tusk helmet has the same stance and gestures as on the previous example (Fig. 8f). The left-hand figure has collapsed to his knees. He brandishes a sword in his upraised right hand and attempts to block the thrust of the attacker with his outstretched left hand. To the right of this central composition is a seated, wounded? man looking at them. To the left, facing them, is a warrior with a boars' tusk helmet holding a tower shield and a very long spear. Around the edges of the ring are landscape elements rendered in a "bird's eye view" perspective. The complexity of the poses and the rendering of the anatomy of the figures on these two LH I rings is on the same level as seen on the

Kato Zakros, Hagia Triada and Knossos seal impressions (see Fig. 8b-d above).

From Shaft Grave III there is another seal,<sup>24</sup> a carnelian amygdaloid, that combines the poses of the two seals with figure-8 shields (Fig. 7b, 7d) and the detailed rendering of the previous two examples (Fig. 9a). In this case, the figure-8 shield is behind the right-hand figure who wears a boars' tusk helmet. It appears that the man grasps the sword with both hands over his head, ready to make a killing-thrust into the chest of the other warrior. This figure, also with a figure-8 shield behind him, displays the collapsing pose. His left hand is raised in an attempt to block the sword thrust. He too seems to wear a boars' tusk helmet.

A LH I/II amethyst cushion-shaped seal (Fig. 9b) from Grave 1 of the Gouvalari Tholos Tomb, now in the Pylos Museum (inv. no. 13),<sup>25</sup> takes the stance and gestures of the right-hand dominant figure from the Hagia Triada seal impression (Fig. 8a) and duplicates it in a mirror image on the left to create a bisymmetrical composition. An important addition is the fact that both warriors have swords in each of their hands. The last example (Fig. 9c), a lentoid seal carved from *Lapis Lacedaemonius*, dated stylistically to LH II-III A1,<sup>26</sup> is a throwback to the manner of the depiction of the warriors' heads on the Petras seal combined with the general composition of the Gouvalari seal. The quality of the renderings of the bodies, however, is in line with most of the examples given previously.

Finally, there are representations of two men fighting or duelling with daggers or short swords

<sup>19</sup> Morgan 1995, 137.

<sup>20</sup> Morgan 1995, 137; Pini 2010a, 8, fig. 1.

<sup>21</sup> Betts 1967, 15-20; Weingarten 2010, 410, fig. 7d.

<sup>22</sup> CMS I, no. 11, Athens, National Museum, inv. no. 35; Pini 1989, 204, no. 3; Hiller 1999, pl. XIX, 2a; Krzyszkowska 2005, 241-2, no. 461a and b.

<sup>23</sup> CMS I, no. 16, Athens, National Museum, inv. no. 483; Pini 1989, 203, no. 1; Krzyszkowska 2005, 243, 250-1, no. 478.

<sup>24</sup> CMS I, no. 12, Athens, National Museum, inv. no. 116; Hiller 1999, pl. XIX, 3a.

<sup>25</sup> CMS V, no. 643 (with bibliography); Pini 1989, 204-5, no. 6.

<sup>26</sup> CMS XI, no. 34: "from Athens", Berlin, Staatliche Museen, Antiken-Abt. (inv. no. FG 6); Hiller 1999, pl. XIX, 4a.



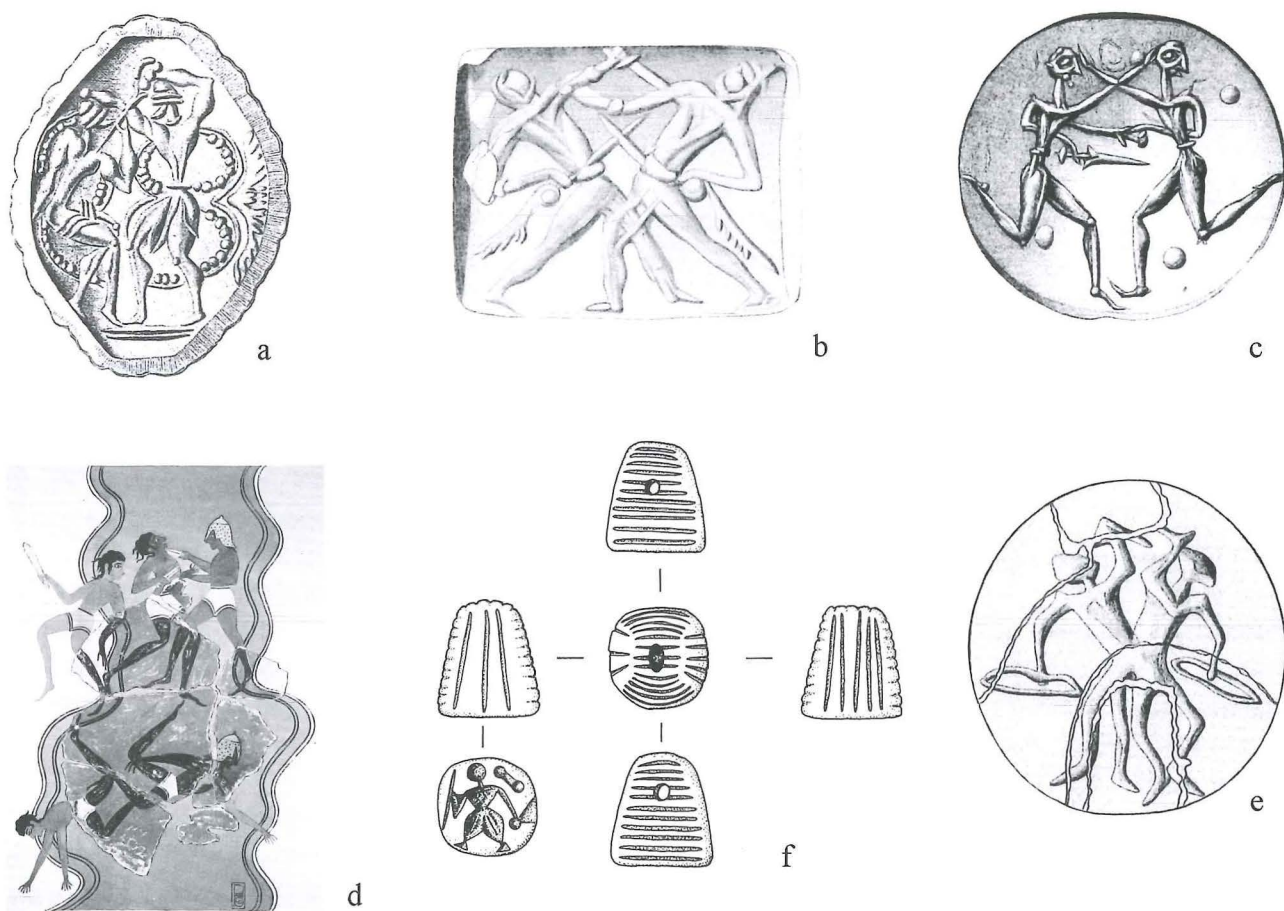


Fig. 9. a) CMS I, no. 12, Athens, National Museum, inv. no. 116; b) CMS V, no. 643, Pylos Museum, inv. no. 13; c) CMS XI, no. 34, “from Athens”, Berlin, Staatliche Museen, Antiken-Abt. (inv. no. FG 6); d) Battle scene from Hall 64, Pylos (after Immerwahr 1990, pl. 67); e) CMS V Suppl. 1A, no. 294, Mitsotakis Collection, inv. no. Σ8; f) P00/654.

(*duomachies*) in the LH IIIA2 “battle scenes” frescoes in Hall 64 at the Palace of Nestor at Pylos.<sup>27</sup> The poses in the *in situ* section 25 H 64 (Fig. 9d),<sup>28</sup> with right/left legs crossing, and the torsos leaning backward, are reminiscent of the LH I seal compositions, especially that of Gouvalari. The lead attacker, usually wearing a kilt and a boars’ tusk helmet, can appear on the left side as well as on the right. The daggers or short swords are thrust into the abdomen of the other fighters. In the so-called “Tarzans” fragment, 22 H 64,<sup>29</sup> two of the fighters have the same pose as at Pylos. Here the boar’s tusk helmet wearing attacker jabs his dagger into the throat of his opponent. In LH artistic renditions each weapon depicted is normally held in the right hand (see below).

## Discussion

The sudden relative popularity of this general theme of duelling men and battles in LM I–II glyptic art has been noted by Olga Krzyszkowska.<sup>30</sup> These figural motifs are “...a very rare image in Minoan glyptic”.<sup>31</sup> In fact, only 4.6% of Neopalatial figural images depict combat/fighting scenes.<sup>32</sup> The Petras seal is one of the few Minoan examples that have a

<sup>27</sup> Kontorli-Papadopoulou 1999, 332, 336, pl. LXXIV, e; Hiller 1999, 322, 326, pl. LXXII, 15b.

<sup>28</sup> Lang 1969, 42–9, 214–5, pl. N.; Immerwahr 1990, pl. 66.

<sup>29</sup> Lang 1969, pl. M.

<sup>30</sup> Krzyszkowska 2005, 139.

<sup>31</sup> Weingarten 2010, 404.

<sup>32</sup> Tsangaraki 2010, fig. 7.

secure archaeological context and date. It is, in fact, the earliest securely dated example of this limited genre.<sup>33</sup> The close similarity in the compositions of the Petras seal and the Hagia Triada seal impression, spatially distant, suggest common knowledge of a widespread prototype in some medium. The use of a soft stone, perhaps serpentine, instead of one of the hard stones as was normally the practice for depicting imagery relating to masculine pursuits on seals, is noteworthy as well.<sup>34</sup>

The men on the Petras seal are engaged in what Alan Peatfield describes as “dagger-to-dagger combat”<sup>35</sup> that includes the use of hands and arms but no shields. Injury was inflicted by slashing and stabbing at close range. Thus, Keith Branigan argued with the preference in Crete for daggers, “... warfare, such as there was in the southern Aegean EBA, was either personalized and perhaps ritualized (in Crete)...”.<sup>36</sup> This cultural tendency may have continued into the Neopalatial period.

Morgan’s<sup>37</sup> identification of the depiction of a frontal face as symbolizing that the individual will die momentarily creates a symbolic hierarchy of mortal states of being in Minoan glyptic art featuring fighting. That is: active fighting, dying and dead. The Petras seal and four others discussed above (Fig. 9a-9c and Fig. 8f) display a warrior collapsing/falling while in the midst of hand-to-hand combat. This could be an artistic shorthand for showing a seriously wounded combatant. Thus, the artistic stop-action sequence to depict the stages of a duel between two men would be: active fighting (standing with weapon), wounded/collapsing (crossed legs, falling backwards or kneeling), dying (frontal face) and dead (lying horizontal or upside down).

There is, however, one glyptic example that possibly predates the Neopalatial floruit of men fighting. That is an ivory ring seal with a round bezel in the Mitsotakis Collection<sup>38</sup> (Fig. 9e) which has been dated to EM III-MM II by Ingo Pini.<sup>39</sup> The composition depicts two men fighting, each armed with a dagger in his left hand and a bow in the other. They are arranged so that they face each other with the right-hand figure having his back turned toward the viewer. Their pelvic girdles overlap and their legs and their torsos, their arms and their heads go off at an angle towards the field’s edge.

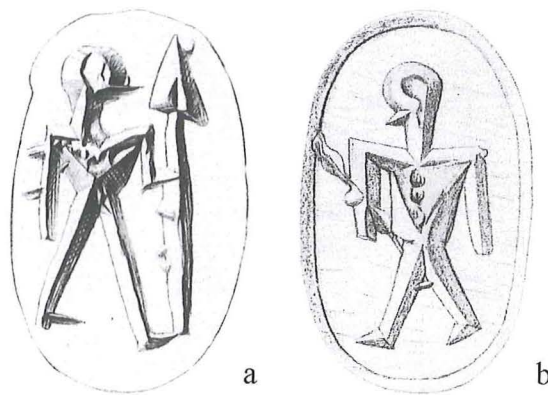


Fig. 10. a) CMS VI.1, no. 68, Oxford, Ashmolean Museum, inv. no. 1938.744; b) CMS II.2, no.104, Herakleion Museum, inv. no. 1774.

It should be noted here that Metaxia Tsipopoulou has doubts as to the authenticity of this seal, the imagery of which is unique for its supposed date.<sup>40</sup>

There is one final observation. When viewing the Minoan seal impression, more often than not, daggers and swords are held in the warrior’s left hand and the right hand is empty for grasping and/or hitting his opponent.

## Postscript

While the corpus of Minoan seals and seal impressions from Petras and its immediate hinterland is not very extensive, it is quite interesting and often unique, nevertheless. It provides insights into the range of iconography and how seals were used on the island of Crete. These seals and seal impressions stretch chronologically from bone seals in the burial Rock Shelter on Petras Kephala, dated to EM III, to a LM IIIA surface find also from the same hill.

For a most unusual EM III steatite seal (P00/654) (Fig. 9f) from the edge of the Lakkos in Sector III (Trench A3: Test 3 – Locus 2), which I have pub-

<sup>33</sup> O. Krzyszkowska, pers. comm.

<sup>34</sup> O. Krzyszkowska, pers. comm.

<sup>35</sup> Peatfield 1999, 68.

<sup>36</sup> Branigan 1999, 92.

<sup>37</sup> Morgan 1995, 135–7, fig. 5.

<sup>38</sup> CMS V Suppl. 1A, no. 294, inv. no. Σ8.

<sup>39</sup> Pini 1992, 215, no. 276.

<sup>40</sup> Pers. comm.



lished previously,<sup>41</sup> I now offer two new parallels. Arthur Evans bought a steatite three-sided prism (Fig. 10a) in Candia in 1894.<sup>42</sup> Ingo Pini has suggested a date in MM II for this probable product of the Malia workshop. On side “a” is depicted a man striding to the right holding upright in his left hand a long shaft with a large triangular element at the upper end. The object could be a spear or possibly a weft-beater, according to Lucy Goodison.<sup>43</sup> The second possible parallel is also a product of the Malia workshop, this time from Malia itself.<sup>44</sup> The steatite three-sided prism (Fig. 10b) depicts a man striding to the left holding a short stick-like shaft in his right hand. In either case, the representation of a man holding a shaft or a stick is very rare in the late Prepalatial and early Protopalatial periods. If the man on the Ashmolean seal is holding a spear and the man on the Malia seal is holding a *skeptron* then these could be other attempts, like that seen on the Petras seal, to represent a “big man” grasping one of the foundations of his claim to authority, that is, coercive power.

I offer a concluding question for discussion and speculation concerning the “Petras phenomenon”. Charles Gates has argued that the lack of images of warfare in Minoan art goes hand-in-hand with the lack of images of a ruler.<sup>45</sup> The two seals at Petras from non-burial contexts, dating to MM IA/B and LM IA, presented previously, display a possible ruler image and two men duelling.<sup>46</sup> Why does Petras, on the eastern periphery of Minoan political power and culture, display such unusual iconography? Why is it different? Is it different?

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<sup>41</sup> Rupp 2006.

<sup>42</sup> CMS VI.1, no. 68, Oxford, Ashmolean Museum, inv. no. 1938.744 (with bibliography).

<sup>43</sup> Goodison 1989, 52–4.

<sup>44</sup> CMS II. 2, no. 104, Herakleion Museum, inv. no. 1774.

<sup>45</sup> Gates 1999, 281.

<sup>46</sup> Weingarten 1999.

# Discussion

**Hallager** I may have missed something you said. This item up here on the drawing. Did you explain what it is?

**Rupp** If I could, I would. It is a series of lines, and it is also around the neck. I believe this represents an attempt to show the dagger in his hand.

**Hallager** It is the way it is drawn, the lines going up from the bottom to the face; to me it looks more like a lyre.

**Rupp** A warrior duelling with a lyre player! The other problem is what the curve around the neck is. The quality of the rendering of the figures leaves something to be desired, so my thought, after having seen the comparisons, was that this was an attempt at an upraised weapon, as opposed to a lyre.

**Krzyszowska** Thank you. I think it is on the very first slide where you have the impression of it, rather than working from the drawing. It is actually clear here. Here is his arm and he is holding something.

**Rupp** I would interpret that as a dagger.

**Krzyszowska** Yes, I think that is quite reasonable. Unless that is an attempt to render his shoulder. Somehow you have to render the torso, one arm going up this way, one arm coming down, and something to attach the arm to.

**Blackman** It is interesting how much better the impression is. The right-hand figure seems very clear. It is obviously a body builder with a hefty chest. He spent enough time holding his weapon in his right hand. He is clearly a man with a weapon in his hand.

**Rupp** It does not appear that there is a joint. It seems that there is a continuous flow of the arm. It seems that there is just an arm. There is no indication of articulation that would suggest the presence of something else from this point on.

**Blackman** In that case the right-hand figure has got a lot of right arm.

**Rupp** But if you look at the left-figure, he has a lot of legs.

**Haggis** First of all I liked the paper and I think you made some provocative points. On the surface I think it is clear that the figure on the right is Petras and the figure on the left is Papadiokampos!



**Brogan** Subjugation!

**Haggis** But we do not have a terribly large figural sample. The contrast is interesting but I do not necessarily accept that the figure from the Prepalatial seal is necessarily in a coercive pose.

**Rupp** It is not that the pose was coercive, it is the stick, and you often can see them as maces, a symbol of authority, in other words: "I have this, I can beat you with it". If there is a stone at the end: "I can hit you with it". So, most of the imagery of the rulers have some sort of simple staff, so coercive not necessarily physical, but at least symbolically: "I have the power that gives me the right to do this".

**Haggis** Notwithstanding the Prepalatial figure, males will be significant here. Could you see two different ideas here, between Prepalatial and Protopalatial and Neopalatial, and then negotiation of power, sublimation of violence in the Neopalatial period?

**Rupp** Good point.

**Stamos** To go away from the whole violence issue and try to stay within the whole "Minoans are pacifist" view, why should we view these images as purely violent, and not as a kind of ritual, such as dance? There are sword dances, knife dances, why can this not be some kind of dance, rather than pure violence?

**Rupp** I think that if you look at what Keith Branigan was trying to get at – the ritualized nature – in fact, many of the Prepalatial daggers are not designed to actually be used, because they would break in half, for example the silver dagger (I believe from Koumasa). So this could be performance, except that certainly the sealings seem not to show such a benign, theatrical kind of presentation of the activities. Unless Olga Krzyszkowska knows more examples of the repertoire of duelling, of men doing something like this. This is what I found.

**Papadopoulos** Although I can go on for ages on different uses of the iconography and the motifs, I just think that in LM I Crete, and of course also later, duelling and boxing more or less have the same symbolic meaning. Just to give you some food for thought, have you thought that because boxing scenes are very rare also in this kind of iconography, but they do exist, and since we actually have the seal, not the sealing like at Hagia Triada, that this could actually be a boxing scene rather than a violent warrior scene? I am having some issues with the weapon existence. I think it is a very weird scene, with too many lines, but I cannot see any weapons, so how about referring to boxing? The meaning is similar again. I think we should differentiate it from warriors.

**Rupp** Admittedly this rendering of the composition, whatever its interpretation might be in the end, does not have the kind of clarity that would allow you to say one thing or the other. But if you look at the *comparanda* that exist, you will see that these individuals are not boxing. They have weapons, at least one of the figures has a weapon; often both have weapons in their hands. And I am not sure, I must admit I did not look for scenes with boxing or boxers in the corpus. There is a very limited number

of scenes like this, with two men doing something together. Maybe Olga Krzyszkowska knows other parallels.

**Krzyszkowska** No, there are no representations of boxing in glyptic. This is something you get on vases, or in frescoes, or on stone vases. This seal is a really important piece for several reasons: It is firmly dated to LM IA. That means that it predates the LM IB sealing deposits in Hagia Triada and Zakros. Those seals used in the sealing deposits may well have been engraved in LM IA, but they are used in LM IB. Now we know of a representation of duelling firmly dated in LM IA, and we can, I hope, finally reject, abandon, all this idea that duelling scenes, war-like scenes, and so on, all have to be first of all in nasty, barbaric Mycenae, before they come over to Crete. We have a tradition, admittedly, a relatively small corpus, of a group of seals, from Crete, depicting duelling, warfare, some kind of combat. Linked to that are hunting scenes. There is a kind of continuum and you also have scenes that represent boar's tusks helmets on Crete; these are attested again in Hagia Triada, in sealings. So, it exists in Crete, in LM IA already. That is a really important thing about this seal. Another important thing I would add, is that it is a soft stone seal. Most of our representations of males doing anything are on hard stone seals or on gold signet rings, or the impressions thereof. One exception to that is the series with the helmets, which are invariably soft stone seals here on Crete. This seal constitutes a very interesting addition, proving that they also, occasionally, were using soft stones, not high status hard stones, to depict what we might perceive as an elite pursuit. We have to be open minded about our evaluation of the appropriateness of a certain material, or a certain motif. This is important for the reason that it opens up a new perspective, and reinforces something that was there in the repertoire, but perhaps has not been really appreciated before. Thank you. Very good!

### *Greek abstract*

Θάνατος στον Πετρά: Νεοανακτορικός φακοειδής σφραγιδόλιθος με παράσταση μονομαχίας

Σε απόθεση δαπέδου ενός ΥΜ ΙΑ κτιρίου του Νεοανακτορικού οικισμού του Πετρά βρέθηκε ο φακοειδής Ρ05/941 σφραγιδόλιθος, από μαλακό λίθο, μάλλον οφείτη. Η ανάγλυφη παράσταση της κυρτής επιφάνειας εικονίζει μονομαχία δύο ανδρών με εγχειρίδια (*Kampfszenen*). 16 Μινωικές και Μυκηναϊκές σφραγίδες και σφραγίσματα, μια Μυκηναϊκή τοιχογραφία και μια *dubitanda* αποτελούν παράλληλα και συγκρίσεις. Η σφραγίδα του Πετρά είναι το πρωιμότερο χρονολογημένο με βεβαιότητα παράδειγμα του θέματος. Σε επίμετρο παρουσιάζονται ως επιπλέον παράλληλα μιας ΠΜ ΙΙΙ σφραγίδας, προερχόμενης από την απόθεση του Λάκκου του Τομέα ΙΙΙ του οικισμού, την οποία ο γράφων είχε δημοσιεύσει παλαιότερα (Rupp 2006), δύο σφραγίδες με απεικόνιση ανδρικών μορφών, οι οποίες φέρουν δόρυ ή ραβδί.







# The Petras intramural infant jar burial: context, symbolism, eschatology<sup>\*</sup>

Photini J.P. McGeorge

## Abstract

A LM IA intramural infant pot burial was discovered at Petras in 1989, found in an inverted position and interred in the courtyard of House I.1. This paper briefly presents the results of the anthropological study, discusses evidence for the dangers of childbirth at that period and reviews the cultural practice of intramural burials of infants not only in Greece, but also in Anatolia, the Levant and Egypt. This age-old and widespread practice began with the earliest settled communities in the Near East and continued down to the Iron Age. It seems to suggest an underlying *koine* of belief, though given the complexity of human nature and the infinite variety in the expression of human culture and beliefs there need not necessarily be a single explanation for its use at all times and in all places. Inverted pithos burials have been reported in tombs and at numerous formal cemeteries on Crete, for instance at Sphoungaras (Hall 1912) and at Pacheia Ammos, where all 213 pithos burials were inverted (Seager 1916). This curious phenomenon has never been satisfactorily explained. At Petras, the purposeful placement of the infant in the pithos in an inverted position conveys a funerary symbolism, which is possibly the clearest and most unambiguous articulation of the Minoans' religious belief in rebirth and hope for an afterlife.

In 1989 the remains of an infant buried in a small pithos were recovered in the west courtyard of House I.1 (Fig. 1), close to a wall and enclosed by a circle of stones. The jar is Neopalatial and its stratigraphic context dates the burial to LM IA; the child's head (Fig. 2a) was near the opening of the jar. The mystery was why had the jar been placed in

an inverted position (Fig. 2b). The infant's bones, though fragile, were in a reasonably sound state of

<sup>\*</sup> I sincerely thank Metaxia Tsiopoulou for her invitation to study this find and for generously providing the plan and photos from the excavation archive and Garifalia Kostopoulou for locating and sending them to me.

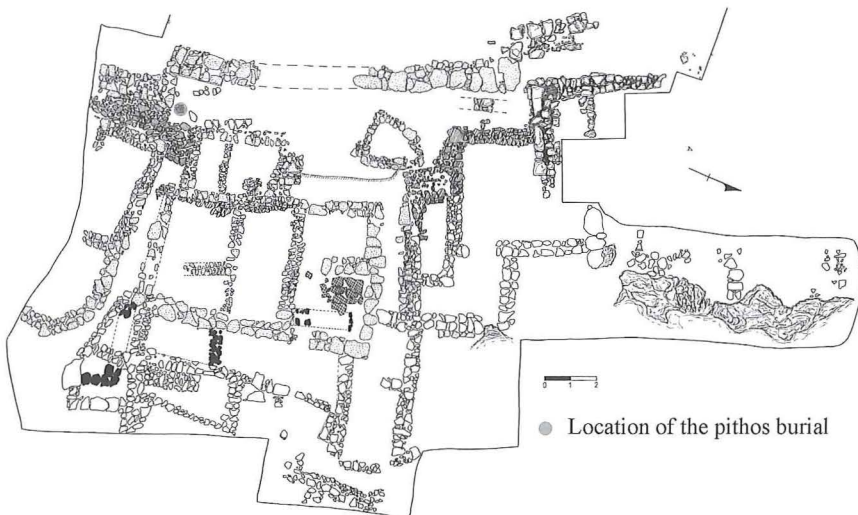


Fig. 1. Location of pithos burial marked on excavation plan.



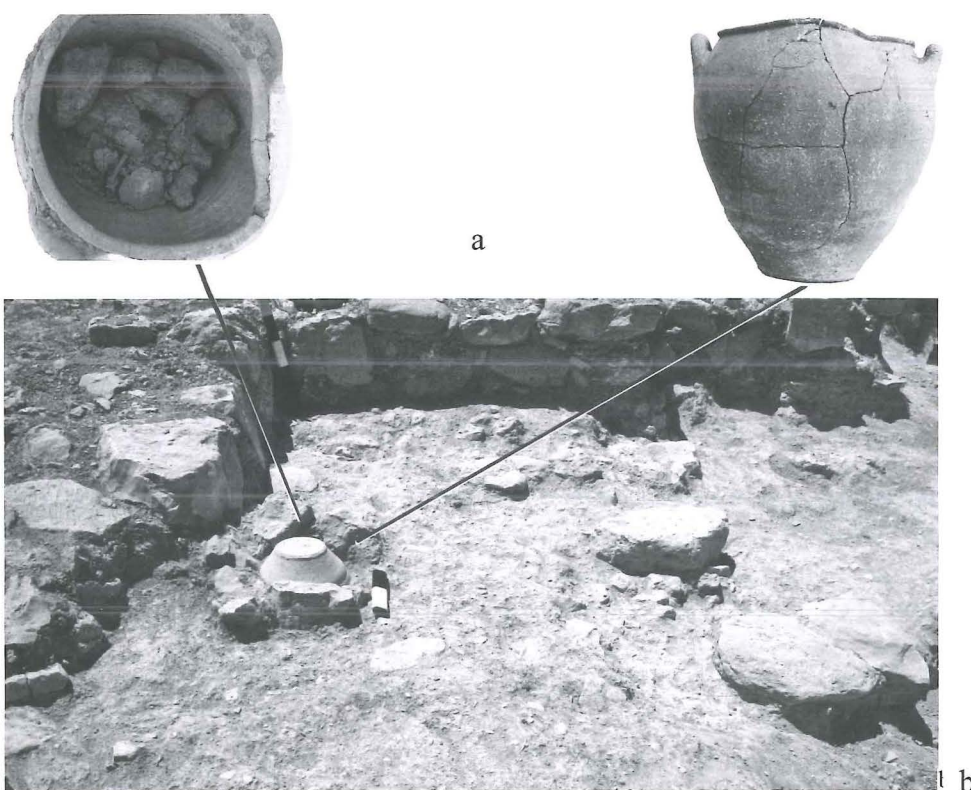


Fig. 2. a) Burial pithos and its interior with cranium and bones visible; b) Burial *in situ*: inverted pithos encircled by stones.

preservation. They consist of fragments of the cranium: the frontal bones the zygomatic, the parietal bones, and squamous part of the occipital bone. Vertebral elements, ribs, even tiny fingers and toes were also found. Upper and lower limb bones included: humeri, radii, a right ulna, right femur, tibia and fibula.

The mandible (right horizontal ramus) retained a deciduous first molar in the crypt (Fig. 3a). The development of the first molar tooth germ begins at five months in utero. The maxilla must have melted in the process of decomposition but loose teeth (Fig. 3b) were found, including the deciduous up-

per right central incisor, which begins to calcify at 3–4 months in utero. The occlusal surface of the distal half of the crown of the deciduous 2nd molar was formed. Initial calcification of this tooth begins at 6 months in utero. The state of mineralization of the milk teeth indicates that this was a pre-term infant.

This is verified by the measurements of the petrous bones (25.3 & 26.7 mm) (Table 1, Fig. 3c) and the pars lateralis (16.3 mm), which correspond to an age of about 32 weeks gestation.<sup>1</sup> This pre-term infant must have been either stillborn or died soon after birth. as its survival would have been seriously compromised by the immaturity of its vital organs.

The preservation of this 32-week fetus's remains is exceptional thanks to the pithos. Very immature fetal remains are rarely found in excavations due to their fragility. Cemetery data for the LM I period are virtually non-existent, but studies of skeletal material from LM III cemetery populations show a high perinatal and neonatal mortality. At Arme-

Table 1

	Right	Left	Fetal
Pars Petrosa Length	26.7	25.3	27.7*
Pars Petrosa Width	11.6	13.6	13.5*
Pars Lateralis Length		[16.3]	17.0*

Square brackets denote preserved length

\*Fetal data from Scheuer & Black 2000.

<sup>1</sup> Scheuer & Black 2000, 83.



Fig. 3. a) Mandible with encrypted molar; b) Loose teeth; c) Petrous bones.

noi, in a sample of 114 sub-adults including fetal, neonatal, infant and children's remains up to the age of sixteen, 22–25% had died either at or not long after birth. At Palama St., one teenage mother had died with a fetus still in her womb, illustrating that childbirth was an event with a very uncertain outcome.<sup>2</sup> These dangers gave rise to the cult of Eileithyia, guardian of women in childbirth.<sup>3</sup> Common causes of mortality around birth are associated with poor maternal health during pregnancy, genetic or developmental abnormalities and birth trauma.

## Intramural infant and child burials at other Minoan sites

Interments inside a house, or outside a house in an open area such as a courtyard, are designated intramural, in contrast to extramural burials in cemeteries. The Minoans normally buried their dead extramurally. The intramural burial of infants

or children is not common at Minoan sites, but there are a score of examples now known from sites throughout the island (Fig. 4).

The earliest Minoan intramural jar burial is the one dated to EM II found at Nopigeia, Kissamos. At the corner of a building in an open area paved with pebbles, a pithos (<0.5 m tall) lay on its side in a shallow pit, the mouth of the jar pointing westwards. The child, less than three years old, was buried with two obsidian blades. This burial is of course many centuries earlier than the one at Petras.<sup>4</sup>

Two intramural burials, contemporary with the burial at Petras, were discovered in 2009–2010 in

<sup>2</sup> McGeorge 2008; Hallager & McGeorge 1992.

<sup>3</sup> The sacred caves at Amnisos and Inatos were dedicated to her worship. Offerings of honey to *e-re-u-ti-ja* are recorded in the Linear B tablets. Eileithyia was later incorporated into Greek mythology as daughter of Hera and is portrayed on a pictorial vase assisting Leto at the birth of Apollo (Kakrides 1987, 142).

<sup>4</sup> Karantzali 1997, 66–81.



the excavations at Sissi, in different rooms of the same House BC. One was a newborn infant, the other a child of three to four years old. Both were interred in pyxis-type vessels, and date to LM IA. Moreover, an LM IB sub-floor burial was reported in the Artisans' Quarter at Mochlos.<sup>5</sup>

There are more intramural burials at Knossos than at any other site: several date to LM IA/IB; one is dated to LM II, but the majority date to LM IIIC and the Subminoan period. Popham found four sub-floor intramural burials in the Unexplored Mansion (three fetuses: 33, 35 and 38 weeks and a newborn) in Rooms C, M and L. He had some doubts about the date of the one found in the fill of Corridor L, but the other three were securely dated to LM IA: a 38-week fetus had been buried in a shallow pit close to the west wall in Room C; a 35-week fetus was buried under the floor of Room M, and a newborn, which had survived a few days, lay crouched on its side in a stone-lined cist below the west end of Corridor L. There were no finds with these burials.<sup>6</sup>

Hogarth found the grave of a newborn infant under "the flooring of a room" in one of the houses excavated on Gypsades Hill. There were no finds with the burial, which may be dated to LM IA or possibly to within the LM IB period. A stemmed cup with a banded adder pattern was found in the room.<sup>7</sup>

Theoretically, one might add to this list the interment of multiple children excavated by Warren in the basement of the LM IB North House at Knossos. Two small rooms were accessed through a corridor leading off the north courtyard. In the first and smaller of the two rooms (1.85 x 1.10 m) were the remains of four children, aged 12, 8 and younger. Many bones bore cut marks, which created an enigma.<sup>8</sup> A collection of drinking vessels and bowls were stored in the adjacent room (2.18 x 1.60 m). In another much larger room accessed from the courtyard, there were similar vessels, tripod cooking pots and a jug inside a large pithos which contained nine more human bones (one a vertebra with a cut mark), besides other items characterized as cult equipment. The excavator estimated that the cut marks on the bones in the small room, in conjunction with the finds in the other rooms, were evidence of ritual. These, albeit unusual, inhumations are also intramural.<sup>9</sup>

In the same excavation, Warren discovered an infant burial in a building, which he called the Gypsum House (impressive for the liberal use of gypsum for floors, thresholds, staircases and cupboards). Next to the central room which was adorned with frescoes, there was a room with a simple earthen floor and kitchenware. On the floor were several vases: a tripod cooking pot, a stirrup jar, a decorated jug and a plain kylix. The baby had been laid in a pit below this floor. The find is dated to LM II.<sup>10</sup>

At Phaistos there are two intramural pithos burials of full-term low birth weight or near-term newborn infants. The infant in Room 5 was buried in a double-handled globular cooking jar and covered with the bottom of another coarse ware vessel near the north wall of the room. On the LM IIIC floor, a stone cupboard located directly above the burial contained another cooking jar with burnt seeds. The "cupboard" actually appeared to be constructed around the jar to keep it stable. It is believed that the seeds might have been an offering.<sup>11</sup> A few metres to the east of this burial, another infant was buried in a tubular vase below the floor of Room 4. Both burials date to LM IIIB.

At Palaikastro there is a parallel to the Phaistos infant also buried below a cupboard. Two rooms, designated Areas 25 and 26, were excavated in 1987

<sup>5</sup> Thanks to J. Driessen for information about the Sissi burials; Soles 2003, on Mochlos.

<sup>6</sup> Popham 1984, 309.

<sup>7</sup> Hogarth 1899–1900, 70–84, fig. 23.

<sup>8</sup> There were two skulls. A tooth and a skull fragment which could not be attributed to child A or B represented a third individual, whilst leg bones proved that there were four children. 40% of the bones bore cut marks suggesting that they had been de-fleshed (Wall *et al.* 1986, 81, 341, table 2.374, 377). Nine adult bones were found, one outside the corridor and eight in the courtyard, but none of these had cut marks (Wall *et al.* 1986, 346).

<sup>9</sup> A discussion of the stratigraphic sequence, Wall *et al.* (1986, 344–5) debated whether or not the bones had fallen from an upper floor; and whether they preceded or were part of the destruction layer. The interpretation of the find as evidence of human sacrifice or cannibalism (Wall *et al.* 1986, 386–8) is one possible explanation; another is preparation for secondary burial (Tumasonis 1983, 306–7); also Hughes 1991, 18–26.

<sup>10</sup> Warren 1982–83, 63–87.

<sup>11</sup> See E. Borgna: *Casa a ovest del piazzale I*, and my contribution McGeorge forthcoming, "Due sepolture a enchytrismos".



at the southeast corner of Building 3.<sup>12</sup> The larger, Area 25, gave access through a 50 cm wide doorway to Area 26, which had an unusual rhomboidal plan, interpreted as a “small cupboard or storage compartment” (1.60 x 0.80 x 1.40 m). Set in the trodden earth surface of the southwest corner, to the right of the entrance, was a *gourna*. Below the floor was a 50 cm dense deposit of pottery, which included a decorated amphoroid krater with “the almost complete, articulated skeleton of a child”, placed in a crouching position with a small kalathos over its head. The skeleton, which is illustrated, appears to be a newborn.<sup>13</sup> The suggested date of the deposit is LM IIIA2/B.

A slightly later intramural burial was found at Khania, in the Hagia Aikaterini Square excavations. This pre-term infant, about 37 weeks’ gestation, had not been buried in any kind of vessel. Nevertheless, the two surviving iliac bones were excellently preserved, buried under the LM IIIB2 floor. There was a hearth in the centre of the sizeable Room E (6.5 x 4.5 m). On the clay floor there were two bowls found in different corners, a small tripod cooking pot and a cooking dish. The infant had been laid in a shallow pit less than a metre distant from the hearth.<sup>14</sup>

In the archaeological reports on the Stratigraphical Museum excavation at Knossos, Warren mentions that sub-floor “infant burials were found over the whole site”. The majority were provisionally dated to LM IIIC. One burial, found under the floor of a room with a clay bench, had been covered by a large *lekane*; a revised LM IIIB date is given in a later publication.<sup>15</sup> A large krater was found in the fill of the room. Warren’s report is provisional and does not give details or the precise number of burials, which are attributed to Mycenaean influence. Two more intramural infant burials found were dated to the Subminoan period.<sup>16</sup>

This brings the current total to a minimum of 21 intramural burials of infants or children at several sites spread over the length and breadth of the island, though concentrated more in East and Central Crete, with the majority at Knossos. Six cases were full-term newborn infants;<sup>17</sup> five were pre-term, born prematurely.<sup>18</sup> Two older children were buried at Nopigeia (< three years old) and

at Sissi (a three to four year old), not to mention the older children from the basement of the North House. The other LM IIIC and Subminoan cases from Knossos were reported as “infants”.

In Crete the EM II burial at Nopigeia coincides with the simultaneous appearance in EH II–III of intramural infant burials at numerous sites on the Mainland and the islands, attributed to a westward movement of populations from Anatolia. In LM IA the custom re-appears in East Crete at Petras and Sissi, and in the centre of the island at Knossos, where the majority of cases have been found and where the population was probably densest and the social landscape most cosmopolitan, perhaps already including Mainlanders.<sup>19</sup> In LM III intramural burial appears at Phaistos, Khania and Palaikastro, urban centres whose populations probably also included foreigners. At Knossos, the custom may have persisted from LM IA to Subminoan, or elsewhere been re-introduced by later incursions of foreigners, probably predominantly Mycenaean. Extramural cemeteries of the LM I period are virtually unknown, so it is difficult to appraise this

<sup>12</sup> I am grateful to A.J. MacGillivray for kindly mentioning the Palaikastro burial to me; MacGillivray 1988, 259–73, fig. 7, pl. 47f.

<sup>13</sup> Using the scale in the photograph, the femur appears to be 73.3 mm and the tibia 6.66 mm, corresponding well with the lengths of diaphyses at 10 lunar months. Scheuer & Black 2000, 393, table 11.1.

<sup>14</sup> Hallager & Hallager 2003, 24–33, 276, 301–3.

<sup>15</sup> Warren (in Hallager & Hallager 1997, 169–72) has revised the date to LM IIIB.

<sup>16</sup> Warren 1980–81, 73–92; Warren 1982–83, 63–87.

<sup>17</sup> Sissi, the Unexplored Mansion, Gypsades, Phaistos (2), and Palaikastro.

<sup>18</sup> Petras, the Unexplored Mansion (3) and Khania.

<sup>19</sup> An examination of 170 personal names on the Knossos As tablets, compared with tablets from Pylos, Mycenae and Thebes, concluded that: 1) there was a common stock of Greek names at Knossos and on the Mainland; 2) that non-Greek names found their way to the Mainland between the fall of Knossos and the destruction of the Mainland palaces, perhaps through intermarriage and migration; 3) at the time the tablets were written, Greek and non-Greek names were “inextricably mixed”, though non-Greek (= local) names outnumber Greek names at Knossos by 3:1; 4) there are a few names that show similarities to Near Eastern names, especially Hittite. Baumbach 1983, 3–10.



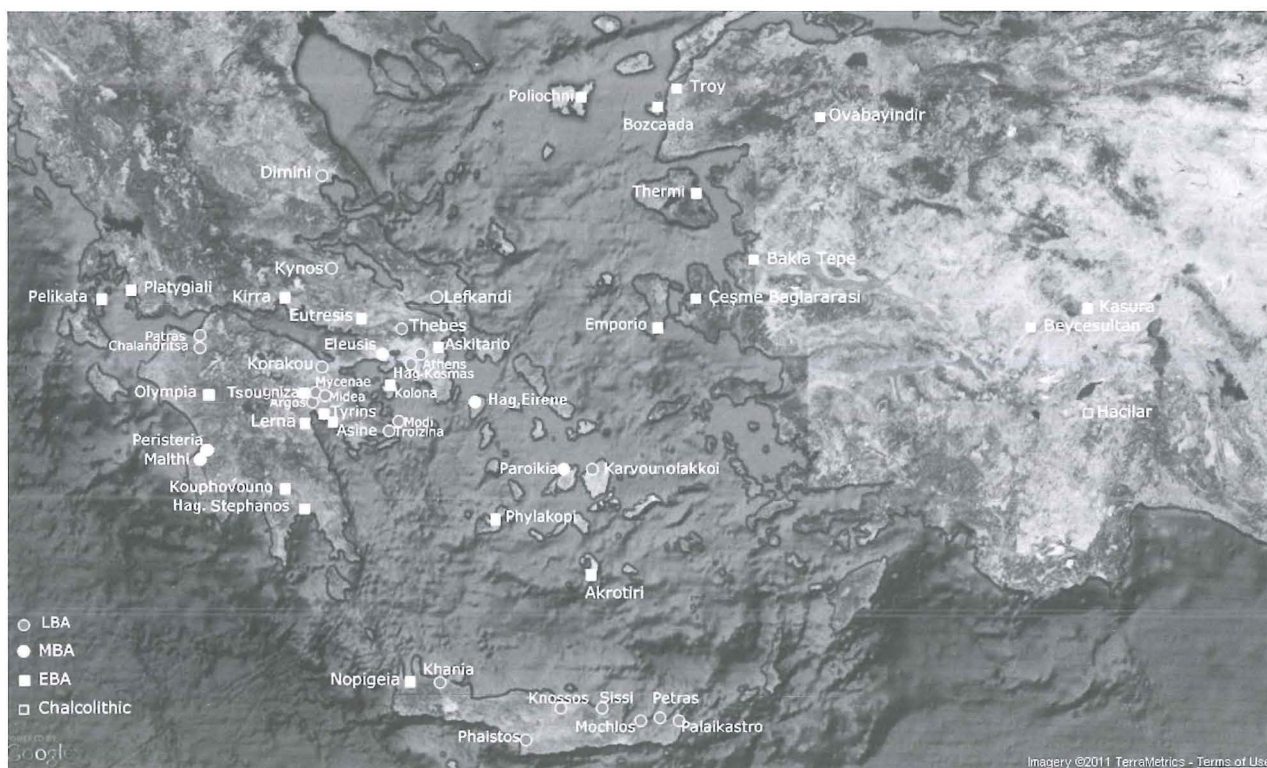


Fig. 4. Map of Crete, Greece and western Anatolia.

custom as an alternative to whatever methods of disposal were preferred for adults.<sup>20</sup>

Most intramural burials were made in places where daily household tasks, involving the preparation of food in particular, would have been undertaken, in an area where a child's mother would probably have spent much of her day. At Kania the child was buried close to the household hearth; at Phaistos and Palaikastro infants were buried below cupboards probably used for the storage of grain. In the Gypsum House a child was buried below a room with a simple earthen floor on which vessels associated with eating and drinking were found. Courtyards, like the one at Petras, must have been places where people spent time on household or social activities. There is little uniformity in these intramural burials apart from a generic resemblance amongst coarse ware vessels used as receptacles<sup>21</sup> and the absence of gifts. The unifying characteristic is that the burials were made under floors where there must have been constant domestic activity, possibly signifying a desire to keep newborn infants within the family circle.

## Intramural burials of infants and children on the Greek Mainland and islands

Intramural burial occurs on the Greek Mainland and at Knossos from the Early Neolithic period, and on various Aegean islands from the Early Bronze Age. Intramural burials of newborn infants and babies were sometimes placed in simple pits below the floors of houses, in baskets or wrapped in cloth of which an impression occasionally survives, in cists or small clay storage jars, or sometimes placed on a layer of pebbles. Such burials are known at over 40 sites throughout Greece and the islands (Fig. 4); the majority date to EH II/III. Eight sites are Neolithic: the earliest is at Axos, where a newborn was placed in a pithos under the floor; at Sesklo there are possibly two infants buri-

<sup>20</sup> An exception is the House Tomb at Myrtos Pyrgos, last used in LM I according to the excavator, G. Cadogan.

<sup>21</sup> The decorated amphoroid krater at Palaikastro is the exception.



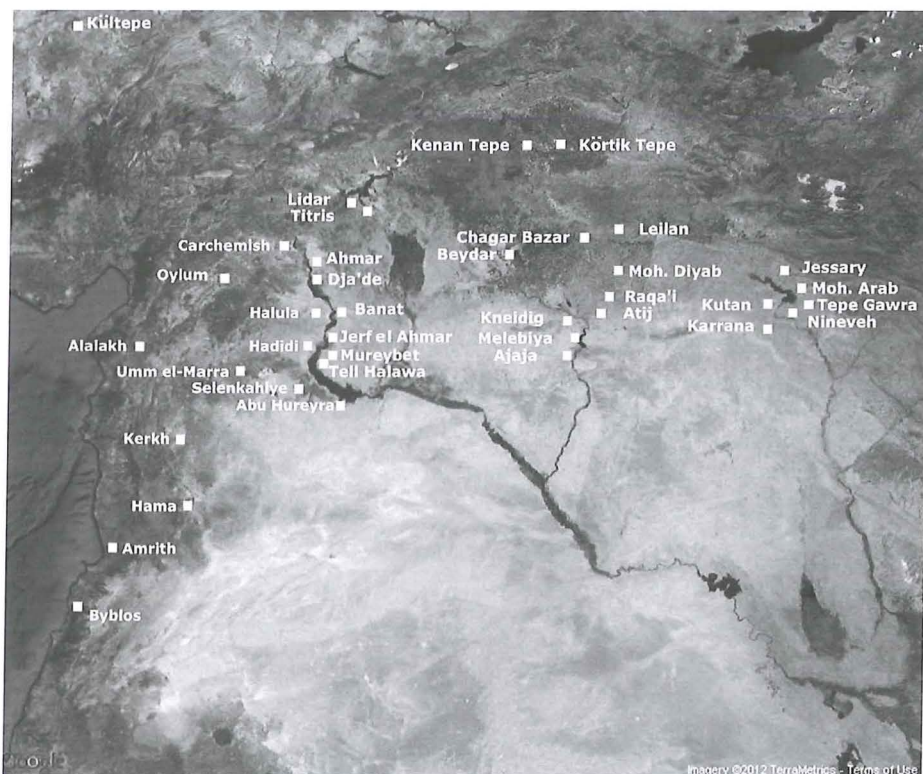


Fig. 5. Map of southeast Anatolia, Syria and northern Mesopotamia.

als; one at Argissa; Chaeronea and Hagios Petros (MN); Lerna, Nea Nikomedeia and Rachmani in Thessaly (LN).<sup>22</sup> There are over 20 EH II/III sites, and a similar number of MBA/LBA sites,<sup>23</sup> amongst which Asine stands out with a record number of 57 infant or child burials in pithoi, small vases or pits. An LH IIIA intramural child burial was reported from Mycenae, Petsas House Room T, with three vases and gold papyrus beads; but there are apparently numerous unpublished infant burials from this site.<sup>24</sup> Lefkandi on Euboea is another site with an exceptional number of LH II and LH IIIC intramural burials: 15 fetuses, infants, children and five adults. A late LBA sub-floor child's burial was reported at Karvounolakkoi on Naxos.<sup>25</sup>

## Intramural burials of infants and children in the Near East, Anatolia, Cyprus & Egypt

The practice of burying infants and children in a domestic setting has an impressively long lineage in the Near East. The earliest settled communities

practised intramural burial of children and adults at Natufian and PPN sites (Körtik Tepe, Ain Mallaha, Nahal Oren; Jericho and Ain Ghazal<sup>26</sup> – where half of the burials were infants). The same custom occurs in Cyprus in the PPN and Aceramic Neolithic at Khirokitia and Kalavassos-Tenta,<sup>27</sup> and it appears in Crete in the Aceramic at Knossos.<sup>28</sup>

In Syria (Fig. 5), during the tenth millennium

<sup>22</sup> Cavanagh & Mee 1998, 7.

<sup>23</sup> EH II/III sites include: Hagios Stephanos, Asine, Askitarion, Eutresis, Kirra, Kolona on Aigina, Kouphovouno, Lerna (8), Olympia, Pelikata on Ithaca, Phylakopi on Melos (8), Platygiali, Poliochni on Lemnos, Therma on Lesbos, Tiryns, Tsangiza. MH sites: Akrotiri on Thera, Hagia Eirene on Keos, Paroikia on Paros, Asine, Eleusina, Eutresis, Korakou, Malthi, Peristeria. For bibliography, McGeorge 2003, 301–3; Chalandritsa in Achaea, Kolonas 1985, 138; Kolonas & Gazis 2006, 27.

<sup>24</sup> Mentioned in a paper by K. Shelton at the recent Conference: 'Mycenaeans up to date: the archaeology of the NE Peloponnese—current concepts and new directions', 10<sup>th</sup>–14<sup>th</sup> November 2010.

<sup>25</sup> Schallin 1993, 106.

<sup>26</sup> Özkan & Coşkun, 2009; Boyd 1995, 17–23; Gopher & Orrelle, 1995a, 24–8.

<sup>27</sup> Dikaio 1953; Peltenberg & Swiny 2001.

<sup>28</sup> Evans 1964, 136.



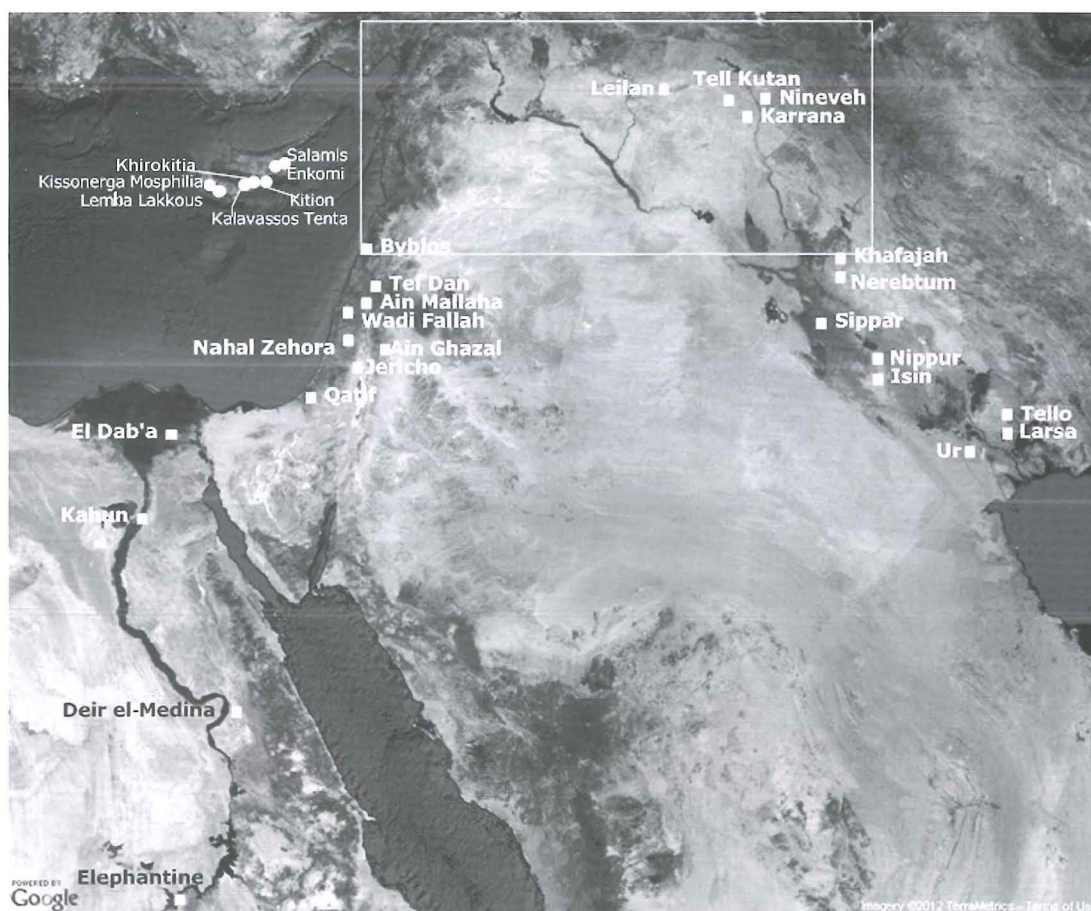


Fig. 6. Map of Cyprus, Israel, Mesopotamia and Egypt.

adults, children and fetuses were buried in shallow pits, sometimes wrapped in matting coated with bitumen, below house floors or just outside houses, at many sites: Mureybet, Jerf el-Ahmar, Abu Hureyra, Tell Halula and Dja'de al-Mughara, Ain el-Kerkh.<sup>29</sup> Then in the Ceramic Neolithic, vases were used to bury infants less than a year old, usually without grave gifts, at Ain el-Kerkh, Halula, Khazna II, and at Byblos.<sup>30</sup> The pot was typically laid on its side with the infant's head pointing towards the mouth of the jar. From the Chalcolithic period onwards, when burial was transferred from living sites to cemeteries outside the settlement, the custom of intramural jar burial for infants continued. The practice had particularly strong roots in North Syria and Mesopotamia.

Through the late sixth down to the first millennium BC, burial within the settlement beneath house floors, usually of infants and children without grave goods, appears to be the rule. Infants under one-year old were never given grave goods, but children above

a year old had a range of offerings. Stone or shell pendants of animals are often found with them.<sup>31</sup> Sub-floor burials in pits, jars, cooking pots, bowls and mudbrick or stone-lined cists are found at sites almost too numerous to name, for instance: at Hama Level K, Tell Banat, Selenkahiye, Raqa'i 2, Atij, Abu Hgaira, Beydar, Umm el-Marra, Chagar Bazar 2-3 and Tell Leilan at Barsip, Carchemish, Oylum, Lidar and Titris.<sup>32</sup> In the second millennium BC they were found at Alalakh level VIII-V, Tell Hadidi, Umm el-

<sup>29</sup> Van Loon 1968; Cauvin 1979; Stordeur *et al.* 1997; Moore *et al.* 2000; Molist 1999; Coqueugniot 1999; Parker Pearson 1999; De Contenson 1992; Tsuneki *et al.* 2000.

<sup>30</sup> Munchaev *et al.* 1993; Dunand 1973.

<sup>31</sup> Dunham 1993.

<sup>32</sup> Fugmann 1958; McClellan & Porter 1999; McClellan & Porter 1997; Van Loon 1979; Martin & Wartke, 1993-94; Akkermans & Schwartz 2003, 270; Schwartz & Curvers 1992; Schwartz *et al.* 2000; Mallowan 1936; 1937; 1947; Thureau-Dangin & Dunand 1936; McMahon *et al.* 2001; Carter & Parker 1995.



Marra, Mohammed Diyab & Chagar Bazar; in first millennium BC at Tell Ajaja and Kneidig.<sup>33</sup>

From northern Mesopotamia (Fig. 5), in the late fifth/early fourth millennium there are 108 infant pot burials at Tepe Gawra.<sup>34</sup> In the late fourth and third millennium BC infants are never buried in cemeteries. They are buried intramurally usually, though not always, in a cooking pot. At Tells Melebiya, Kutun and Karrana 3, infants inside cooking pots have been found in Ninevite V levels. At the latter, children were placed in pots horizontally sawn in half.<sup>35</sup> At Tell Mohammed Arab one grave contained a horizontally sectioned urn with the body of an adult male and a child. At Tell Jassary there were some Late Uruk burials (3400–3000 BC). At Mohammed Arab and Kutun the infants were buried without grave goods.<sup>36</sup>

In southern Mesopotamia (Fig. 6), intramural burial for all age groups seems to be normal. The custom is strong in the cities of the Old Babylonian period (20<sup>th</sup>–16<sup>th</sup> centuries BC), such as at Ur, Larsa, Isin, Sippar-Amnanum, Nerebtum, Nippur, Khafajah, Tello, Tell Haddad, Tell Al-Sib and Tell Al-Zawiyah, but also from Haradum and at Tell Halawa in Upper Mesopotamia.<sup>37</sup> At Ur, Woolley excavated 198 graves under houses in Areas AH and EM, and he identified ten variants of intramural burial, ranging from simple inhumations to those employing a variety of receptacles, including larnakes (unusual outside of Crete), bowls (5), “hutches” (4) and pots which are sometimes doubled, as well as several forms of built tombs. The dead were usually buried under the floors of the reception room or the chapel of the house, identifiable by niches and altars, but sometimes under a courtyard. Preferred gifts for infants were shells or beads, whereas older children were given toys or necklaces.<sup>38</sup>

In Israel (Fig. 6) in the Chalcolithic (late fifth millennium BC), intramural burials have been reported at: Tel Teo, Tel Dan, Qatif Y-3, Teluliot Batashi (level III), and Nahal Zehora II.<sup>39</sup> At Nahal Zehora two pre-term infants were buried in the settlement: one in a jar and the other close to the wall of a structure, while a third child was buried in a stone cist. In the MBA at Tel Dan (*ca.* 2000 BC), interment was solely intramural under the floors of dwellings or courtyards. Jar burials were used for

infants under two years of age and were often broken to insert the corpse. The head was almost always at the jar opening, which was sometimes covered with a potsherd, and in some cases the jar was set in a circle of stones. The jars were usually placed next to, or aligned with, walls.

In Anatolia (Figs. 4–5) intramural burial of adults and children, usually in jars, is found at many EBA sites: at Alişar, Kalinkaya, Kasura,<sup>40</sup> Beycesultan, Hacilar II, Ovabayindir and at Troy, where six intramural burials were found in Troy I, all newborn or between two to three weeks old (four were buried in amphorae). At Kalinkaya, 13 burials in pithoi with flat stone lids were found under house floors. At Boğazköy (Hattusa), the intramural burials were mostly simple inhumations, with few gifts, sometimes covered by a stone slab. In the coastal region of the Aegean, a few intramural infant burials have been found at Bakla Tepe and at Çeşme Bağlararası in level 2b, where the pottery is said to be of Central Anatolian character, with a small amount of imported pottery corresponding to the MM III period. At Çeşme one jar burial had a fragment of bronze, possibly a gift.<sup>41</sup>

In Cyprus (Fig. 6) in the Chalcolithic period, burials at Lemba-Lakkous and Kissonerga-Mosphilia, in pits between houses, were mainly of children or infants (62–65%). At Kissonerga two of the burials were in urns. Intramural burials of infants, not in jars, were found at Enkomi. In the Iron Age, newborn and premature babies were buried in re-used Canaanite jars in the settlements at Salamis and Kition.<sup>42</sup>

<sup>33</sup> Woolley 1955; Dornemann 1979; Castel 1996, 273–84; Schwartz *et al.* 2000; Mallowan 1936; 1937; 1947; Suleiman 1995; Klengel-Brandt *et al.* 1997.

<sup>34</sup> Peasnell in Rothman 2002.

<sup>35</sup> Exact parallels have been found at Boğazköy, see the paragraph below on Anatolia.

<sup>36</sup> Battini-Villard 1999.

<sup>37</sup> Battini-Villard 1999.

<sup>38</sup> Woolley 1976, pl. 39b.

<sup>39</sup> Ilan 1995; Gopher & Orrelle 1995a; Gopher & Orrelle 1995b.

<sup>40</sup> Here, as in northern Mesopotamia, pithos-halves, cut lengthwise (probably for economy) were used for burial.

<sup>41</sup> Wheeler 1974; Blegen 1950; Angel & Biesel 1986, 12; Erkanal & Keskin 2009.

<sup>42</sup> Peltenberg 1991, 17–36; Steel 1995.



In Egypt (Fig. 6) intramural burial occurs sporadically at second millennium BC sites. At Elephantine there are only two early second millennium intramural burials, a newborn in rubbish,<sup>43</sup> and another under the floor of a house, buried with a single bead.<sup>44</sup> At Kahun, the pyramid builders' town in the Faiyum, there were numerous burials of newborn infants under the floors of the workmen's houses. They were buried in wooden boxes originally used for other purposes, sometimes two or three infants per box. Infants who were some months old had been buried with beads or amulets.<sup>45</sup> At Deir el-Medina near Thebes (late 16<sup>th</sup> century BC), amphorae, baskets, boxes and coffins were all used for the intramural burial of children. Stillborn children were not usually given amulets or jewellery, just food in one or two vessels.<sup>46</sup> 30 foreign names identified amongst the 100 or so individuals in the community lend support to the theory that intramural burial was a foreign custom. At Tell el-Dab'a "jar burials of babies have been found in the settlement located next to walls and in corners".<sup>47</sup> Rosalie David contends that intramural burial for infants was not an Egyptian custom, but was introduced by immigrant Asiatic workers employed in Egypt households.<sup>48</sup>

## Conclusion

This concise review of intramural infant burials was intended to highlight the fact that the Petras burial is an expression of a millennia-old behaviour, which began amongst the earliest sedentary populations in a wide geographical area of the Near East. The practice had particularly strong roots in North Syria and Mesopotamia in the Ceramic Neolithic, continuing through the Bronze and Iron Ages. Burials were often in coarse ware cooking pots, and infants under a year old were only rarely given gifts. The custom radiated from this area along the Tigris and Euphrates and their tributaries, filtering westwards with the movement of people, goods and ideas through Anatolia and the Aegean and into Egypt, acquiring variations en route.

The 1989 discovery of the Petras intramural burial was bemusing since Minoan burial customs

are predominantly extramural. However, current evidence shows that there are a fair number of intramural burials in Crete. Most are from Knossos where, as far as one can tell, with the exception of the inverted *lekane*, they were not buried in pots, whereas outside Knossos and Khania, all the intramural burials were in pots. This may mean that the people burying the infants, or their customs and beliefs, had different origins. The Petras infant was buried in a pithos without gifts possibly because it was stillborn. The burial of the infant, its head near the mouth of the jar, which was aligned with the courtyard walls and set in a circle of stones, seems a distant echo of burials at Tel Dan.<sup>49</sup> Perhaps trade was the portal for the intangible ebb and flow of ideas, religious beliefs and customs.

Customs have value, meaning and symbolism, which we must try to interpret. Whatever the original idea behind a custom, transference to new cultural environments may have led to variations in the practice (such as the use of different receptacles) and shifts in meaning and symbolic significance according to the cultural context.

Death is regarded by all cultures, societies and religions as a serious matter. I doubt whether the fact that infant deaths were more frequent in ancient societies made the experience any less painful for the living. There are invariably rules, restrictions and procedures that have to be observed, and the observance of these rituals often provides solace to the bereaved. In modern Greece if a newborn child is likely to die it has to be "air-baptized", to ensure its passage to heaven, otherwise there is a danger that an Orthodox priest might refuse to bury the

<sup>43</sup> Von Pilgrim 1996, 174.

<sup>44</sup> Grajetzki 2003, 53.

<sup>45</sup> Petrie 1890, 24.

<sup>46</sup> At Deir el-Medina most houses had four rooms: an entrance hall with a birthing bed and chapel was adorned with Bes, god of childbirth. Infant burials were made in the second room under a low platform, which functioned as a seating area by day and a bed at night.

<sup>47</sup> Van den Brink 1982, 19–20, 28–9.

<sup>48</sup> David 1996, 189–90.

<sup>49</sup> At Tel Dan there is a "Mycenaean" tomb dated to the 14<sup>th</sup>/13<sup>th</sup> century BC, with an assemblage of Mycenaean vessels, indicating trade between Dan and Mainland Greece.



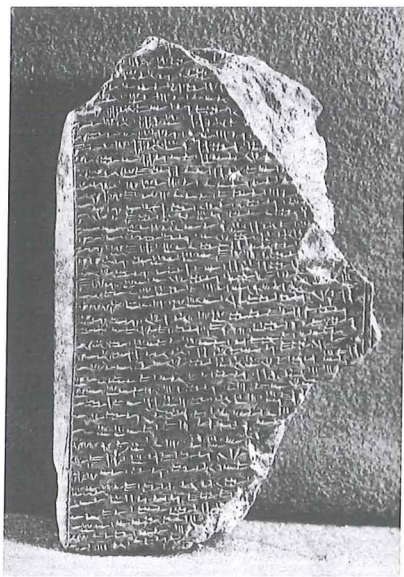


Fig. 7. The Tale of Aqhat recorded on a *stele* from Ugarit.

child. Similar taboos probably existed in ancient times. This could explain why the youngest infants were buried intramurally in spite of the existence of extramural cemeteries. If a child died at birth or soon afterwards, it may not have been acknowledged as a member of the community. Having no social identity, it may have been excluded from the cemetery. Burial in the community cemetery ratifies membership of the community. Burial at home acknowledges membership of the family.

The convention of burying an infant in an area of the house – the courtyard is an integral part – perhaps frequented most by women doing their daily tasks preparing and cooking food for a household, must have been invested with symbolic meaning, perhaps associated with nurturing and caring as Hodder has suggested.<sup>50</sup> It could also have had associations with fertility. In ancient times, it was not obvious how children were conceived. Given the lengthy gestation of human babies there was no obvious cause and effect. In fact, it was not until the 1820's that the respective roles of men and women in the process of reproduction were understood (Aristotle thought the direction of the wind had something to do with conception and the sex of a child). The choice of the burial in the courtyard might be related to primitive perceptions of the mechanism of human reproduction, fertility and

customs that were believed to promote the generation/regeneration of new life. In Greek mythology, the story of Persephone illustrates the ancient belief that new life came out of death; so by keeping a dead infant in the vicinity of the mother, perhaps it was believed that it would somehow help promote fertility and help the mother to conceive again.

As for the significance of the pithos, in Levantine mythology, the jar burial's connexion to the netherworld is alluded to in Ugaritic texts and in the Baal Epic.<sup>51</sup> The entrance to the netherworld was Mt. Knkny, the name of which is a derivative of the Ugaritic, Akkadian, Aramaic and Canaanite (*"knkn"*) words for storage jar, and the use of storage jars for burial is mentioned specifically in the Ugaritic Tale of Aqhat (Fig. 7).<sup>52</sup>

In Crete and in the rest of Greece, when pottery vessels were used for burial they were sometimes placed in pits or on a pebble paved surface, horizontally or vertically, and sealed with a slab or another pot or potsherd. At Petras the purposeful inversion of the pithos appears unique. Was this just a practical solution for sealing the pot in the absence of a sherd or a slab, or is there some other eschatological explanation? Pithos inversion was seen in earlier Minoan tombs and cemeteries, at Vorou and Hagios Myron, at Galana Charakia, where 32 jars were inverted; at Sphoungaras 150 and at Pacheia Ammos 213 burial pithoi were inverted.<sup>53</sup>

The Petras intramural pot burial could be interpreted as evidence of a foreign custom or person; however, the inversion of the pithos suggests fusion with local customs and ideas. What symbolism did placing the pithos in an inverted position convey? The interpretation of funerary symbolism can be very elusive, but undoubtedly a particular significance was attached to the inversion of the pithos. By inverting the pithos, the child's head was placed in a downward position, which is the correct presentation for a fetus to be born, or in this case reborn and perhaps that was the point. Belief in the

<sup>50</sup> Hodder 1990.

<sup>51</sup> Astour 1980; Pritchard 1969, 139; Ilan 1995, 136.

<sup>52</sup> Pritchard 1969, 154.

<sup>53</sup> Marinatos 1930–31; Alexiou 1970; Platon 1954a; 1956; Hall 1912; Seager 1916; Platon 1957; Alexiou 1964.



afterlife is incorporated in most religions. Belief in regeneration and the hope that this infant would have another chance at life must have dictated the inversion of the pithos so that the fetus was in the appropriate position to facilitate its rebirth.

# Discussion

**Paschalidis** I would love to congratulate you, and I am enthusiastic about this presentation. I would wonder why there are no burial gifts at a time when we do not have burials in general.

**McGeorge** Because the child is a newborn, it has absolutely no social identity.

**Paschalidis** I started thinking that you have shown us the pot burials of newborn babies throughout the region of the Near East and throughout time. It looks like it is a very strong common belief for humankind, and what stimulates me very much is that it occurs in Neopalatial Crete, where generally we do not have burials, but we have that. I think this is amazing, as an exception. At Petras I do not know whether we have any mention of Neopalatial burials, apart from the offering of the two vases in the Rock Shelter. In Archanes, to my knowledge, there is a building dated to the Neopalatial period, which is not a burial building, and this period lacks tombs. Here you have shown on this map, at Knossos, the Unexplored Mansion, a contemporary case of a newborn infant burial, and then at Sissi, and then at Petras, Phaistos and Khania (LM IIIB), and at Nopigeia in EM II. So you have three cases in the Neopalatial period, not very far from each other, all with newborn infants in pots.

**McGeorge** Yes, this is open for you to interpret.

**Haggis** I liked your closing comments about the inverted pithos. I think certainly in Pacheia Ammos and maybe in Sphoungaras too, this connection with rebirth might also explain this insistence in the reuse of the pithoi, in tearing off the bottoms and putting in the bodies through the bottom, instead of building a new pithos or re-inverting it, and re-filling it and then putting it back in position. They seem to be forcing them down through the bottom.

**McGeorge** Yes, I remember reading something.

**Blackman** I found the last part very convincing. I wanted to go back to an earlier point. The intramural burials, you said that the family recognized the child, but that the community would not. I would wonder, whether if, in fact, it is so secret a burial, maybe the family did not want to recognize it in any way so that the community would not know, and, therefore, it was done within the building.

**McGeorge** People have suggested things like that, because at the beginning of my conclusions I did mention the sacrifice at Knossos, and Venediktos Lanaras, who published the Middle Cycladic inverted bowl burial from Thera, mentioned such theories, and this would have been the product of an illegal relationship, but he preferred a ritual



explanation. I do not think there is a need for a ritual explanation, given that it is so common. I think it is more likely that we have a foreign wife and they just decided to incorporate this belief in their religion.

**Blackman** The reaction of our religions, whether orthodox or catholic to a stillborn child even today is that it is not clear whether life is there. Even now the reactions to this phenomenon are very disturbing and emotive for the families. I have personal experience myself.

**McGeorge** Yes, so have I.

### *Greek abstract*

#### *Μια intra muros ταφή σε αγγείο στον Πετρά*

Μια YM IA *intra muros* ταφή βρέφους ανακαλύφθηκε στον Πετρά το 1989, σε ανεστραμμένο πιθοειδές και θαμμένο στην αυλή του Σπιτιού Ι.1. Η παρούσα μελέτη παρουσιάζει τα αποτελέσματα της ανθρωπολογικής μελέτης, συζητεί τα δεδομένα για τους περιγεννητικούς κινδύνους αυτήν την εποχή και παρουσιάζει τις πολιτισμικές πρακτικές ταφών βρεφών όχι μόνον στην Ελλάδα, αλλά στην Ανατολία, στην Συροπαλαιστινιακή περιοχή και στην Αίγυπτο. Η πανάρχαια αυτή και διαδεδομένη πρακτική ξεκίνησε στις παλαιότερες κοινότητες, στην Εγγύς Ανατολή, και συνεχίσθηκε αδιάλειπτα μέχρι την Εποχή του Σιδήρου τουλάχιστον. Φαίνεται να δηλώνει μια υποφώσκουσα *κοινή* δοξασιών, αν και, δεδομένης της πολυπλοκότητας της ανθρώπινης φύσης και της άπειρης ποικιλίας έκφρασης του ανθρώπινου πολιτισμού και της πίστης, δεν είναι απαραίτητο να υπάρχει κοινή εξήγηση για αυτήν σε όλους τους χρόνους και όλες τις περιοχές. Ταφές σε ανεστραμμένους πίθους έχουν αναφερθεί σε τάφους και σε πολλά οργανωμένα νεκροταφεία της Κρήτης, για παράδειγμα στο Σφουγγαρά (Hall 1912) και στην Παχειά Άμμο, με τα 213 ανεστραμμένα ταφικά αγγεία (Seager 1916). Το περίεργο αυτό φαινόμενο δεν έχει ποτέ ερμηνευθεί επαρκώς. Στον Πετρά, η σκόπιμη τοποθέτηση του βρέφους στο πιθοειδές σε ανεστραμμένη στάση προσδίδει ένα ταφικό συμβολισμό, ο οποίος, πιθανώς, αποτελεί το σαφέστερο και αδιαμφισβήτητο δείγμα της Μινωικής θρησκευτικής πίστης στην αναγέννηση και την μετά θάνατον ζωή.



# Priestess? at work: a LM IA chlorite schist lentoid seal from the Neopalatial settlement of Petras<sup>\*</sup>

*David W. Rupp & Metaxia Tsipopoulou*

## Abstract

On the Pateropoulos-Liondakís property just beyond the northwestern edge of the archaeological site of Petras, a test excavation in 2007 revealed part of the Proto- and Neopalatial settlement. On an LM IA floor a dark greenish-gray chlorite schist lentoid seal was found. The seal has a well-carved image of a woman wearing a flounced bell skirt, holding a caprid in her right arm and shoulder, and with an object in her left hand. That object appears to be a long bow. While the consensus for the other 18 examples of this scene from Crete is that the woman is a priestess carrying a caprid to a sacrifice, the presence of the long bow may indicate that a hunting goddess is presented here instead. There are two other examples which also may depict a long bow. This scene is part of the iconographic repertoire of the soft stone workshop tradition, which may represent the sub-élite artistic milieu in Minoan society.

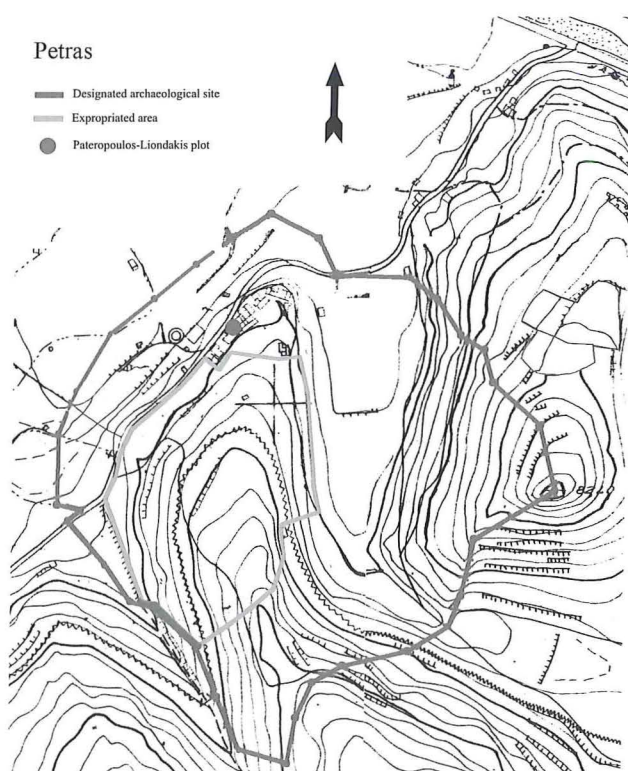


Fig. 1. Map showing the location of the Pateropoulos-Liondakís plot at Petras.

## Introduction<sup>1</sup>

To the northwest of the fence of the archaeological site of Petras is the Pateropoulos-Liondakís property (Fig. 1). On the eastern portion of the plot there is a small, old house. In the western portion there was a small courtyard measuring 6.50 x 9 m (Fig. 2). The trial excavation conducted in July, 2007 was limited to the area of courtyard.<sup>2</sup> Modern or Venetian walls came to light, followed by remains

<sup>\*</sup> The excavation was funded by the 24<sup>th</sup> Ephorate of Prehistoric and Classical Antiquities of the Hellenic Ministry of Culture and Tourism. Dr Yiannis Papadatos conducted the excavation for the Ephorate. INSTAP provided the funding for conservation, photography and drawings. Clio Zervaki conserved the seal and the pottery. Jerolyn Morrison drew the pottery. Chronis Papanikolopoulos photographed the seal. Garifalia Kostopoulou executed the photoshop work for the illustrated materials.

<sup>1</sup> A shorter version of this contribution was presented at the 11<sup>th</sup> Cretological Conference in Rethymnon in October, 2011.

<sup>2</sup> The excavation was conducted by Yiannis Papadatos.



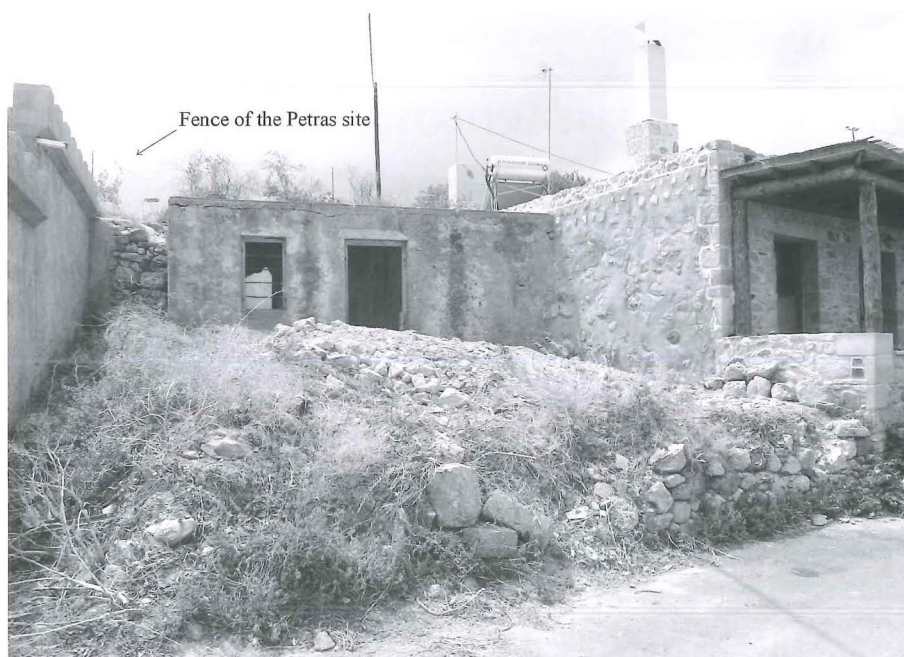


Fig. 2. View from the northwest of the Pateropoulos-Liondakís plot before excavation in July, 2007.



Fig. 3. View of the plot from the northeast after excavation, with the findspot of the LM IA lentoid seal.

of the Late Minoan I and the Middle Minoan periods (Fig. 3). To the Neopalatial period belongs a probable large terrace wall, preserved for a length of 3.20 m (and 1 m wide as its widest part), as well as two other, narrower walls to the east, possibly with a similar function.

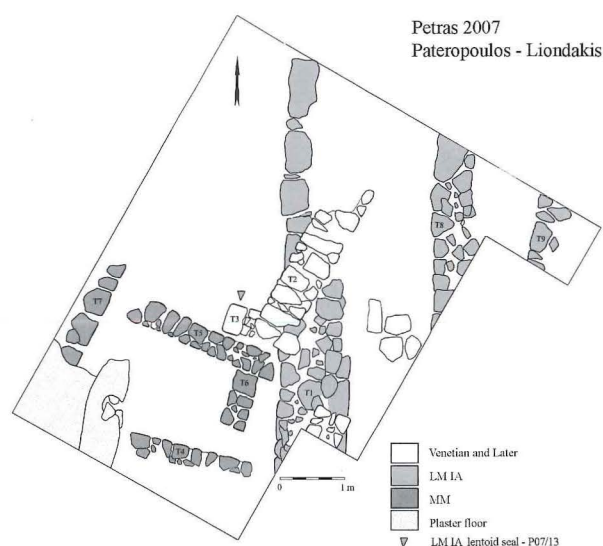


Fig. 4. Plan of the excavated remains with the findspot of the LM IA lentoid seal.

## The find context and its dating

To the west of the large wall, in Layer 3, Locus 7 (Fig. 4), a chlorite schist lentoid seal (P07/13) was found on a LM IA surface. The closed and open vessels from this context were largely from the LM IA period (Figs. 5–6), with intrusive later material associated with the construction of the Venetian or later wall.



Fig. 5. LM IA closed vessels recovered in Layer 3, Locus 7 (photographs by M. Tsipopoulou).

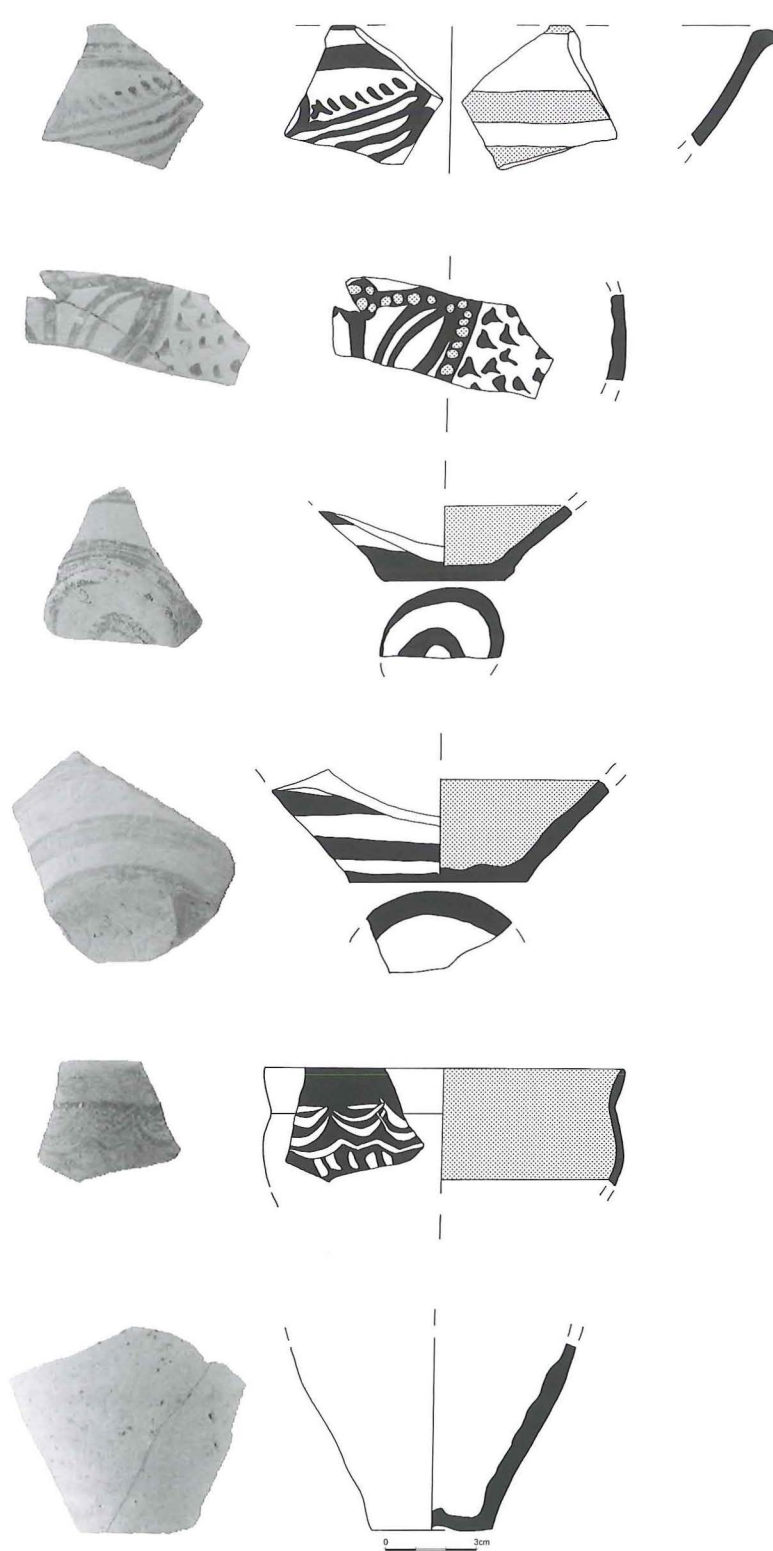


Fig. 6. LM IA open vessels recovered in Layer 3, Locus 7 (photographs by M. Tsipopoulou).



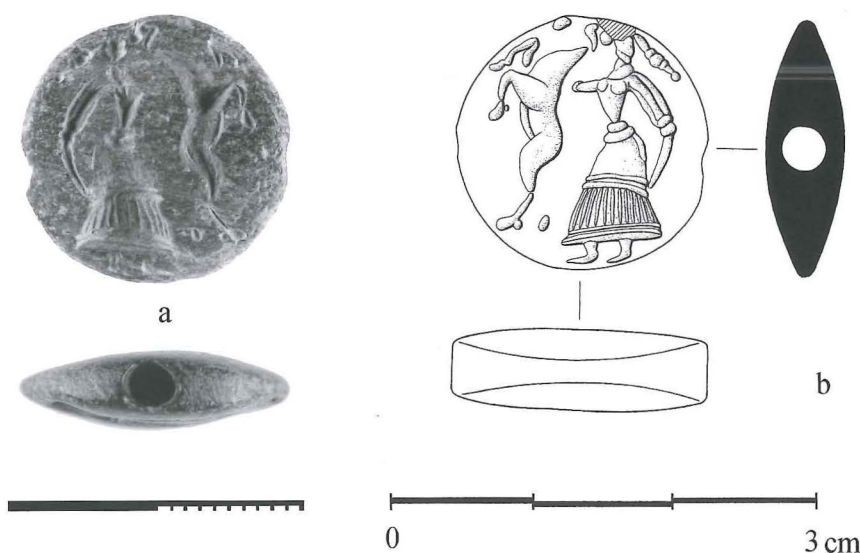


Fig. 7. a) Photographs of the lentoid seal; b) Drawing of the LM IA lentoid seal.

## The Petras seal and its iconography

The new lentoid-shaped seal (Fig. 7)<sup>3</sup> is carved from dark greenish-gray chlorite schist (Gray 1 4/1/10Y). It measures 1.9 cm on its vertical axis and 1.8 cm on the horizontal one. Its maximum thickness is 0.5 cm. The string holes have a diameter of 0.024 cm (right) and 0.03 cm (left). The seal weighs 2.55 gr.



Fig. 8. Impression of the LM IA lentoid seal (taken by Clio Zervaki).

The scene (Fig. 8) engraved carefully on the slightly convex face of the seal consists of a woman facing left, supporting a horned caprid in her out-stretched right arm and shoulder. The woman, with her two feet pointed to the left, wears a flounced bell skirt that is divided into two almost equal zones. The lower one is decorated with vertical lines and is bordered on the bottom and top by three ribs. The upper one is plain. The woman appears to wear a belt made from two raised horizontal ribs. It is not clear whether or not her torso is clothed, but a horizontal raised band at her throat may suggest the former. As the seal is slightly damaged, the top of her head is now missing behind a dot-like eye.

The figure's left arm is hanging either at her side or behind her back. The hand appears to be holding a long curved object with a pointed end (Fig. 9). When this area is examined closely, two observations can be made. First, there is a shallower area on either side of a deeper incision that curves downward. This appears to be her arm. Second, while this shallower area ends where there are two bulbous projections, the deeper incision continues its arc downward and ends in a point. The shape of this deeper incision, as Colin Macdonald<sup>4</sup> observed, is similar to that of the curved limbs of a

<sup>3</sup> The drawing was executed by Douglas Faulmann.

<sup>4</sup> Pers. comm.



Fig. 9. Area of the right arm of the female figure.

long bow (Fig. 10). The two bulbous projections could be the ends of the handhold. There is also a short, slight straight incision that might be an attempt at depicting the bow's string.

The body of the caprid faces to the left with only one of its hind legs shown. The two front legs are flexed. Its head is thrust backwards over the woman's shoulder and behind her head. One of its long horns is shown extending behind the woman's head.

## The corpus of Minoan seals with the same scene depicted

There are a total of 19 examples (Fig. 11), including some sealings, in the corpus of LM I soft stone lentoid seals found in Crete that depict a woman holding or supporting a rampant quadruped, probably a caprid. In addition, there is a cylinder seal with this scene repeated twice (Fig. 11).<sup>5</sup> In ten examples they face to the right, and in the remainder to the left. There is another related corpus of seven stone lentoid seals carved from hard stones, including a sealing, and one possible soft stone seal, from the LH I–II Mainland that have a similar version of this scene<sup>6</sup>. That corpus will not be discussed in this paper.

The renditions of this scene from Neopalatial Crete (Fig. 11) display a consistency that points to a common prototype in an unknown medium. While the level of engraving varies from crude to

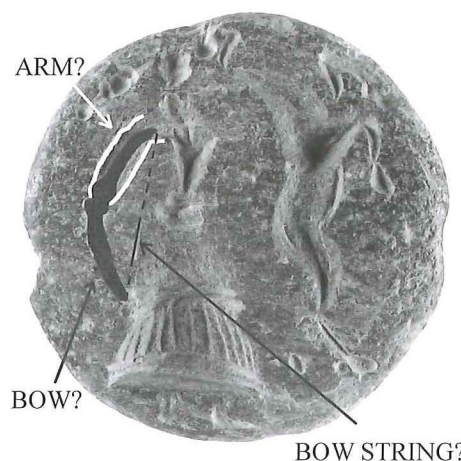


Fig. 10. Reconstruction of a long bow with bow string, held in the right hand of the female figure (drawn by David W. Rupp).

very detailed, the treatments of the woman and of the caprid are all very similar in conception and in execution, with some minor variations.

The woman's stance is rendered in two variations. The most common one, "A" (Fig. 12a), with 11 examples, is an upright, rigid pose, with an arm extended straight out, grasping the caprid by its neck or supporting it on her shoulder. In the other one, "B" (Fig. 12b), she appears to be bending forward at the waist, with her rear thrust outward slightly. She clothed in a flounced bell skirt. A few examples give the impression that it could be a coulottes-type skirt. The skirt is generally divided horizontally into two sections of varying width, separated by simple or more complex borders. The upper portion is often depicted as plain. The lower portion is decorated with a series of parallel vertical lines. Occasionally there are three sections. At the waist there is a belt or cummerbund made from two horizontal bands. The upper torso above the waist normally is not well-defined. Sometimes, the line of the bosom or the breasts is rendered. When there is detail, it appears as if the woman is wearing a blouse with sleeves to the mid-forearm or to the wrist. Sometimes the line of the shoulder and the arm are decorated with dots. The woman's head is often missing, either from damage or because the

<sup>5</sup> CMS III, no. 511, Herakleion Museum, Giamalakis Collection, inv. no. 3264.

<sup>6</sup> See Pini 2010d, 335–6, fig. 12.



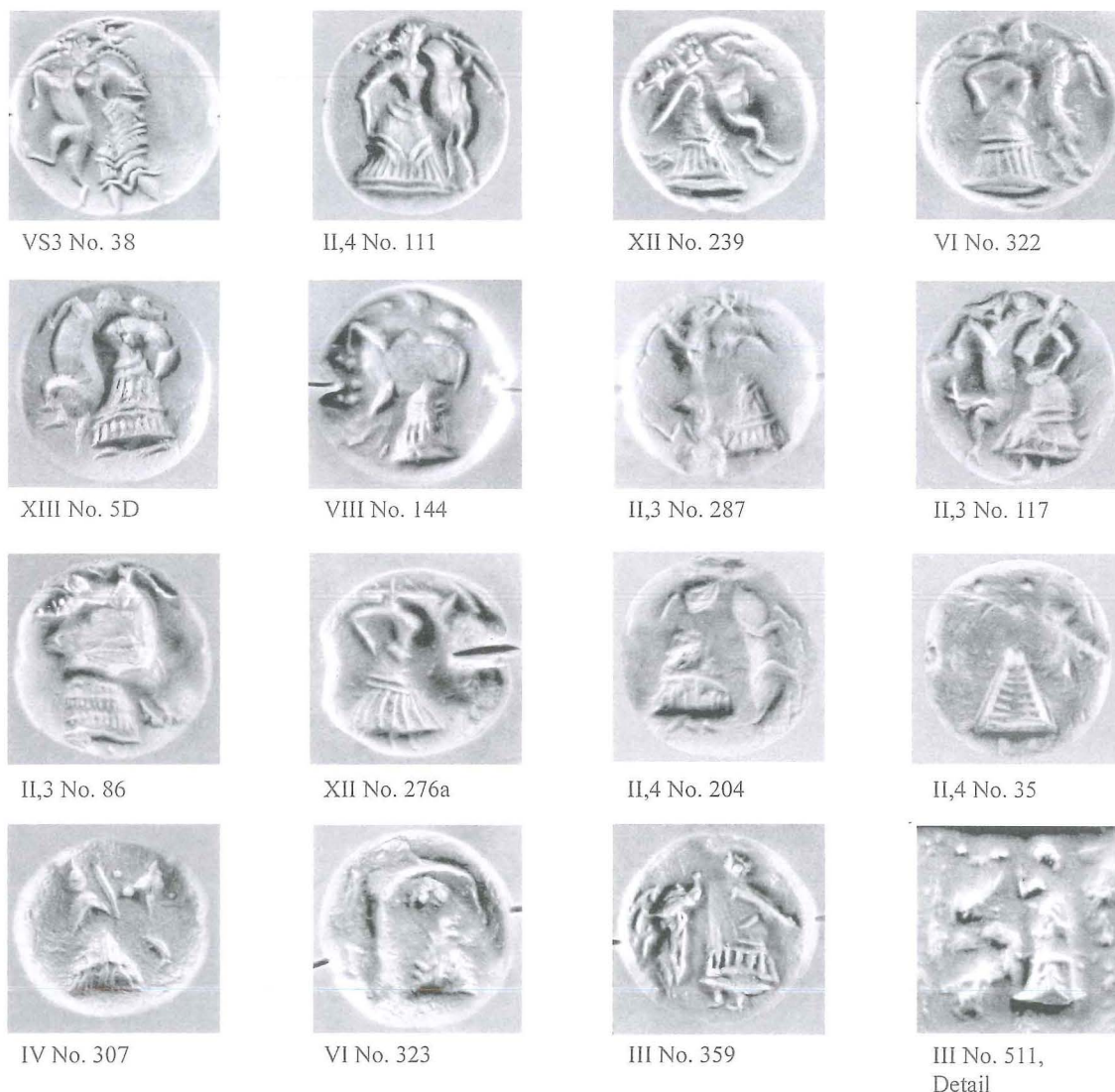


Fig. 11. Corpus of 16 LM I soft stone lentoid seals and sealings from Crete with the “priestess holding a caprid” scene and a Minoan cylinder seal with the scene repeated twice (Pini 2010d).

animal’s head is shown here. When there is any preserved definition, the head usually consists of a beak-like nose and/or a single dot for an eye.

If the woman faces right, she holds the animal in her left hand; if she faces left, it is in her right hand. The other arm is normally shown bent at the elbow with the upper and lower parts in appropriate proportions. Only one example, *CMS* VI, no. 322 (Fig. 12c),<sup>7</sup> has some indication of a free hand. For two seals, *CMS* II.3, no. 213 (Fig. 12d)<sup>8</sup> and *CMS* II.4, no. 111 (Fig. 12e),<sup>9</sup> some have suggested that the woman is holding a knife. Besides the possible bow on the Petras seal, *CMS* VIII, no.144 (Fig. 12f)<sup>10</sup> has an object with a similar appearance. This

seal’s rendition of the scene is, in fact, very close to that on the Petras seal. The possible knife on *CMS* II.4, no. 111 may be interpreted as a bow as well.

Most scholars have identified the quadruped as a caprid, usually a goat or an agrimi. A sheep, a ram or a deer also have been suggested. The animal is shown in 11 examples with its head draped over

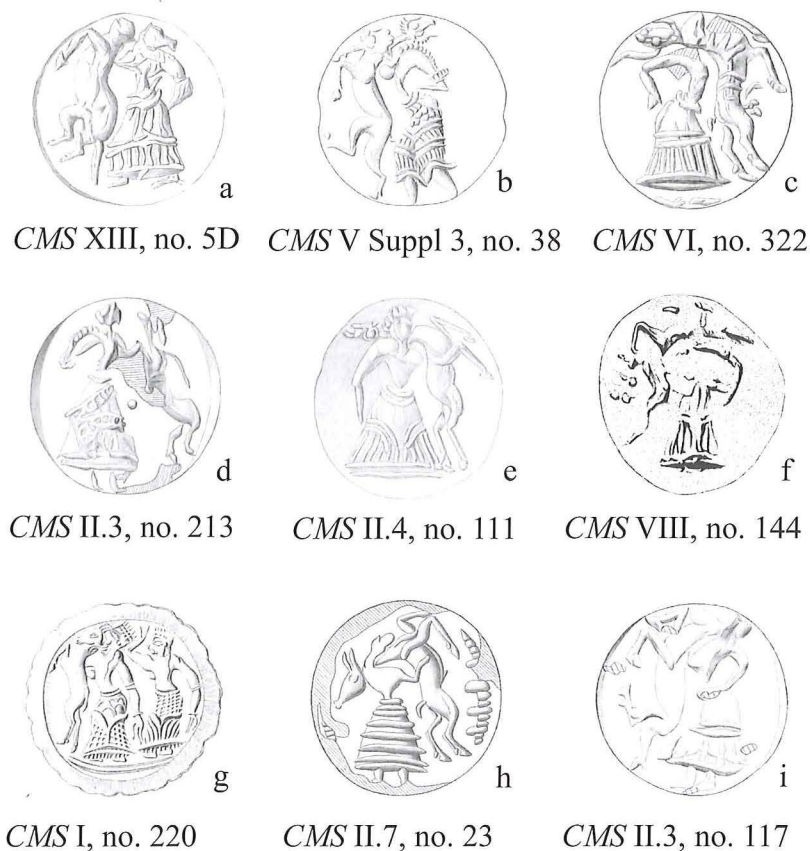
<sup>7</sup> Thought to be from Crete; Oxford, Ashmolean Museum, inv. no. 1941.120.

<sup>8</sup> Seized in 1927 from Chersonissos; Herakleion Museum, inv. no. 1499.

<sup>9</sup> From Evans’ excavations in 1923 of the “House of the Frescoes”; Herakleion Museum, inv. no. 1287.

<sup>10</sup> Rev. V.E.G. Kenna Collection, inv. no. 144.

Fig. 12. Impressions of selected seals depicting the “priestess holding a caprid”.



the woman's shoulder. In the others, it is rampant. In all cases three or four of its legs are depicted as hanging limp. When there is sufficient detail and no damage, five of the animals have horns and five do not. For the others it is not clear. Thus, it is difficult to say if the quadruped is meant to be a horned caprid. If it was a goat, an agrimi or a ram, the horns may have been removed if the animal was intended for sacrifice.

## The discussion of the scene and specific examples from the corpus

Variations of the scene carved on the Petras lentoid seal have been the subject of a long simmering discussion since 1972. Yiannis Sakellarakis<sup>11</sup> started it off by discussing a lentoid seal found at Vapheio (CMS I, no. 220; Fig. 12g),<sup>12</sup> which depicts two priestesses moving to the left, with the left one car-

rying a rampant caprid. He assembled the then-known 12 examples, all of which have only one woman holding a caprid. He moved the discussion further in 1975<sup>13</sup> when he postulated, on the basis of the Vapheio seals and partially preserved clay sealings from the deposit in Room VII of House A at Kato Zakros (CMS II.7; Fig. 12h),<sup>14</sup> that the subject was an abbreviated representation of a procession of priestesses (to the right), one of whom was carrying a rampant caprid, to an altar for sacrifice.<sup>15</sup>

A more specific than simply Neopalatial relative date of LM IB was given by Wolf-Dietrich Neimeier<sup>16</sup> for the then-known two examples from excavated contexts in Crete. They are from the “House of the Frescoes” at Knossos (CMS II.4, no. 111; Fig.

<sup>11</sup> Sakellarakis 1972.

<sup>12</sup> Athens, National Museum, inv. no. 1760.

<sup>13</sup> Sakellarakis 1975.

<sup>14</sup> Herakleion Museum, HMs 32/1–4.

<sup>15</sup> Sakellarakis 1975, table 88.

<sup>16</sup> Neimeier 1981, 94 and 96, Abb. 7 and 9.



12e)<sup>17</sup> and from the 1902 Italian excavations of the Villa at Hagia Triada (CMS II.3, no. 117; Fig. 12i).<sup>18</sup>

Later, Nannos Marinatos<sup>19</sup> returned to this theme, adding a few more examples to the corpus, and she succinctly summed up what these were intended to represent. She had access to Christos Boulotis' 1978 unpublished doctoral dissertation<sup>20</sup> on Aegean processions where he commented on this subject. She too sees the seal images as a short-hand version of a sacrificial procession of only women, possibly priestesses, where at least one of them is carrying an animal, probably already dead, to a terminal point, possibly an altar or a sacrificial table. What the women will do with the animal, especially if it is dead, is not clear. Cut off its head with a knife or simply consecrate it? She emphasizes that the "division of capacities and duties between the sexes is accentuated in the ritual sphere". That is "hunting or killing is done by men, the consecration by women".<sup>21</sup>

A compositional analysis by John Younger<sup>22</sup> described this scene as a standing woman behind a rampant animal, which could either be an agrimi, a goat or a generic quadruped. He then referred to four of the then known examples of this corpus.

Karen Krattenmaker<sup>23</sup> in her analysis of the representation of architecture in glyptic cult scenes identified the women on the seals as priestesses carrying agrimia. In doing so, she accepted Sakellarakis' assumption that the Kato Zakros sealings display a short-hand version of an altar at the right edge of the field. To her the flounced bell skirt suggested that "a special activity is indicated".<sup>24</sup> The association of agrimia with peak sanctuaries led her to read these representations of women carrying agrimia "...as possible references to sacrifice, or as depictions indicating a (protective?) relationship between female figures and agrimia".<sup>25</sup>

Stefan Hiller<sup>26</sup> has noted the increasing frequency of the depiction of goats during the Neopalatial period. Their representation in peaceful animal life, hunted by men and sacrificed, forms a coherent cycle. Hiller, following Marinatos, sees the hunting and the sacrifice of goats as two aspects of a ritually connected sequence of events. Further, they reinforce the close connection between the goat and the female sphere.

In a discussion of four inscribed hanging nodules

(ZA Wa 38), Erik Hallager<sup>27</sup> dated the Kato Zakros sealings from the deposit in Room VII of House A to LM IB, thus, along with Neimeier's input, establishing the end of LM IB as the *terminus ante quem* for the Cretan examples.

Olga Krzyszkowska's<sup>28</sup> comprehensive overview of Aegean seals touched on many issues germane to this corpus. The frequency of references to processions, especially with female figures, produces the impression that "...these are excerpts from or allusions to the larger and more explicit scenes on signet rings".<sup>29</sup> She is uncertain, however, "...whether [the woman carrying a sheep or goat] is a worshipper or a priestess bringing an animal to sacrifice, or a goddess in the guise of the Mistress of the Animals".<sup>30</sup> The examples of this scene from the Mainland dating to LB I-II are also treated by her. She notes that one cannot determine if these examples "are Minoan imports or close copies of Minoan originals".<sup>31</sup>

The seals of this corpus with known provenience from Crete were carved from soft stones, while those from the Mainland with a similar scene utilized hard stones. Ingo Pini<sup>32</sup> has explored this striking dichotomy. He identified the woman as a priestess carrying a ram. Pini argues that "it seems likely that the scenes indicate some kind of preparation for sacrifice although the altar once thought by Yiannis Sakellarakis to appear on the sealings from Kato Zakros does not in fact exist"<sup>33</sup> according to a new drawing of it.

<sup>17</sup> See n. 9.

<sup>18</sup> Herakleion Museum, inv. no. 183.

<sup>19</sup> Marinatos 1986, 34–5.

<sup>20</sup> Marinatos 1986, 34, ns. 134 and 137.

<sup>21</sup> Marinatos 1986, 35.

<sup>22</sup> Younger 1988, 179, fig. 126.

<sup>23</sup> Krattenmaker 1995, 120 and 124–5, figs. 1, 13 and 3.

<sup>24</sup> Krattenmaker 1995, 125.

<sup>25</sup> Krattenmaker 1995.

<sup>26</sup> Hiller 2001, 293–4, pl. XCIV, 23a–b.

<sup>27</sup> Hallager 1995, 11–3 and 17, figs. 8 and 10.

<sup>28</sup> Krzyszkowska 2005.

<sup>29</sup> Krzyszkowska 2005, 142.

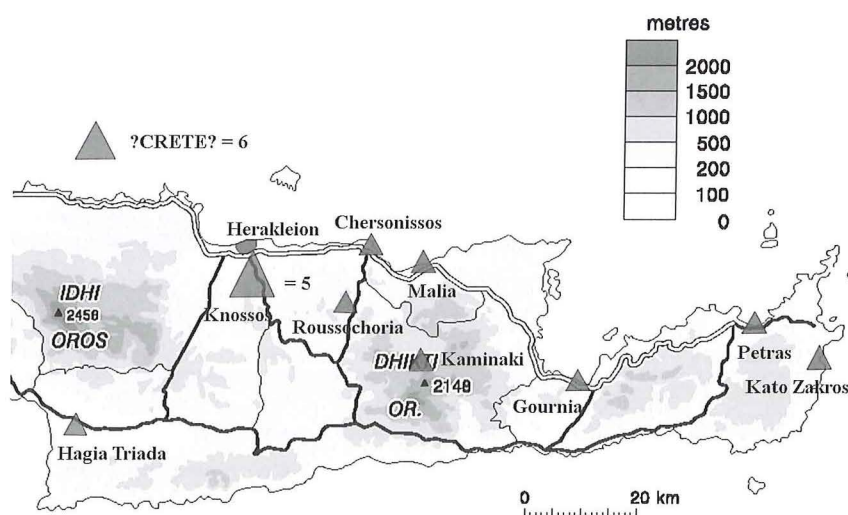
<sup>30</sup> Krzyszkowska 2005.

<sup>31</sup> Krzyszkowska 2005, 253.

<sup>32</sup> Pini 2010d.

<sup>33</sup> Pini 2010d, 395.

Fig. 13. Map of central and eastern Crete with the locations of the known find spots for the seals in the corpus of seals and sealings with the “priestess holding a caprid” scene.



The complex central question remains as to why this scene is only depicted on soft stone lentoid seals from Crete that date to LM IA–B. As for an answer, Pini suggested “...that the soft stone seals were abbreviated representations of processions toward an altar or a shrine, although so far no such processions are known from metal rings”.<sup>34</sup> It should be noted here that such processions with women are also absent from other Neopalatial artistic media. He then went on to speculate whether these seals were carved for ordinary people (as he labeled them), while the members of the elite and the administrators had metal rings or hard stones.<sup>35</sup> As soft and hard stones required different engraving techniques, there must have been different specialized workshops producing each type, or so Pini believes.<sup>36</sup>

## The importance of the new seal from Petras for understanding the corpus

So what does the new example in this corpus from Petras bring to the discussion and to our understanding of the various issues involved? First, the seal is very well carved, with considerable detail for a soft stone example. It joins two other examples from the corpus on which the scene was carved in a complex fashion. Second, the seal was found in a securely dated LM IA domestic context at Petras.

This provides us with a firm *terminus post quem* for the corpus, which means that the soft stone seals from Crete with this scene were carved between the beginning of LM IA and the end of LM IB. Third, the location and the nature of the associated artifactual assemblage and the preserved architectural remains do not suggest that this was a supralite dwelling or one connected to palatial functions in some fashion.

Fourth, if the female figure in the flounced bell skirt on three seals<sup>37</sup> is, in fact, holding a bow in her free hand, then these might be representations of “a goddess in the guise of the Mistress of the Animals”, as Krzyszkowska wondered.<sup>38</sup> Fifth, it appears that the variations of the basic scene are different abbreviations of a procession of priestesses, possibly in the symbolic presence of the Mistress of the Animals, or, of only one or two priestesses shown in a series of separate, “stop-action” frames as in a comic strip. They are carrying one or more goats and/or agrimia. The procession is moving toward an unseen altar, a table of sacrifice, a shrine or a simple, consecrated space.

Sixth, the absence to date from Neopalatial Crete of renditions of this procession scene on metal rings or on hard stone seals, as well as the lack of such

<sup>34</sup> Pini 2010d, 338.

<sup>35</sup> Pini 2010d.

<sup>36</sup> Pini 2010d, 339.

<sup>37</sup> Petras, CMS VIII, no. 144; CMS VIII, no. 111.

<sup>38</sup> Krzyszkowska 2005, 142.



a procession in contemporary frescoes, metalwork or carved stone reliefs supports the view that the prototype for this scene, at the very least, comes from the iconographic repertoire of the soft stone workshop tradition. Its source may also originate in the sub-elite artistic tradition in a medium or media that have not been preserved.<sup>39</sup> Finally, the large number of seals and sealings, 19, with this scene and their broad distribution from a variety of Neopalatial find spots in central and eastern Crete (Fig. 13) lends support to the interpretation that they are examples of art beyond the palace walls and its immediate environs. If these thoughts are plausible, then we have an insight into some of the characteristics of the art of a segment of the elite who were not at the very top of Minoan society.

## Conclusions

In the realm of Minoan seals, Petras continues to produce on a regular basis a wide array of examples from all periods and materials. These not only enlarge the Minoan seal corpus as a whole, but also challenge us to think beyond the limits of the presumed known, by providing unexpected and unusual examples to contemplate and to integrate into our narrative about the nature and beliefs of Minoan society.

<sup>39</sup> The procession and sacrifice scene painted on Side B of the LM IIIA2 limestone sarcophagus from Tomb 4 at Hagia Triada may be a reflection of the postulated motif. See Burke 2005.

### *Greek abstract*

Ιέρεια (;) *ἐπὶ τῷ ἔργῳ*. Ένας ΥΜ ΙΑ φακοειδής σφραγιδόλιθος από σκουροπράσινο οφείτη από τον Νεοανακτορικό οικισμό του Πετρά

Στην ιδιοκτησία Πατεροπούλου-Λιοντάκη, εξωτερικά του βορειοδυτικού άκρου του απαλλοτριωμένου χώρου του Πετρά, δοκιμαστική ανασκαφή το 2007 έφερε στο φως τμήμα του Παλαιο- και Νεοανακτορικού οικισμού. Σε ΥΜ ΙΑ δάπεδο βρέθηκε φακοειδής σφραγιδόλιθος από σκουροπράσινο οφείτη. Φέρει παράσταση γυναικείας μορφής με φαρδιά κωδωνόσχημη φούστα, η οποία κρατεί στο δεξί της χέρι αιγοειδές και στο αριστερό της ένα αντικείμενο, που μοιάζει με μακρύ τόξο. Αν και η γενικά παραδεκτή άποψη για τα υπόλοιπα 18 κρητικά δείγματα αυτού του εικονιστικού τύπου είναι ότι πρόκειται για ιέρεια που κρατεί αιγοειδές για να το θυσιάσει, η παρουσία του τόξου μπορεί να δηλώνει ότι γίνεται εδώ αναφορά σε θεά του κυνηγιού. Υπάρχουν άλλα δύο παραδείγματα τα οποία πιθανώς εικονίζουν μακρύ τόξο. Η σκηνή εντάσσεται σε εικονιστικό ρεπερτόριο εργαστηρίου σφραγίδων από μαλακό λίθο, το οποίο πιθανώς εξυπηρετούσε τις καλλιτεχνικές ανάγκες μιας σχετικά χαμηλής κατηγορίας άρχουσας τάξης στη Μινωική κοινωνία.



# Pottery of the Middle Byzantine period and the first centuries of the Venetian occupation from Petras, Siteia\*

Natalia Poulou-Papadimitriou

## Abstract

The burial complex which came to light on Hill I at Petras, on top of the Minoan palace, is particularly important; its study will offer significant new evidence both for Siteia in the Middle Byzantine period, as well as for burial customs in general during the Byzantine and the post-Byzantine eras. In this paper, the preliminary conclusions from the study of the pottery and the small finds, including both grave goods and objects found in immediate connection with the burial context (on or around the graves), are presented. The study and the chronological attribution of the finds offer important new evidence for the existence of the Byzantine cemetery, already in the Second Byzantine period, as well as for the continuing use of the site for burials by people who lived in the vicinity until the 14th/15th century. Finally, a few preliminary suggestions are presented relating to the history of the town of Siteia and its region in Byzantine times.

## Introduction

Excavation carried out on the hilltop of Petras and more specifically in the area of the Minoan palatial building, brought to light a cemetery dated to the Second Byzantine period and the first centuries of the Venetian occupation.<sup>1</sup> It is one of the very few Middle Byzantine/early Venetian cemeteries in Crete that has been fully excavated and studied.<sup>2</sup>

The 33 graves revealed are mainly rock-cut or built cists, and there are also some simple pits (Figs. 1–2). An ossuary 1.70 m deep has also been uncovered containing consecutive layers of bones with intermittent layers of stones (among the stones there are querns and other Minoan stone tools). Byzantine, Venetian and sherds of the Ottoman period have been found across the plateau of Petras Hill, but they were not connected to the graves.<sup>3</sup>

Some graves were cut into the compact LM IB destruction layer, while in other cases, parts of the Minoan walls had been used. Their orientation was east-west, with very few exceptions oriented north-south due to difficulty in cutting the bedrock. Each

grave contained one skeleton in an extended position with the arms usually folded across the chest or the abdomen. A unique case is that of an infant burial in the “area of the conical cups” (a destruction deposit on top of the monumental staircase leading to the central court of the palace), as it has been called by the excavators (Fig. 3). The graves were covered by schist paving stones or tiles. In some cases, Minoan stone querns were used as head-rests for the dead. The grave offerings consisted of clay

\* I would like to kindly thank Dr Metaxia Tsipopoulou, Director of the Petras excavations, for entrusting me with the Byzantine material from the site for study and publication.

<sup>1</sup> For the excavation at Petras, Tsipopoulou 2002, 133–44.

<sup>2</sup> The cemetery of Kastella in Herakleion has been only partially published; for the excavation, see Starida 2003, 717. Some of the finds are published by Poulou-Papadimitriou 2008a, 170–2, figs. 24–6. The grave finds from the Middle Byzantine cemetery excavated around the church of Hagios Ioannis Theologos in Stylos Apokoronou (Khania) were published in detail by Albani 2004, 53–60.

<sup>3</sup> The final publication of the Byzantine cemetery of Petras is in preparation.



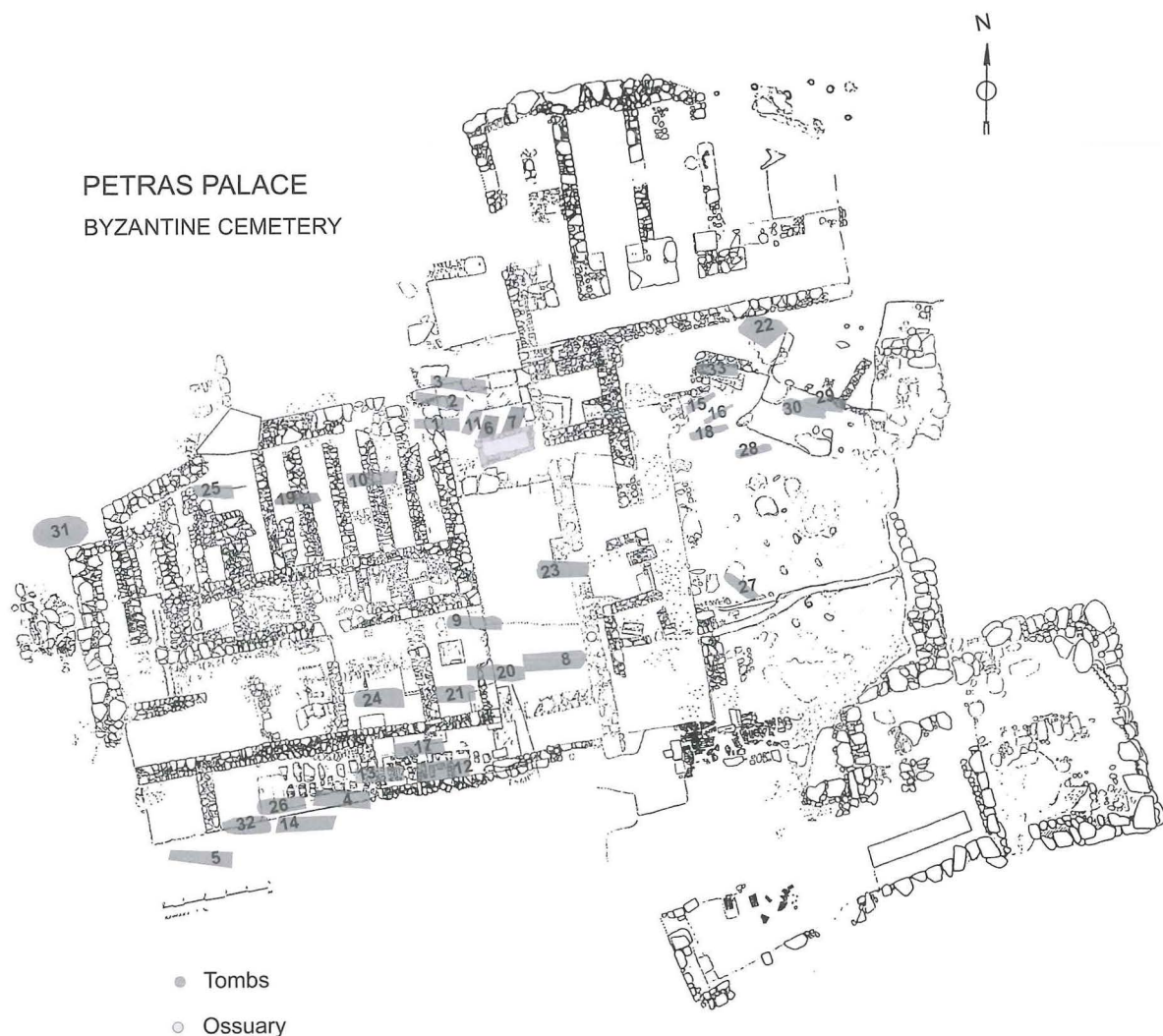


Fig. 1. Plan of the Byzantine/early Venetian cemetery of Petras.



Fig. 2. The Byzantine/early Venetian cemetery of Petras (photo by M. Tsiopoulou).



Fig. 3. The infant burial in the “area of the conical cups” (photo by M. Tsiopoulou).

and glass vessels; fasteners for the garments of the dead have also been found, namely belt buckles. In five instances the dead held in their right hands or had close to their mouths sherds bearing an incised cross and the inscription IC XP NI KA.

In what follows, I will refer only briefly to the pottery recovered from the plateau where the Minoan palace lies on the Petras Hill, while I will present more extensively the finds deriving from the graves. Finally, I will discuss burial

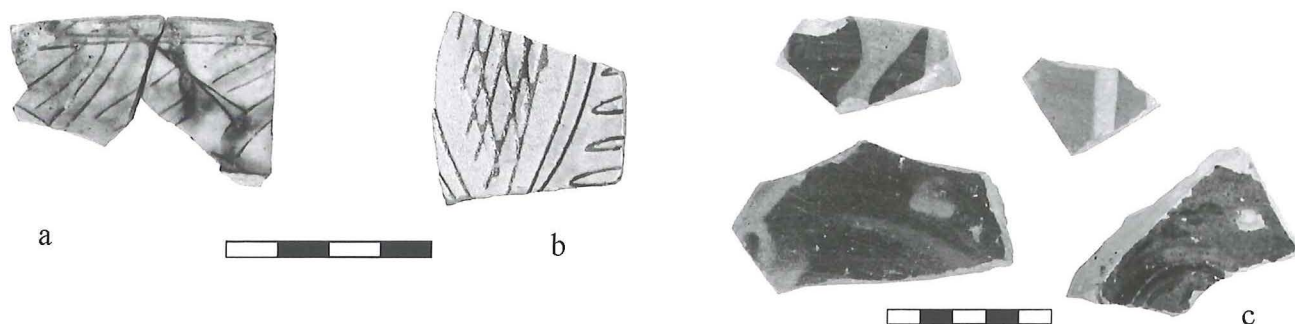


Fig. 4. a) Painted incised pottery, Cyprus, 13<sup>th</sup> century (photo by N. Poulou-Papadimitriou); b) Venetian imported pottery, 14<sup>th</sup>/15<sup>th</sup> century (photo by N. Poulou-Papadimitriou); c) Slip-painted pottery, late 18<sup>th</sup>/19<sup>th</sup> century (photo by N. Poulou-Papadimitriou).

customs, as inferred from the study of the cemetery finds.

## The pottery from the plateau

Along with the plethora of Minoan finds, pottery of the Early and Middle Byzantine and the first centuries of the Venetian and Ottoman occupations extending in date from the 6<sup>th</sup>/7<sup>th</sup> to the 18<sup>th</sup>/19<sup>th</sup> centuries,<sup>4</sup> though with many gaps in between, was found across the plateau of the hill. Among the rare finds of the Early Byzantine period are a few sherds of *terra sigillata* dishes belonging to Hayes Type 10C, and more specifically, to the later variations of the middle/late 7<sup>th</sup> centuries.<sup>5</sup>

A few amphora sherds dating to the transitional period of Byzantium (7<sup>th</sup> to 9<sup>th</sup> centuries) belong to the broader family of Byzantine globular amphorae, which were being produced in various Cretan workshops and elsewhere in the Byzantine Empire since the mid-7<sup>th</sup> century. The pottery of this period is not easily identified, and the few published assemblages provide invaluable information on trade and exchange activities on both a small and large scale. Cretan examples derive from Gortyn, Eleutherna, Knossos, Herakleion, the islets of Pseira and Mochlos, and fairly recently from the excavations of Priniatikos Pyrgos.<sup>6</sup>

A very few amphora sherds of the 10<sup>th</sup>/11<sup>th</sup> century belong to Hayes Type 54/Saraçhane typology (Günsenin Type I).<sup>7</sup> Investigations in Ganos and the Marmara Island brought to light centers of production for this amphora type.<sup>8</sup> A few sherds of incised

sgraffito ware with pale green glaze belong to the 12<sup>th</sup> century.<sup>9</sup> The 13<sup>th</sup> century is represented by a few painted incised vessels (Fig. 4a), the shape and decoration of which point to the glazed ware produced in Cyprus during this period.<sup>10</sup>

There is plethora of Venetian pottery ranging in date from the 14<sup>th</sup> to the 15<sup>th</sup> centuries (Fig. 4b). It consists of sherds from imported vessels, mainly dishes in a yellowish red fabric covered with a pink slip. The decorative motifs are incised and occasionally enhanced with a yellowish-brown or green color and covered with a transparent lead glaze. They belong to the early phase of the ceramics produced in the Po valley of northern Italy from the

<sup>4</sup> All dates mentioned in the text are AD.

<sup>5</sup> Hayes 1972, 343–6, fig. 71.13; Rizzo 2001, 57 (Gortyn); Vogt 2000, 122–3, fig. 11.11 (Eleutherna); Xanthopoulou 2004, 1016, pl. 5.11, 6.2 (Itanos); Poulou-Papadimitriou 1995, 1121, fig. 1 (Pseira); Boardman 1989, 92–6, nos. 95–7, figs. 28–29 (Chios).

<sup>6</sup> Portale & Romeo 2001, 302–12, 354–9, 387–93, 395–6 (Gortyn); Vogt 2000, fig. 41.1, 2; Yangaki 2005, 194–7, 216–9, figs. 51–2, 56, pl. XXIII (Eleutherna); Hayes 2001, 442–3, fig. 5.A58; 449–51, fig. 9.B59; fig. 10.B65 (Knossos); Poulou-Papadimitriou 2008b, 154, fig. 2 (Herakleion); Poulou-Papadimitriou 2001, 245–6, figs. 24–5 (Pseira); unpublished material from the island of Mochlos and the excavation of Priniatikos Pyrgos.

<sup>7</sup> Some sherds of this type of amphorae have been found in late 9<sup>th</sup>/10<sup>th</sup> century layers on Pseira, see Poulou-Papadimitriou 1990, 6, pl. 8, 14. For the type, see Hayes 1992, 73–4, fig. 24.1–9; Günsenin 1989, 267–76.

<sup>8</sup> Günsenin 2009, 145–53 with previous bibliography.

<sup>9</sup> For the same decoration, see Papanikola-Bakirtzi 1999, 46, no. 32.

<sup>10</sup> Papanikola-Bakirtzi *et al.* 1999, 160–1, 167, nos. 344–5.



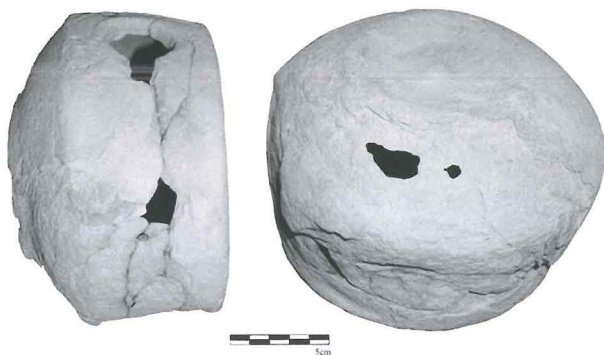


Fig. 5. Circular flask (photo by N. Poulou-Papadimitriou).



Fig. 6 Two-handled cup, green and brown painted ware, 11<sup>th</sup> century, Grave 8, (photo by N. Poulou-Papadimitriou).



Fig. 7. Green glazed bowl, 13<sup>th</sup> century, Grave 5. Not to scale (photo by N. Poulou-Papadimitriou).

14<sup>th</sup> to the 15<sup>th</sup> centuries (*ceramica arcaica padana*).<sup>11</sup> This pottery has been encountered in many areas in Crete, in urban sites such as Herakleion and Khania, as well as in surveys of the hinterland (Malia, Pseira, Mochlos).<sup>12</sup> Among the chronologically later finds, there exist dish sherds with slip-painted decoration under a green or yellow transparent glaze (Fig. 4c). This pottery is widespread across the Aegean, in Constantinople, Cyprus, Lebanon,

Egypt and Crete, and is dated to the end of the 18<sup>th</sup> or beginning of the 19<sup>th</sup> century. It represents the product of Aegean workshops, including those identified in the area of Didymoteicho.<sup>13</sup> Among the vessels of special significance is a large, circular flask, very similar to modern day water flasks (Fig. 5). Similar objects are dated from the 7<sup>th</sup>/8<sup>th</sup> to the 12<sup>th</sup> centuries and have been found in several areas in Greece, Italy and the Balkans (Corinth, Argos, Rome, Bulgaria) as well as in the eastern Mediterranean (Cyprus, Beirut, Pella-Jordan).<sup>14</sup> The Petras flask was not found in a well-dated context. Its typology, however, indicates a date range from the Middle to Late Byzantine period (11<sup>th</sup> to the 12<sup>th</sup>/13<sup>th</sup> centuries).<sup>15</sup>

## The pottery from the graves

Twelve of the 33 graves excavated at Petras contained grave offerings. More specifically:

Grave 8 contained one (female?) burial. A two-handled cup had been placed close to the arm of the dead. It was manufactured in a reddish fine clay, and its internal and external surfaces were covered in a whitish slip, which bore decoration of brown and green stripes running down from the rim. On top of the slip was a fine layer of transparent, colorless glaze, which had been applied internally and externally (green and brown painted ware) (Fig. 6).<sup>16</sup> Close parallels for this vessel are reported from

<sup>11</sup> For this type of pottery, François 1994, 376–80.

<sup>12</sup> The same pottery was found in Herakleion (Hagios Petros), Borboudakis 1968, 427–9; Khania, Hahn 1997, 180; Malia, François 1994, 376–80; Pseira, Poulou-Papadimitriou 2005, 67, fig. 20, H2.3, H2.4; Mochlos, Soles & Davaras 1992, 445–6, pl. 104.

<sup>13</sup> Hayes 1992, 276–7; François 1994, 381–7, figs. 5a, 6; François 1998, 324–5, pl. 1d, e; for the same type of pottery from Herakleion, Poulou-Papadimitriou 2008a, 193, fig. 76. For examples from Khania, Hahn 1997, 176–7.

<sup>14</sup> For Byzantine flasks in general, Bakirtzis 1989, 100–5, pl. 27–8, fig. 43; for flasks found in the eastern Mediterranean dated to the 8<sup>th</sup> century, Reynolds 2003, 732, figs. 3.12, 13.

<sup>15</sup> Bakirtzis 1989, 103, pl. 27.6; 28.4; 43a, for examples from Argos and Italy.

<sup>16</sup> Poulou-Papadimitriou 2003, 220–1, figs. 30–1.

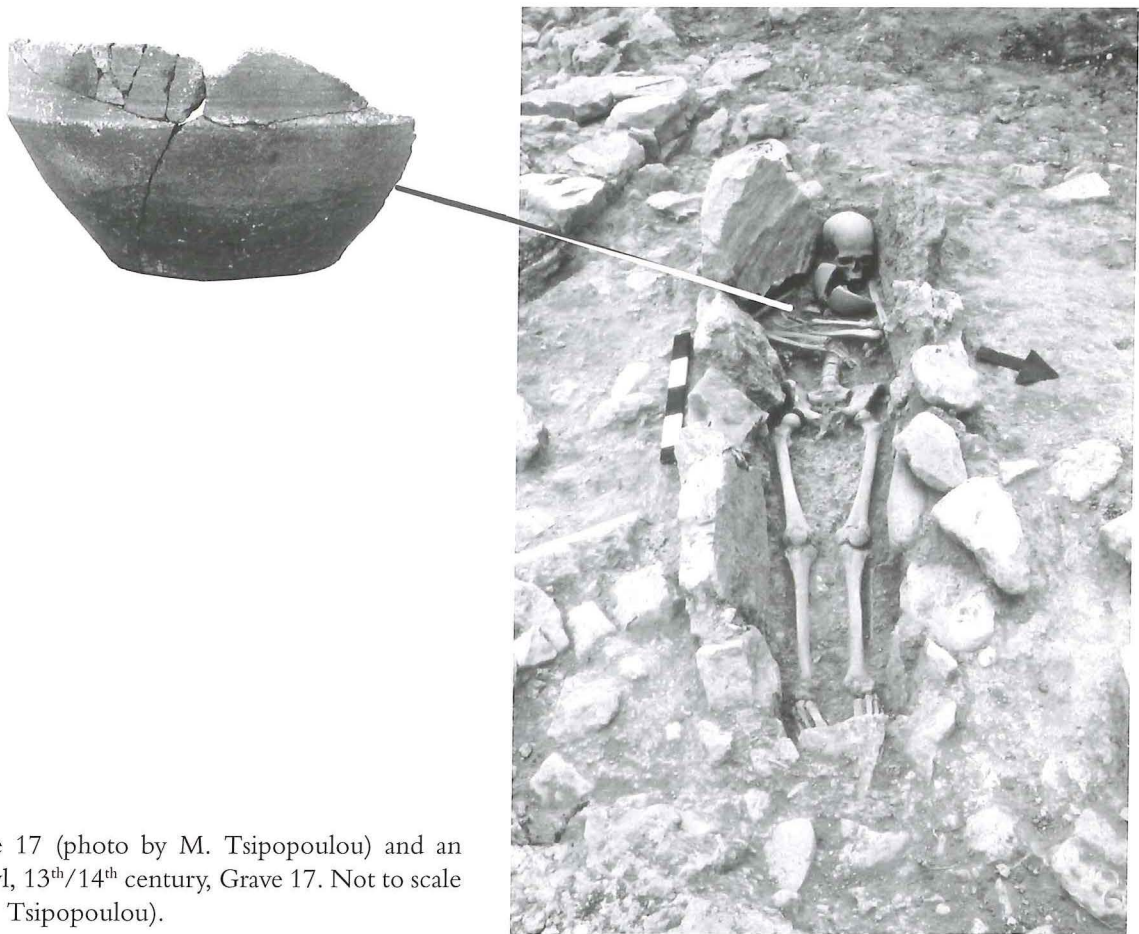


Fig. 8. Grave 17 (photo by M. Tsipopoulou) and an unglazed bowl, 13<sup>th</sup>/14<sup>th</sup> century, Grave 17. Not to scale (photo by M. Tsipopoulou).

Corinth, where they are considered to be of local manufacture. Although Morgan had dated them to the end of the 10<sup>th</sup>/beginning of the 11<sup>th</sup> century, Sanders placed them in the 11<sup>th</sup> century on the basis of new excavation data.<sup>17</sup> The dating of the vessel from Grave 8 at Petras to the 11<sup>th</sup> century allows us to consider that particular grave one of the earliest in the cemetery. Future archaeometric analysis might provide evidence on whether this vessel was imported from Corinth where similar ceramics were being locally produced.<sup>18</sup>

Grave 5 contained one (male?) burial. A glazed bowl had been placed next to the mouth of the dead. It has a ring base and carination under the rim (Fig. 7). The inner surface and the exterior of the rim are covered by a pinkish slip below the green glaze. The shape indicates a date within the 13<sup>th</sup> century,<sup>19</sup> and the clay and quality of the green glaze point towards local production.

Grave 17 also contained a single burial. The

grave offerings consist of a clay bowl and a few pieces of a glass vessel. The clay bowl has a flat base, a vertical rim with three horizontal grooves on its outer surface and a carination at the join with the body (Fig. 8). The clay is semi-coarse with abundant small inclusions. There is no glaze. The shape has affinities with imported glazed ceramics of the 13<sup>th</sup>/14<sup>th</sup> century but the clay and the manufacture point towards local production. A similar glazed vessel from Isthmia is dated to the late 13<sup>th</sup>/early 14<sup>th</sup> century.<sup>20</sup> Moreover, an unglazed vessel from Eleutherna presents a similar form but has a dif-

<sup>17</sup> Morgan 1942, 72–5, no. 406, pl. XIXb; Sanders 2000, 166.

<sup>18</sup> Morgan 1942, 72–5; Sanders 2000, 166.

<sup>19</sup> For glazed bowls with the same type rim and body from Saraçhane/Istanbul, Hayes 1992, 148, fig. 90.3. For similar glazed bowls from Eleutherna, Poulou-Papadimitriou 2008b, 52–3, pl. 11.38, 39.

<sup>20</sup> Gregory 1989, 206, fig. 5.



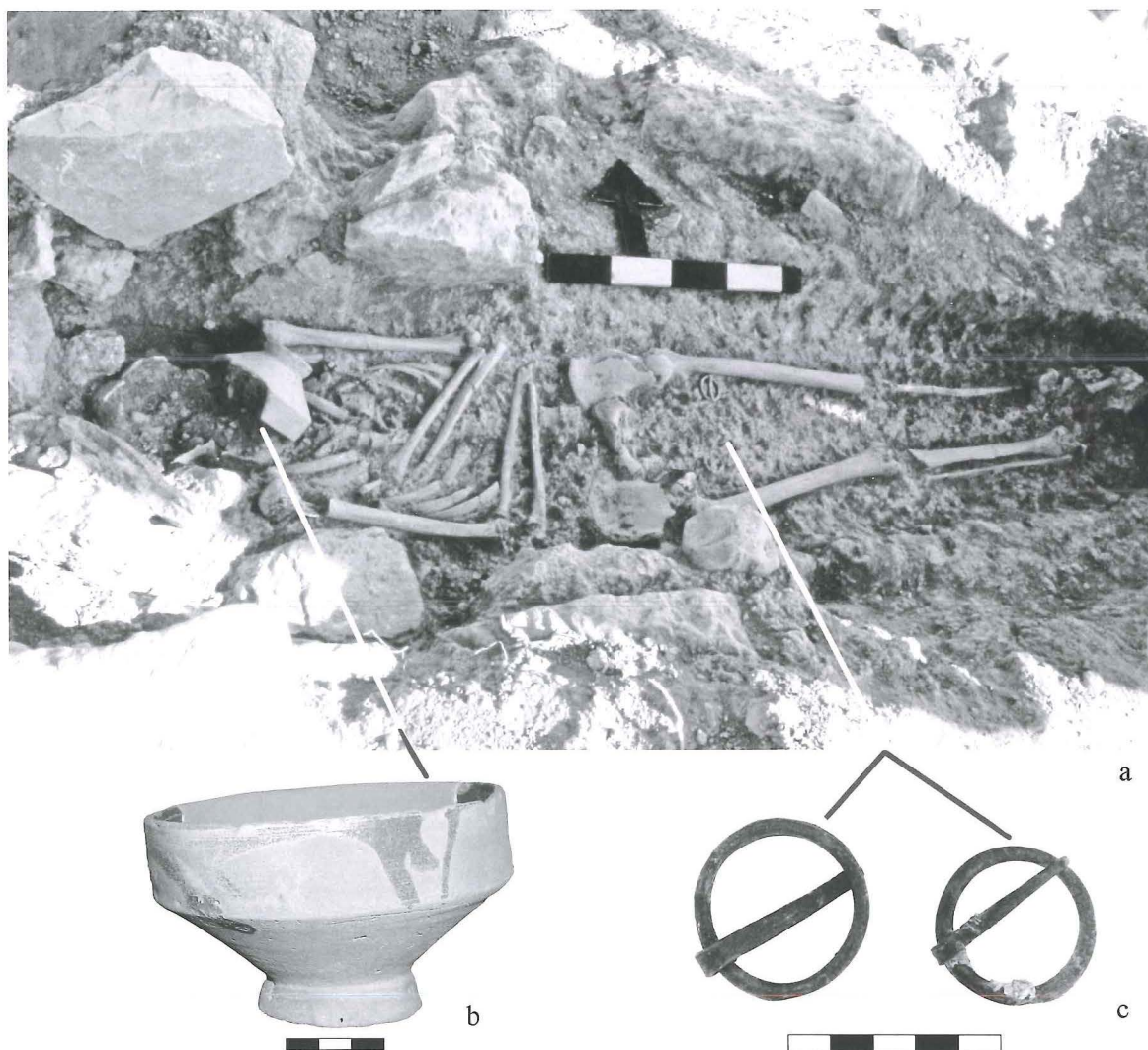


Fig. 9. a) Grave 20 (photo by M. Tsipopoulou); b) Glazed bowl, 14<sup>th</sup> century, Grave 20 (photo by N. Poulou-Papadimitriou); c) Circular belt buckles, 14<sup>th</sup> century, Grave 20 (photo by N. Poulou-Papadimitriou).

ferent decoration on the outer surface of the rim. It is considered a local product and is dated to the 13<sup>th</sup>/14<sup>th</sup> century.<sup>21</sup>

Grave 20 contained a single burial (Fig. 9a), and the grave offerings consist of a glazed bowl (Fig. 9b) and two circular belt buckles which belonged to the garment of the dead (Fig. 9c). The vessel has strong inclination to one side as the result of unsuccessful manufacture and firing. The rim is straight, and there is a carination at the join with the body. It has a ring base. The clay is semi-coarse with a few small dark inclusions. The outer and inner surfaces are covered with a thin layer of reddish slip, in the same color as the clay. The inner surface is also covered with a brown transparent

glaze which has dripped in some areas onto the outer surface of the rim. On the bottom there are imprints of the tripod stilts used during the firing. Similar bowls with more elaborate decoration have been encountered in Thessaloniki and in Cyprus. The former date to the late 13<sup>th</sup>/14<sup>th</sup> century, the latter to the 14<sup>th</sup> century.<sup>22</sup> The careless manufac-

<sup>21</sup> Yangaki 2004, 200, no. 133.

<sup>22</sup> For glazed vessels with the same profile deriving from graves in Thessaloniki and dated to the late 13<sup>th</sup>/early 14<sup>th</sup> century, Vavylopoulou-Charitonidou 1989, 212, figs. 8, 13, 30; for one more example from Thessaloniki, dated to the 13<sup>th</sup>/14<sup>th</sup> century, Papanikola-Bakirtzi *et al.* 1999, 126, 135, 197, no. 276.

ture of the vessel from Grave 20 might be indicative of local production.

The two circular belt buckles from the garment of the dead are of interest (Fig. 9c). The fact that they were found in the same burial as the clay vessel, which is dated to the late 13<sup>th</sup>/14<sup>th</sup> century, is an important chronological indicator that these items remained typologically unchanged over a long period of time. Similar buckles, dating to the late 10<sup>th</sup>/11<sup>th</sup> century, were found during the excavation in the plot of the Archaeological Museum of Herakeion.<sup>23</sup> The bronze belt found in Herakleion in a burial dating to the end of the 10<sup>th</sup>/beginning of the 11<sup>th</sup> century bears similar circular buckles connected with bronze trefoil-shaped elements.<sup>24</sup> Similar circular belt buckles were found in Corinth, where Davidson dated them to “*in the Byzantine period*”, and in Rhodes dating to the 14<sup>th</sup>/15<sup>th</sup> century.<sup>25</sup> The belt buckles from Petras provide significant information about the use of this simple type of object during the 14<sup>th</sup> century.

## Burial customs

The study of the graves provided interesting evidence about burial customs at the cemetery of Petras:

a) The first observation relates to the grave offerings. They consist of glass vessels and bronze implements from the garments, but also of open clay vessels. The latter characterize the period from the 11<sup>th</sup> century onwards, in contrast to the Early Byzantine period during which the majority of grave offerings consisted mainly of closed vessels (jugs).

b) An interesting custom encountered in five of the burials is the placement close to the right arm or near the mouth of the dead of sherds bearing an incised cross and the inscription IC XP NI KA (Fig. 10). This type of offering which is very rare in the Middle Byzantine period,<sup>26</sup> becomes more common in the Late Byzantine period and continues until the 16<sup>th</sup> century.<sup>27</sup>

c) Finally, there is a post-burial custom. Large sherds of cooking pots were piled on top of the graves, and in the cases of destroyed graves, con-

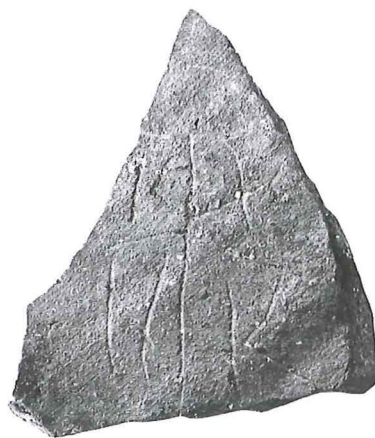


Fig. 10. Sherd with incised cross and the inscription IC XP NI KA. (photo by M. Tsipopoulou).

centrations of broken pots were found inside the tombs. This practice most likely relates to funerary common meals and ritual breakage of the cooking pots following the burial, as is known also from the modern Greek tradition. This custom, which was common in the early Christian centuries, is not encountered in the early middle ages of Byzantium and appears again at the end of the Middle Byzantine period (12<sup>th</sup> century).

## Conclusions

The cemetery at Petras was established in the area of the abandoned Minoan palatial building. Research has shown that during the Middle and Late Byzantine periods, cemeteries were organized within or

<sup>23</sup> Poulou-Papadimitriou 2008a, 170, fig. 23a.

<sup>24</sup> Poulou-Papadimitriou 2008a, 171–2, fig. 26.

<sup>25</sup> Davidson 1952, no. 2222, 269; for similar belt buckles from Rhodes dated to the 14<sup>th</sup>/15<sup>th</sup> century, Kollias 2004, 64, fig. 74, nos. 36–7, 39.

<sup>26</sup> The Middle Byzantine cemetery of Ierissos in the Chalkidiki Peninsula provides the earliest examples of this interesting feature; Papaggelos 1988, 78–9; Papaggelos & Doukas 2008; Tsanana & Dogkas in press.

<sup>27</sup> The same custom is attested in post-Byzantine graves in Three Churches on the island of Paros, Orlandos 1960, 256, fig. 1; Laskaris 2000, 114, no. 200; for incised sherds in 15<sup>th</sup>/16<sup>th</sup> centuries tombs (three coins 1476–1503) excavated on the island of Cos, Didioumi 1995, 828–9. I thank the archaeologist Mrs S. Didioumi for this information.





Fig. 11. Tripod stilt (photo by N. Poulou-Papadimitriou).

outside the town, on an acropolis, inside or around the parish church, or in the vicinity of a monastery church. During this period cemeteries could also be placed on top of abandoned ancient sites, as is the case at Petras. The investigations carried out so far have not provided any evidence for a medieval settlement in the broader area. However, the existence of a cemetery presupposes the presence of a settlement and its identification will be confirmed or disproved only by future research. Human activity in the area over a long period of time is clearly attested through the presence of pottery across the plateau on the hilltop of Petras.

There are two groups of grave offerings, chronologically distant: the bowl of Grave 8, dated to the 11<sup>th</sup> century, belongs to the first phase of occupation of the cemetery during the Middle Byzantine period (Second Byzantine period in Crete: 961–1204). Unfortunately, the typological similarity of the graves and the absence of grave offerings in some of them do not allow certainty about the number of graves belonging to this first phase. The second group comprises the offerings from Graves 5, 17, and 20, dating to the 13<sup>th</sup> and 14<sup>th</sup> centuries. It is important to note that there are also finds not mentioned in this contribution that belong to the 15<sup>th</sup> century. This (i.e., 13<sup>th</sup>–15<sup>th</sup> centuries) is the second and most extensive phase of occupation of the cemetery.

The grave offerings of the second phase are simple pots with or without a glaze coating most likely reflecting local production. Thus far there is no evidence for pottery production in the broader area of the city of Siteia during the second Byzantine period and the period of the Venetian occupation.

Taking into account, however, that in other areas of Crete (Herakleion, Eleutherna/Mylopotamos area, Khania) there is such evidence,<sup>28</sup> the presence of local pottery workshops in the area of Siteia cannot be excluded. The tripod stilt (Fig. 11) constitutes an indication of a local workshop, but its date is uncertain because it was a surface find.

Finally, the quality of the grave offerings indicates a society without officials or social elite. Although glazed vessels – not always of good quality – exist among the grave offerings, the graves at Petras did not yield jewelry as did those of Kastella in Herakleion and at Stylos Apokoronou. It can be deduced, therefore, that the cemetery of Petras belonged to a rather small community whose members did not have any special social or financial status. The officials and the elite might have resided elsewhere in the vicinity of Petras, probably in the city of Siteia, one of the cities of Crete during the Middle Byzantine period,<sup>29</sup> which was mentioned as well as in the Venetian sources.

The study of the Byzantine material from Petras re-addresses the issue of human presence in the city and the broader area of Siteia. The published archaeological evidence for the Early and Middle Byzantine period is scarce. The remains of a large Early Byzantine basilica have been identified near the Roman rock-cut fish tanks,<sup>30</sup> and the Venetian fortification is considered to have replaced the earlier one of the Middle Byzantine period.<sup>31</sup> Recent archaeological research in the area north of the Venetian fortification (Casarma) revealed findings of the Early Byzantine period.<sup>32</sup> Finally, recent excavations in the church of Hagioi Apostoloi (Holy

<sup>28</sup> I thank Mrs Eleni Kanaki, archaeologist of the 13<sup>th</sup> Ephorate of Byzantine Antiquities, for the information concerning the unpublished material from excavations in Herakleion; for Eleutherna, Poulou-Papadimitriou 2008b, 30–3; for Khania, Hahn 1997, 42–3, 177, 193.

<sup>29</sup> Tsougarakis 1988, 229, 232, 303–4; Malamut 1988, 263, 265.

<sup>30</sup> Platon 1954b, 364; Sanders 1982, 89; Papadakis 1983, 103; Tsougarakis 1988, 304.

<sup>31</sup> Papadakis 1983, 98–9.

<sup>32</sup> I thank Mrs Maria Mari, archaeologist of the 13<sup>th</sup> Ephorate of Byzantine Antiquities, for the information concerning the unpublished material from excavations in Siteia.

Apostles) in Kato Episkopi, revealed that this building was constructed in the 11<sup>th</sup> century as a Middle Byzantine bath structure. Its transformation into a church occurred later, during the Venetian period (16<sup>th</sup> century).<sup>33</sup> This shows that contrary to the prevailing opinion prior to the discovery of the bath,<sup>34</sup> and according to the evidence so far, there was no church of the 11<sup>th</sup> century in Kato Episkopi (Siteia).

The related references in the written sources are rare and at times unclear. In Notitia 3 dating to the late 8<sup>th</sup> century, we find the first reference to the bishopric of Siteia. There is another reference to the same bishopric in Notitia 13, dated to the Middle Byzantine period (12<sup>th</sup> century).<sup>35</sup> It is thought that during this period the seat of the bishopric was transferred from the city of Siteia to the villages of Ano and Kato Episkopi, a few kilometers from the modern town. The medieval town depicted on Venetian maps of the 17<sup>th</sup> century is thought to have been re-settled during the Venetian period, after the 13<sup>th</sup> century.<sup>36</sup> However, Siteia was mentioned in an important document dated to 1212 as one of the “*tourmai*” in the eastern part of the island, the others being those of Ierapetra and Lasithi. This perhaps lends support to the idea that the city with a Byzantine fortification existed during the Middle Byzantine period.<sup>37</sup>

The surface survey and the excavation at Petras provided very little, but still clear, evidence for human activity during the Early and Middle Byzantine period (especially from the 6<sup>th</sup>/7<sup>th</sup> to 9<sup>th</sup> and 10<sup>th</sup>–12<sup>th</sup> centuries). The remains of the Venetian period are more numerous and reflect intense occupation of the area. It is likely that a community existed at Petras which was in contact with the nearby medieval city of Siteia.

A brief comment should be made on the hypothetical transfer of the bishopric from Siteia to Ano and Kato Episkopi. Even if such a transfer had occurred, this does not necessarily imply that the city was deserted.<sup>38</sup> The ongoing archaeological research will reveal whether there was a change in the activities of the people of Siteia during the Middle Byzantine period. If this proves to be the

case in a traditionally urban center like Siteia, it might signify quantitative or qualitative change but not abandonment of the city.<sup>39</sup>

What if the transfer of the bishopric never happened?<sup>40</sup> Very often the establishment of new settlements in the vicinity of older urban centers was dictated by changes in the economy or population increase necessitating more intensive agricultural production.<sup>41</sup> It is possible that the villages of Ano and Kato Episkopi were created during the Middle Byzantine period in the area where great landowners – members of the provincial aristocracy, monasteries or even the bishopric of Siteia – owned large properties.<sup>42</sup> It should also be stressed that if the bishopric is not mentioned by its new name in any Byzantine text, it is highly likely that the specific place names (Ano and Kato Episkopi) reflect a later development.

The history of the city and the broader area of Siteia during the Byzantine period has just been touched upon. Continuing archaeological research in the area is expected to shed new light on this issue.

<sup>33</sup> For the Middle Byzantine bath, Katifori 2010, 211–22. For a Byzantine bath of the same type and date in Episkopi of Ierapetra, Mylopotamitaki 1986, 441–52.

<sup>34</sup> For the 11<sup>th</sup> century church of Hagioi Apostoloi in Kato Episkopi, Tsougarakis 1988, 304.

<sup>35</sup> Darrouzès 1981, 29, Notitia 3, 243 (8<sup>th</sup> century), Notitia 13, 479, 485 (12<sup>th</sup> century). Interesting discussion about Notitia 3, in Kountoura-Galaki 1996, 45–73.

<sup>36</sup> Gerola 1908, 60–4; Tsougarakis 1988, 229, 232, 303–4. For the opposite opinion, Malamut 1988, 263, 265. It is important to note that Siteia is mentioned as one of the Latin bishoprics of Crete as early as 1220, Fedalto 1973, 317.

<sup>37</sup> For the same opinion, Malamut 1988, 206, 265, 333.

<sup>38</sup> About this subject, Brandes 1999, 41–4.

<sup>39</sup> Brandes 1999, 44; Russell 1986, 137–84.

<sup>40</sup> Malamut 1988, 206, 265, 333, is also in favor of this opinion.

<sup>41</sup> During the Middle Byzantine period there was a population increase and economic development in many regions of the Empire, Lefort 2002, 270–1, 275; Laiou 2005, 40–6; Lefort 2006, 432–3, 438. On population increase in Crete after the 10<sup>th</sup> century, Malamut 1988, 145–6.

<sup>42</sup> According to Lefort 2002, 290–3, “the great landowners belonged to the... provincial aristocracy... The same applied to many monasteries and bishoprics.”



# Discussion

- Blackman** The small tripod stilt is very interesting. Yet it was a surface find. Are you sure about the dating? Does it preserve any traces of firing?
- Poulou-Papadimitriou** Yes.
- Blackman** About the graffiti, I would like to see the drawings, so the letters can be more clear.
- Poulou-Papadimitriou** We have no drawings as yet.
- Blackman** I study graffiti, it is very important to have both the picture and the drawing.
- Poulou-Papadimitriou** We are preparing the drawings. About the surface find, the tripod stilt. It is sure that such stilts were used during the Ottoman occupation. Its presence anyway suggests pottery production. Also, I must say that based on the size of the stilt, we can find the dating, because we know the type of vessel that it was used for. If it is dated to the Late Byzantine period, the stilt is smaller; if it is dated to the Ottoman occupation the stilts are very large. This particular one is dated to the Late Byzantine period, I believe, or in Cretan terms, to the early Venetian occupation.
- Vallianou** We hear about these Byzantine finds with much interest. The tradition looks uninterrupted. I would like to ask whether the incised cross and the other symbols could have been earlier? Because we know that they were used at an earlier period, for decoration on vessels.
- Poulou-Papadimitriou** No, this was not the case. Also we have them on Minoan sherds. They are incised on broken sherds, especially from amphorae. They do not come from earlier vases with incised decoration.
- Vallianou** Anyway, incisions are common on earlier vases, at least up to the 7<sup>th</sup> century AD. As I know from Matala, there are many incised crosses and stars, especially on lamps.
- Poulou-Papadimitriou** Yes, on vases there are incised motifs like crosses, stars, etc. but no inscriptions like *Ἰησοῦς Χριστός Νικᾷ*, or even *Βοήθει τῷ δούλῳ σου*. This is a special case first encountered in the 9<sup>th</sup> century at Ierissos, and later over a wide area.
- Tsipopoulou** I understand that many would wonder where the church connected with this cemetery was. I need to say here that there was no church on top of the Minoan palace, fortunately for us, Minoan archaeologists, as the building suffered much because of

the Byzantine cemetery, as I showed to you in my introductory paper. I would like to ask Natalia to comment about the lack of a church, and also to point out, that there is a local tradition in Siteia about a church on the plateau. Bosanquet also reports that in his 1901-1902 publication. There was never a church because we investigated the whole plateau very thoroughly. Maybe the inhabitants of Siteia in later times knew that there was a cemetery, and they thought that it was connected with a church.

**Poulou-Papadimitriou** It is very common in Middle and Late Byzantine times to have cemeteries without churches, especially if they are located on deserted areas and ancient sites. Metaxia's observation gives me the chance to point out this fact. One should not exclude the possibility, however, of the existence of a small church somewhere on the hill, which was abandoned and is no longer preserved, even though the sacred place remains sacred, and they used to build new churches in the place of older ones. It is possible, as was the case on the island of Pseira, which I am studying, that the church was preserved only to a height of less than 1 m. The one at Petras, if it ever existed, could be even less preserved, and so it is not visible anymore, especially if it was situated on a slope of the hill that has not been investigated.

**Vasilakis** I would like to ask both Metaxia and you, whether you have located any traces of the settlement.

**Tsipopoulou** The traditional settlement of Petras, which still preserves several old houses, and is protected by the 13<sup>th</sup> Ephorate of Byzantine and Post Byzantine Monuments, is dated to the Ottoman occupation. I asked my colleagues and they never said anything about an earlier date.

**Poulou-Papadimitriou** Maybe the settlement preserves some early Venetian occupation features?

**Tsipopoulou** All I can say is that it was never excavated.

**Karetsou** I would like to remind you, that the very rich Knossos cemetery, excavated in recent years by the British School and the 23<sup>rd</sup> Ephorate of Prehistoric and Classical Antiquities, contained among the Minoan and Roman graves also many Byzantine graves. Near this very extensive cemetery, which is still under excavation, there must have been pottery kilns, because many tripod stilts have been found. Also here in Athens, during excavations for the *Attiko Metro*, close to the *Evangelismos* hospital, kilns were found. So, this practice was quite common. Ancient sites were nostalgic places for the Medieval population, and also they were used by them to serve various needs.

**Tsipopoulou** The word *Petras* means an area from where the locals took stones, apparently cut stones used in ancient buildings, to build their own houses.

**Alexopoulos** Ceramic workshops and kilns near a cemetery were found at the Kerameikos. The pottery produced served the cemetery.



Of course. Only in our case at Petras, the totality of the plateau has been investigated and no traces of a kiln or a ceramic workshop were found, except for this tripod stilt. It was a surface find, but significant as an indication.

*Greek abstract*

**Κεραμική της Μεσοβυζαντινής και πρώιμης Ενετικής περιόδου από τον  
Πετρά Σητείας**

Το ταφικό σύνολο, που αποκάλυψε η ανασκαφή στο λόφο του Πετρά, στη θέση του ανακτόρου, είναι ιδιαίτερα σημαντικό και η μελέτη του θα μας δώσει πολύτιμα συμπεράσματα τόσο για την Μεσοβυζαντινή Σητεία, όσο και για τις ταφικές συνήθειες της Βυζαντινής και Μεταβυζαντινής περιόδου. Στην ανακοίνωση δίδονται τα πρώτα συμπεράσματα που συνάγονται από την μελέτη της κεραμικής και άλλων αντικειμένων, που βρέθηκαν ως κτερίσματα μέσα στις ταφές ή ήταν σε άμεση σχέση με αυτές, καθώς βρέθηκαν ακριβώς επάνω ή γύρω από τους τάφους. Η μελέτη και χρονολόγηση των ευρημάτων μας δίνουν σημαντικά στοιχεία για την ύπαρξη του Βυζαντινού νεκροταφείου ήδη από την β' Βυζαντινή περίοδο καθώς και για τη συνέχιση της χρήσης του χώρου για την ταφή ατόμων από κάποια κοντινή κοινότητα μέχρι και τον 14<sup>ο</sup>/15<sup>ο</sup> αι. Τέλος, παρατίθενται κάποιες πρώτες σκέψεις σχετικά με την ιστορία της ευρύτερης περιοχής και της πόλης της Σητείας κατά την Βυζαντινή περίοδο.



# Papadiokampos and the Siteia Bay in the second millennium BC: exploring patterns of regional hierarchy and exchange in eastern Crete\*

Chrysa Sofianou & Thomas M. Brogan

## Abstract

The Bronze Age settlement of Papadiokampos was recently discovered by the 24th Ephorate of the Hellenic Ministry of Culture and Tourism on the west side of the Trachilos Peninsula, which separates the Mirabello and Siteia Bays. This location offered a strategic position on trade routes between North-Central and East Crete and destinations in the southeast Aegean and eastern Mediterranean. One of the project's primary goals is to explore what role the town played in the broader Protopalatial and Neopalatial developments in the region. The paper first outlines recent approaches to regional settlement hierarchy in studies of Protopalatial and Neopalatial East Crete before examining the new ceramic and architectural evidence from Papadiokampos. These finds provide a significant set of data for a discussion on whether the settlement was oriented towards the Siteia Bay, and it may be no coincidence that the town is built at the same time as the first palace at Petras.

## Introduction: approaches to palatial territory and hierarchy in Minoan studies

The site of Papadiokampos (Figs. 1–2) had not yet been discovered when Metaxia Tsipopoulou presented evidence for the Petras palace at two workshops exploring the function of the Minoan villas (1992) and Neopalatial palaces (2001).<sup>1</sup> She argued that the Siteia region in the Protopalatial period had supported a small state with a settlement hierarchy based on the first-order palace and harbor town at Petras; in the Neopalatial period, this hierarchy also included inland second-order “villas” at Achladia, Hagios Georgios and Zou, and several third-order farmsteads like those found near Hagia Photia (Fig. 1). Tsipopoulou's papers were part of a broader effort in Minoan studies to understand both the emergence of state-level society in Bronze

Age Crete and also the political, economic and ideological means by which the Cretan palaces were organized.

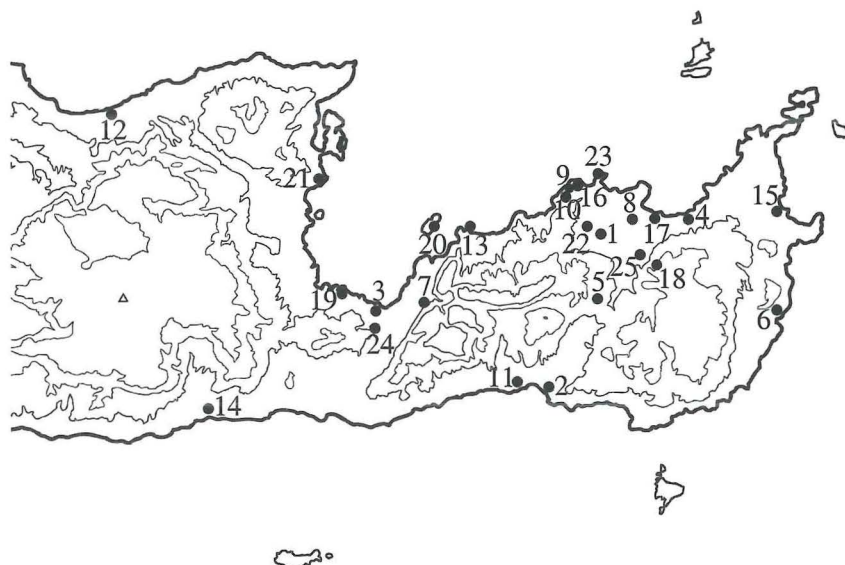
Two works in particular (Renfrew's *The emergence of civilization* and Cherry's ‘Politics and palaces:

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\* We would like to thank the director of the Petras excavations, Metaxia Tsipopoulou, for inviting us to participate in this event celebrating not only 25 years of excavation at the site but also her driving role in the study of the broader Siteia region. Our invitation literally can be traced to a single jar (Fig. 3), which was found in the MM II levels of Area C at Papadiokampos and identified as an import from Petras on the basis of its coarse pale green fabric. Upon seeing this vessel, Tsipopoulou asked if there was more Petras material among the finds from the site. This paper explores the relationship between these two sites in MM II and LM IB, providing a preliminary response to this important question. The catalog numbers for objects from Papadiokampos include the letter P (e.g., P 500) which indicates that it is in the pottery series. It is not a reference to the site.

<sup>1</sup> Tsipopoulou & Papacostopoulou 1997; Tsipopoulou 2002.





Sites for the map of East Crete:

- |                    |                   |                        |               |
|--------------------|-------------------|------------------------|---------------|
| 1. Achladia        | 8. Klimataria     | 15. Palaikastro        | 22. Skopi     |
| 2. Diaskari        | 9. Linares        | 16. Papadiokampos      | 23. Trachilos |
| 3. Gournia         | 10. Liopetro      | 17. Petras             | 24. Vasiliki  |
| 4. Hagia Photia    | 11. Makrygialos   | 18. Prinias            | 25. Zou       |
| 5. Hagios Georgios | 12. Malia         | 19. Priniatikos Pyrgos |               |
| 6. Kato Zakros     | 13. Mochlos       | 20. Pseira             |               |
| 7. Kavousi         | 14. Myrtos Pyrgos | 21. Saracen's Point    |               |

Fig. 1. Map of East Crete with sites mentioned in the text (by M. Eaby).

some problems in Minoan state formation') had provided important theoretical models for assessing the development and form of these small Cretan Bronze Age states at the beginning of the second millennium BC.<sup>2</sup> Cherry observed a distinct hierarchy of settlement around the Cretan palaces and noted that these territories suggested the existence of separate polities in both Protopalatial and Neopalatial Crete. While most scholars have accepted the idea of several independent polities in the Protopalatial period, the same is not true for the Neopalatial period, where research is making a convincing case for Knossian political, economic and cultural dominance over large parts of Central Crete and more distant regions of the island.<sup>3</sup>

A conference at Louvain in 2001 provided a venue for scholars to reexamine these issues. Among the many useful critiques in that volume, Day and Relaki's cautionary review outlined how the concepts of hierarchy and territory have been used and perhaps misused: "the construction of hierarchy is based on structural criteria, such as monumentality,

size and the quantity and nature of finds, but many second-order or non-palatial sites share the same features (courts, administrative documents, ceremonial area and equipment) that are found in the first-order palaces".<sup>4</sup> They noted that attempts to identify palatial territories have relied on concepts of Central Place theory, natural topography defining regions, historical patterns of recognized territory, or shared material culture.<sup>5</sup> Most importantly, they stressed that our approach must be diachronic and flexible as the relationships between first-order sites and surrounding settlements changed over time.<sup>6</sup>

More recently, Bevan has used computation-

<sup>2</sup> Renfrew 1972; Cherry 1986.

<sup>3</sup> Wiener 2007, 231–42 and Bevan 2010, 27–54. For additional argument, Hallager & Hallager 1995, 547–56 and Warren 2004, 159–68.

<sup>4</sup> Day & Relaki 2002, 222 and Wiener 2007.

<sup>5</sup> Day & Relaki 2002, 222, n. 16 for specific references.

<sup>6</sup> A point also made by Wiener 1987, 266.

al modelling, stressing topography, subsistence and demography, to analyze political geography in Bronze Age Crete. The results of cost-surface analysis of travel times and topography reveal the possible agricultural catchment that Knossos would have needed as its population grew (e.g., most of Central Crete). Equally important, improved roads and “differential access to a maritime fleet” would have reduced travel times to more distant parts of the island and provided Knossos with greater access to more remote resources from all across the island. But how is this situation reflected in the material record of East Crete?

## Recent approaches to hierarchy and territory in East Crete in the Protopalatial and Neopalatial periods

A second body of scholarship has looked more closely at specific regions in East Crete, making case studies of individual palaces and political territories. For MM II Tsipopoulou has recovered considerable evidence for the palatial group based at Petras, which probably controlled portions of the wider Siteia region, but the general absence of MM II remains from sites in the Siteia area makes it difficult to trace the extent of this territory.<sup>7</sup> So far, no architectural or administrative evidence for the presence of palatial groups has been recovered at either Palaikastro or Kato Zakros. For the Neopalatial period, Tsipopoulou argued that the Petras polity probably coexisted with two others: one in the area of Palaikastro/Kato Zakros and another in the area of Makrygialos/Diaskari.<sup>8</sup> Driessen and MacGillivray presented similar evidence for three such polities around the sites of Petras, Palaikastro and Kato Zakros in the Neopalatial period.<sup>9</sup> Additional studies have examined the evidence from Protopalatial Malia and Protopalatial and Neopalatial Gournia, and their results provide a useful starting point for the analysis of sites in the Siteia Bay area presented here.<sup>10</sup> The most important observation in some of these studies is the absence of clear evidence for a local palatial elite exerting strong political or eco-

nomic control over a territory, particularly in the Protopalatial period.<sup>11</sup> This has prompted a search for alternative explanations for the organization of these Bronze Age states.

In the case of Protopalatial Malia, Knappett used the model of the segmented state to interpret the ceramic data, revealing a remarkable degree of shared material culture, produced locally, between the sites of Malia and Myrtos Pyrgos.<sup>12</sup> He argued that the early Malia state did not exert political control over a fixed territory but instead wielded ideological influence over settlements in the wider region of the Pediada and Lasithi, including Myrtos Pyrgos and perhaps Gournia. The evidence from the MM II mansions and the palace at Malia also suggested the presence of multiple elite groups residing outside the palace who were developing many of the cultural artifacts associated with palace level society – administrative systems, monumental architecture and the production of surplus staple and luxury items for local and long distance trade.<sup>13</sup> Betancourt has used the evidence of seals, rather than pottery, to challenge both Knappett and Schoep’s interpretation and outline the possible political influence of the Malia palace in MM I–II over the inhabitants of the Lasithi Plain.<sup>14</sup>

Turning to the Mirabello region in the Neopalatial period, Soles proposed an autonomous polity with a settlement hierarchy that included the small palace of Gournia and second-order sites at Saracen’s Point, Priniatikos Pyrgos, Vasiliki, Pseira and Mochlos.<sup>15</sup> In a second study, he reconsidered this Mirabello polity, focusing on the relationship between the Gournia palace and the settlement at Mochlos, including evidence that quarries at Mochlos produced the sandstone for the ashlar façade

<sup>7</sup> Tsipopoulou 2002; Tsipopoulou & Hallager 2010.

<sup>8</sup> Tsipopoulou & Papacostopoulou 1997, 205, fig. 2.

<sup>9</sup> Driessen & MacGillivray 1989.

<sup>10</sup> For Malia, Poursat 1987; Cadogan 1995; Knappett 1999; Betancourt 2007, 209–19; for Gournia, Watrous & Blitzer 1989 and Watrous *et al.* 2000; Soles 1991.

<sup>11</sup> Knappett 1999, 622–37; *contra* Betancourt 2007, 209–19.

<sup>12</sup> Knappett 1999, 622–37.

<sup>13</sup> Schoep 2006, 57–8.

<sup>14</sup> Betancourt 2007, 209–17.

<sup>15</sup> Soles 1991, 73–6; 2002.



of the Gournia palace.<sup>16</sup> Rather than interpret this acquisition as a sign of Gournia's political or economic primacy in the local hierarchy, Soles posited a religious basis for their relationship, suggesting that the Mochlos inhabitants would have shared in the construction of the Gournia palace in order to participate in the central rituals that took place there.

The relationship of this Mirabello polity with Knossos remains difficult to ascertain in MM III and LM I, although this topic is a research component of the new excavations by Watrous at Gournia.<sup>17</sup> According to Soles, the court-centered building at Gournia (its palace) was built in imitation of the Knossos palace, which served as the cosmological center for Minoan civilization.<sup>18</sup> With the construction of the small palace at Gournia, the local elites were thus recreating a proper venue for rituals that imitated those performed at Knossos. The question of whether such imitation came with political or economic obligations to Knossos remains unanswered.

There is growing Neopalatial evidence for Knossian political expansion in Central (Galatas) and South-Central Crete; however, the finds from a small number of ports in East Crete like Pseira, Kato Zakros and perhaps Makrygialos (architectural refinements, frescoes, stone vases and pottery), have usually been interpreted as signs of special relationships between these particular settlements and Knossos connected with trade routes.<sup>19</sup> For the Mirabello area, Haggis offered an intriguing alternative to this interpretation, focusing not on an individual settlement like Pseira, but instead on the entire region, and he noted significant changes in settlement patterns in the North Isthmus between the Protopalatial and Neopalatial periods.<sup>20</sup> He observed that the Neopalatial sites in the area were no longer located next to natural water sources and the more arable land preferred in the Prepalatial and Protopalatial periods. Instead, larger settlements were imposed on the landscape to take advantage of direct lines of transport over land or sea; this probably reflects a palatial interest in securing and efficiently moving raw materials to central sites. At the very least, this evidence suggests a new hierarchy of settlement constructed with the economic and po-

litical interests of some central authority; however, it does not reveal whether the driving force behind these major changes in the regional landscape lay with a local or more distant palatial group. The religious ties which Soles identified would thus appear to form only one part of a more complex relationship between first and second-order sites in the Mirabello region, and perhaps also with a more distant Minoan capital.

Pottery production and consumption patterns in the Mirabello region also changed significantly between the Protopalatial and Neopalatial periods, providing another important measure of economic and political hierarchy in the Mirabello region. Between EM III and MM IIB, pottery produced in the Gournia/Kalo Chorio area (and their contents) had circulated widely across the North Isthmus and East Mirabello regions (comprising, for example, more than 50% of the pottery in MM II levels at Mochlos);<sup>21</sup> this clearly reflects the strong economic hand of the elite producers at sites like Gournia.<sup>22</sup> In contrast, Neopalatial settlements on the eastern side of the Mirabello Bay (in the vicinity of Kavoussi, Pseira and Mochlos) began consuming primarily phyllite-based coarse and fine wares produced by local potters (e.g., at the LM IB Mochlos Artisans' Quarter), while the inhabitants of Gournia continued to consume local coarse and fine wares with granodiorite temper. How should this shift be interpreted? Was it a sign of the declining economic prestige of the pottery producers at Gournia/Kalo Chorio, or did the increase in the number of pro-

<sup>16</sup> Soles 2002.

<sup>17</sup> The subject came up several times in a lecture by Watrous outlining the 2010 and 2011 seasons at Gournia, at the Annual Meeting of the Archaeological Institute of America on January 6, 2012.

<sup>18</sup> Soles 1995; 2002, 130.

<sup>19</sup> For Central Crete, Warren 2004; for these special relationships, see Wiener 1987, 265–6; 2007, 234–5; Betancourt 2004. For the role that improvements in seapower would have played in Knossian control of such distant ports, see Bevan 2010, 34–7, 44–6.

<sup>20</sup> Haggis 2002.

<sup>21</sup> Haggis 2000; Brogan 2011.

<sup>22</sup> This pattern is strikingly different from that observed by Knappett at Malia and Myrtos Pyrgos where similar pottery was produced at both sites.



ducers in the region continue to benefit the group at the top of the hierarchy (in the Gournia palace)?

A recent workshop on LM IB pottery revealed widespread evidence for local pottery production across the island, suggesting that the situation in the Mirabello region is thus part of a wider Neopalatial pattern and not evidence of local decline.<sup>23</sup> Closer study of these local productions (e.g., at Mochlos and Gournia) also reveals shared preferences for certain shapes and motifs across the broader Mirabello region, probably reflecting a distinct and shared regional style of pottery like that observed by Knappett for the MM II Malia state.<sup>24</sup>

## A new test case in East Crete: Petras and Papadiokampos

In light of this recent work at Malia and Gournia, the second part of the paper reexamines the question of the Bronze Age hierarchy and political economy of the Siteia region, focusing on a new site excavated on the west side of the Siteia Bay at Papadiokampos (Figs. 1–2). Petras is the only first-order site identified so far in this part of Crete, and it is clearly distinguished from its immediate neighbors by the presence of palatial architecture and a substantial collection of administrative documents from both MM II and LM I levels.<sup>25</sup> Although its role in the regional economy is still under study, Petras would appear to be the dominant pottery consumer rather than producer. Clear evidence for this is provided by Day's study of Neopalatial ceramic fabrics from the Siteia region.<sup>26</sup> His ceramic analysis of 18 Neopalatial sites on the Siteia Peninsula suggested that "an over-simplistic view of the dominance of palace sites in either local production or coastal transportation was untenable and that instead there seemed to be a number of production centers which coincided with most of the major coastal towns".<sup>27</sup> This paper examines new evidence from one of these coastal towns – Papadiokampos – and investigates how this site fits into earlier suggestions of regional hierarchy and ceramic exchange in the broader Siteia area.

The Bronze Age settlement at Papadiokampos lies just west of the Trachilos Peninsula and occu-

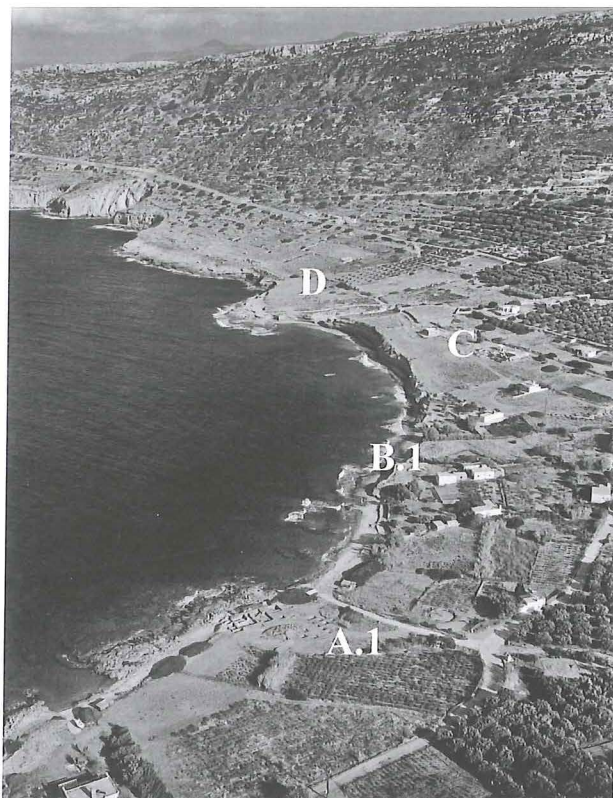


Fig. 2. Aerial photo by M. Bridges of the plain at Papadiokampos indicating Areas A, B, C, D and LM I Houses A.1 and B.1 of the settlement.

pies a strategic position on the natural division between the Mirabello and Siteia Bays (Fig. 1).<sup>28</sup> The site's settlement and harbor were clearly oriented towards sea traffic. The inland approach from the west is difficult, while access from the south and east is only possible from passes near Chamaizi and gorges leading down from Skopi. The area around Papadiokampos is still not well known archaeologically, but a few factors can help us interpret its cultural orientation in the Bronze Age. First, the refuge settlement of Liopetro on a hill above Papadiokampos, with evidence for occupation from the

<sup>23</sup> See also Day 1997 who observed a similar pattern in eastern Crete.

<sup>24</sup> Brogan 2011; Knappett 1999, 615–31.

<sup>25</sup> Tsipopoulou & Hallager 1996; 2010.

<sup>26</sup> Day 1997, 219–27.

<sup>27</sup> Day & Relaki 2002. This pattern finds good parallels in the LM I Mirabello and other regions of Crete, see Brogan & Hallager 2011.

<sup>28</sup> Sofianou & Brogan 2009a; 2009b; 2010; in press.



12<sup>th</sup> century BC, was fortified in the early 17<sup>th</sup> century AD to serve as a shelter for 6,000 inhabitants of the Siteia region.<sup>29</sup> Second, the coastal site protects the western entrance to the Siteia Bay and is in fact closer to Petras than other known Minoan settlements in the Mirabello region. Finally, the chronology and growth of the settlement appear to match more closely developments at Petras than those of neighboring Mochlos, Pseira and Gournia in the Mirabello area. In sum, this modest evidence fits the various categories noted by Day and Relaki for identifying palatial territories by natural topography and historical patterns of recognized territory, but it remains to consider whether there is clear evidence for shared material culture that would also link it to other sites in the region.<sup>30</sup>

The history of settlement at Papadiokampos in the Bronze Age is just beginning to be understood. A small EM settlement and house tomb were reported at Linares near the church of Hagios Ioannis, but four years of excavation along the coast have so far yielded just a single Neolithic hand axe and a few EM IIB and EM III sherds – suggesting that the Prepalatial occupation along the coast was insignificant.<sup>31</sup> The first substantial phase of occupation involves deposits of MM II material found in all four areas (A, B, C, D) of the site, spread over a distance of 300 m (Fig. 3). This suggests that a large Protopalatial settlement was built here about the same time that major social and political changes were taking place at Petras (the construction of the first palace and the abandonment of the communal cemetery on Kephala Hill).<sup>32</sup> The Papadiokampos town appears to have been destroyed at the end of the Protopalatial period and rebuilt early in the Neopalatial period; it was rebuilt again after the Theran volcanic eruption and was then abandoned for the rest of the Bronze Age, with the exception of an intramural LM III burial in House B.1.<sup>33</sup>

With this in mind, we return to our earlier question – is there clear evidence of shared material culture linking the settlement at Papadiokampos with Petras and other sites in the Siteia region? Four years of excavation have now provided a significant sample from the site, allowing us to consider a range of artifacts and ecofacts from both the MM II and LM

IB levels. So far, the architectural evidence from the Protopalatial levels is limited to a few walls in Area C, which do not yet form any recognizable plan. The botanical and faunal remains from the thick MM II dump in Area C reveal that the inhabitants were growing grapes and alternating crops of legumes and cereals, much like today. They were also producing purple dye from crushed fragments of *Hexaplex Trunculus* found in this stratum (e.g., one large jar was full of such shell). Similar remains have been noted at several sites in East Crete, including at Petras (MM I levels), and more recently in MM II levels at the site of Pefka in Pacheia Ammos.<sup>34</sup>

The pottery from these MM II levels provides an important record of the local economy and is a valuable tool for distinguishing production at Papadiokampos from that at sites in the Siteia region, as well as in East and South-Central Crete. The shapes are easily divided into three functional groups: fine serving and pouring vessels, coarse transport and storage vessels, and cooking and lighting equipment. After a preliminary investigation, we can distinguish seven ware groups on the basis of differences in surface treatment, fabric, and manufacturing technology. The first group consists of a small number of polychrome vessels, all of which may be imports, including a rounded cup with parallels from Malia (Fig. 3a). Two more groups occur in large numbers and employ white decoration on either a black or red/brown background. This decoration is found on bridge-spouted jars, semiglobular cups, carinated cups, conical cups with and without handles, and a few tumblers. At least one bridge-spouted jar is an import from Malia, but we believe the others to be broadly local to the Siteia area (Fig. 3b). The vast majority of carinated cups are smooth and decorated with white horizontal bands (Fig. 3c). These bands are not seen at Malia or in the

<sup>29</sup> Papadakis 1983, 36–7; Nowicki 2000, 101–2.

<sup>30</sup> Day & Relaki 2002, 222, n. 16 for specific references.

<sup>31</sup> Davaras 1985; Soles 1992, 158–60, fig. 66.

<sup>32</sup> Tsipopoulou this volume, 117–31.

<sup>33</sup> Brogan & Sofianou 2009; Sofianou & Brogan in press.

<sup>34</sup> For Petras, M. Tsipopoulou pers. comm.; see also Theodoropoulou this volume, fig. 8; for Pefka, see Apostolakou 2008; Betancourt *et al.* forthcoming; Apostolakou *et al.* forthcoming.

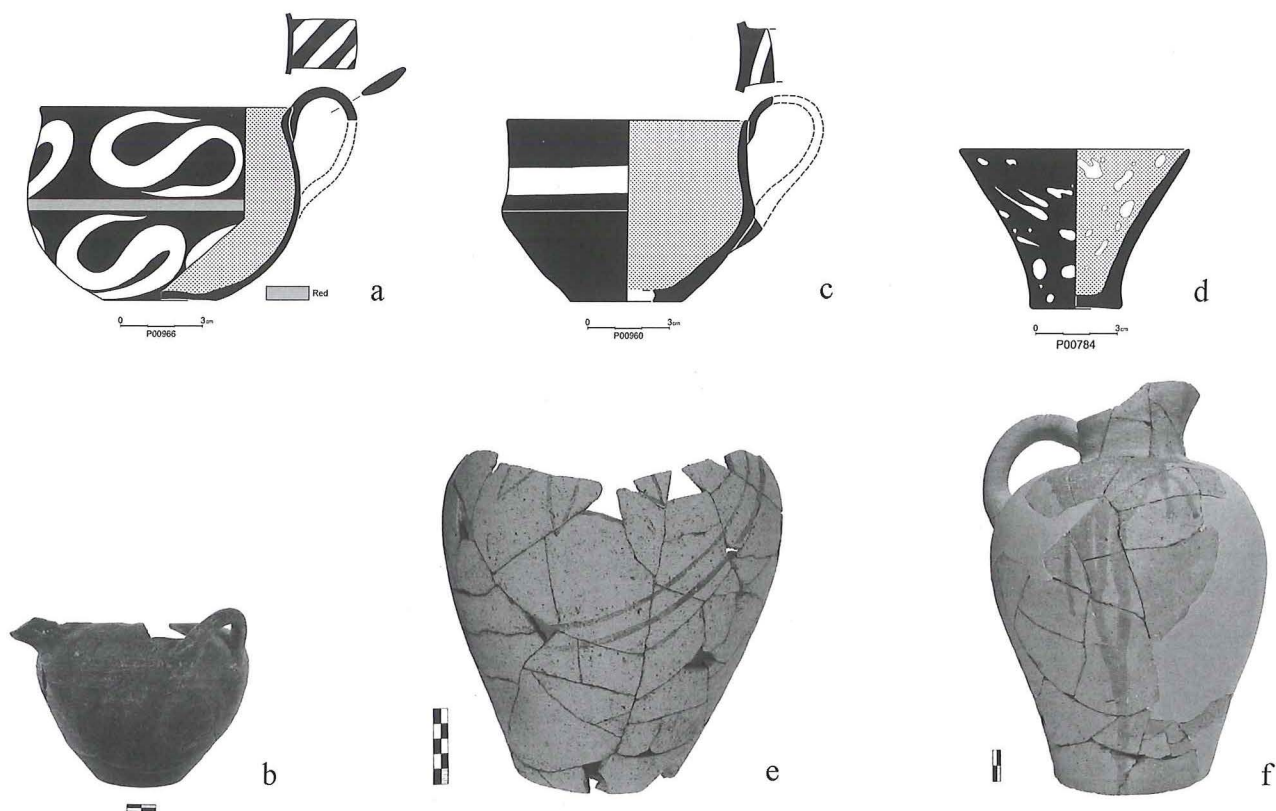


Fig. 3. a) MM II rounded cup (P 966, by D. Faulmann); b) MM II bridge-spouted jar (P 739, by Ch. Papanikolopoulos); c) MM II carinated cup (P 960, by D. Faulmann); d) MM II tumbler (P 784, by D. Faulmann); e) MM II jar made in Petras fabric (P 838, by Ch. Papanikolopoulos); f) MM II jug (P 955, by Ch. Papanikolopoulos).

Mirabello area; however, similar bands are found on cups at Myrtos and Palaikastro.<sup>35</sup> One tumbler is unique at the site and decorated with spatter (Fig. 3d), which Haggis and others have associated with earlier MM groups from Petras; a similar import was noted in MM II levels at Mochlos.<sup>36</sup> We were surprised, however, to find so few parallels at Papadiokampos with the MM IB/II wares from Petras. In addition, a small number of vessels are decorated with dark-on-light decoration. The other ware groups include monochrome black, monochrome red and plain, which is represented by all three cup types but no pouring vessels.

The coarse vessels for storage and transport offer even more insight into the exchange and consumption of goods in East Crete during MM II. The fabrics of a small number of jars and amphorae match Morrison's clay samples from the immediate area of Papadiokampos,<sup>37</sup> and only two jars can be identified with confidence as products of Petras producers, on the basis of their distinctive

buff green fabric (Fig. 3e). Instead, there are large numbers of amphorae and jugs made with a light orange quartzite-phyllite fabric that is consistent with the broader geology of the eastern Mirabello, Siteia, Cape Sidero and Palaikastro areas (Fig. 3f). These vessels are decorated with light brown paint, and one has a potter's mark (Fig. 3f). We are therefore looking for possible production centers in the Siteia Bay, Cape Sidero and Palaikastro areas. A small number of transport vessels were confirmed by Knappett and Vokotopoulos to have come from the Palaikastro/Zakros region. The other source for a large number of MM II imports (probably 25–30% of the coarse storage and transport vessels) to Papadiokampos is the Mirabello region, which produced jars, amphorae, jugs and lids in a distinctive granodiorite fabric. A smaller number of jars

<sup>35</sup> Knappett 1999, 634–5, no. 111, fig. 24.

<sup>36</sup> Haggis 2007, 731–7, figs. 13–5.

<sup>37</sup> J. Morrison, pers. comm.



and amphorae with igneous inclusions appear to come from the Lasithi South coast and the Mesara. The final group includes the plain coarse jars for preparing food and lamps for lighting the area: all of these are made in red phyllite-quartzite fabric.

This review of the MM II pottery indicates that the Protopalatial inhabitants of Papadiokampos were consuming ceramics from a wide range of sources in East Crete, though very little of that was actually produced at Petras. Moreover, there also does not appear to be much stylistic influence on the decoration of fine wares – e.g., the spatter decoration that is so popular at Petras in MM I–II is largely absent from the MM II levels at Papadiokampos. So far, the limited MM II material from the wider Siteia Bay area does not provide any parallels for the close production and consumption pattern observed by Knappett at Malia and Myrtos Pyrgos.<sup>38</sup> Instead, the consumption pattern of MM II pottery at Papadiokampos is not that different from the one noted by Day at other second-order centers in the Siteia region in the Neopalatial period – considerable exchange among multiple producers.

Before examining the LM IB levels at Papadiokampos, we must first address the wider settlement history of the Siteia region in this period. Excavations at Petras, Zou, Klimataria, Hagios Georgios and Papadiokampos have all indicated a major destruction around the time of the Thera eruption.<sup>39</sup> Klimataria and Zou may have been abandoned, while part of the palace at Petras show signs of limited reoccupation in LM IB.<sup>40</sup> In contrast, House II.1 at Petras and the buildings at Hagios Georgios, Achladia and Papadiokampos appear to have been extensively reused or rebuilt in LM IB.<sup>41</sup>

The LM IB architectural remains from Papadiokampos include parts of four houses in Areas A, B, C, and D and evidence for impressive terrace walls for gardens surrounding each of the houses (Figs. 2 and 3g).<sup>42</sup> These gardens give the impression that at least part of the settlement was not arranged in dense blocks of houses divided by streets like those seen at Gournia, Mochlos and Palaikastro. Instead, the Papadiokampos settlement may have included a large number of isolated houses separated by gardens and fields. This design is significant as it relates

to previous debates about the villas or large houses at Zou, Achladia and Hagios Georgios – i.e., whether these structures were isolated or part of large settlements.<sup>43</sup> Future sub-surface geophysical survey and excavation in Areas B and C at Papadiokampos (Fig. 2), which appear to contain the center of the settlement, is the only way to answer this question definitively; however, for now we would like to raise the possibility that this looser urban design is perhaps a peculiar and widespread feature of settlements in the Siteia region and one that distinguishes these towns from neighboring towns to the east (e.g., Palaikastro and Zakros) and west (e.g., Mochlos, Pseira and Gournia).

Limitations on the size of the papers in this volume prevent a detailed presentation of the architecture of Houses A.1 and B.1 at Papadiokampos (Fig. 2). Both were two story structures built with limestone that probably was collected from a quarry 1 km west of the settlement. The plan of House A.1, with two three-room suites on either side of a staircase and vestibule, is unusual.<sup>44</sup> No less surprising, the contents and functions of these suites repeat each other; both were used as pantries and spaces for repeated meals of shellfish cooked in jars, tripod cookpots and deep cooking dishes.<sup>45</sup> The inhabitants of House A.1 in its final phase appear to have been modest farmers living on a diet supplemented by large amounts of shellfish caught easily near the shore.

<sup>38</sup> Knappett 1999. Knappett reexamined this pottery in a paper at the Cretological Conference in Rethymnon in October 2011 and noted new evidence for multiple phases of pottery in the MM II levels. One of the most important conclusions is that really close parallels in local production at both sites may only have existed in one of these subphases.

<sup>39</sup> Tsipopoulou & Papacostopoulou 1997; Driessen & Macdonald 1997, 221–9; Brogan & Sofianou 2009.

<sup>40</sup> Driessen & Macdonald 1997, 222–7; Tsipopoulou & Alberti 2011, 463–5.

<sup>41</sup> Tsipopoulou & Alberti 2011; Driessen & Macdonald 1997, 221–2; Platon 1997.

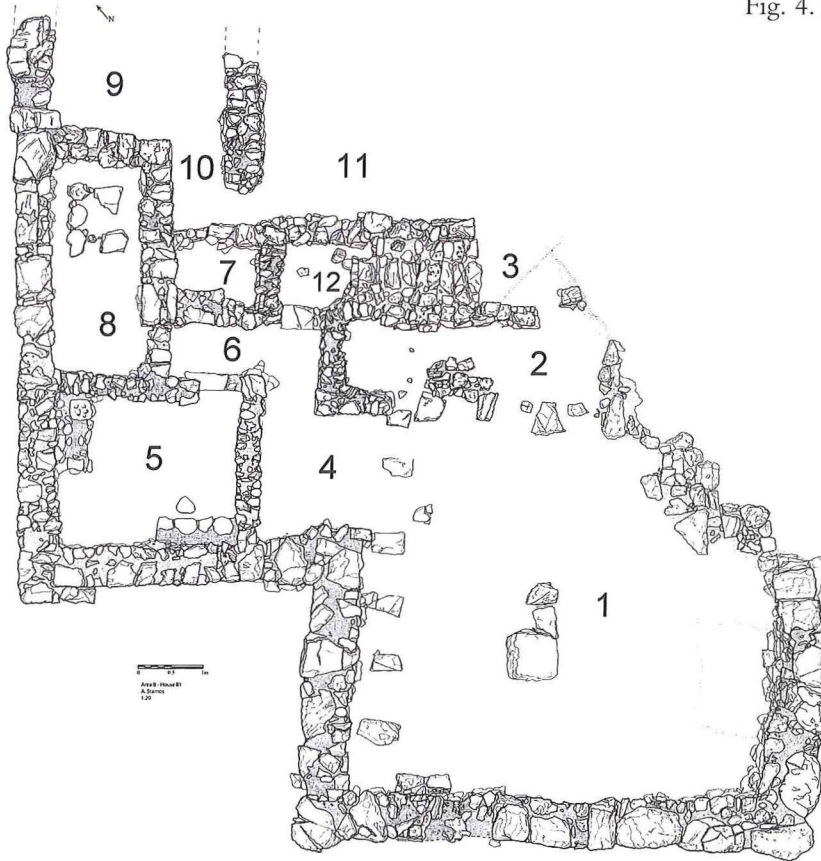
<sup>42</sup> Sofianou & Brogan 2009b; 2010; Stamos *et al.* forthcoming.

<sup>43</sup> Compare Tsipopoulou & Papacostopoulou 1997, 210–1, who find evidence for settlements, with Platon 1997, 202, who suggests that these are independent buildings with a few constructions nearby.

<sup>44</sup> Sofianou & Brogan 2009b; Brogan *et al.* 2011a.

<sup>45</sup> Brogan *et al.* forthcoming.

Fig. 4. Plan of LM I House B.1 (by A. Stamos).



House B.1 presents a very different picture of a more affluent group producing wine, textiles and metal objects and probably trading the finished products (Fig. 4).<sup>46</sup> The stones on the exterior façade are much larger than those used in House A.1. The ground floor of House B.1 includes a substantial room with a square pillar next to a bench and also a large staircase preserving eight polished stone steps from the lower flight. Another intriguing feature of the house is the presence of two rows of low, flat stones framing the west and north sides of the pillar room (Fig. 4, Room 1) in an arrangement resembling pier-and-door partitions.<sup>47</sup> Few parallels exist for this feature, but the closest for both the pillar room and the use of the slabs is at Achladia, where Lefteris Platon has suggested a simple set of partitions that was partially blocked in LM IB. Another parallel from the Siteia region comes from Room E of LM I House II.1 at Petras, which contained a Minoan Hall with a wooden *polythyron* in its first phase that was blocked in the final LM IB phase.<sup>48</sup>

Our study of the LM IB pottery from Papadi-

okampos shows that the town is again consuming from a wide variety of sources in East Crete.<sup>49</sup> We are still trying to determine what pottery was produced locally at the site, but there are likely candidates. As observed in the MM II levels, very few items appear to come from potters working at Petras, and there is a noticeable decline in the number of imports from the Mirabello area (no objects from Gournia and fewer than ten objects from Mochlos). Instead, the inhabitants of Papadiokampos appear to be consuming cooking and

<sup>46</sup> Sofianou & Brogan 2010; forthcoming.

<sup>47</sup> The one obvious problem with this arrangement is the fact that four slabs on the west side are set in front of the wall, and two slabs at the west end on the north side were reused in the final phase as supports for the staircase return. We are still studying this feature, but one hypothesis is that their original function was partially obscured when the house was rebuilt after the Thera eruption.

<sup>48</sup> Mavroudi this volume; Tsipopoulou & Alberti 2011, 465–6, fig. 2.

<sup>49</sup> Brogan *et al.* 2011a; 2011b.



coarse wares produced by potters who potentially used phyllite sources from Cape Sidero and the area near Palaikastro.<sup>50</sup> The pithoi with diagonal rope decoration on the shoulders from Houses A.1, B.1, and Area C also find their closest parallels in storage vessels from Petras, Palaikastro and Kato Zakros.<sup>51</sup> A surprising number of cups, basins, jugs and jars are thought to come from Palaikastro, and another smaller group from the Zakros area.<sup>52</sup> This consumption pattern differs considerably from sites in the Mirabello area, especially Mochlos with its strong Neopalatial tradition of local pot making, and may instead be more typical of settlements in the wider Siteia region.<sup>53</sup> A small group of coarse jars were also imported from producers on the south coast, and thus far there is only one possible import from North-Central Crete.<sup>54</sup> Though limited, off-island imports include a handful of wine containers from the southeastern Aegean, which probably arrived with gold and copper from the eastern Mediterranean in a pattern much like that seen at Mochlos.<sup>55</sup>

Looking at other artifact groups from LM IB Papadiokampos, we find very few stone vases in comparison with the large numbers produced and consumed in neighboring towns in the Mirabello region. Instead, the houses at Papadiokampos contained a small number of ceramic imitations of stone bowls.<sup>56</sup> Tsipopoulou reports similar finds from the houses at Petras, but we know of none from sites like Mochlos in the Mirabello area.<sup>57</sup> A similar pattern may be detected in the cooking kits. The cooking dishes from Papadiokampos do not resemble the shallow versions found at Mochlos, but are instead more like the deeper types found in the houses at Petras.<sup>58</sup>

## Conclusion: alternative approaches to political territory in the Siteia region

In conclusion, we would like to return to the questions raised at the beginning of the paper – was there a hierarchy of settlement in the Siteia region organized by and for the benefit of the palace at

Petras? And more specifically, what was the relationship of the inhabitants of Papadiokampos with that palace, and did the site ever form the western frontier of its territory? The previous discussion has outlined the limited evidence from natural topography, historical patterns of territory and change, and hints of shared material culture at sites in the region (e.g., pottery consumption patterns, settlements with open plans, and the use of pier-and-door partitions in elite houses). While there are signs of settlement hierarchy in the region (particularly for sites in the fertile valleys lying directly south and southwest of Petras), the material connections between Papadiokampos and Petras are meager. One point not yet mentioned, however, is the possible role of the peak sanctuary at Prinias in linking sites in the region.

Several scholars have noted the connection between peak sanctuaries and sites that were visible within topographically defined territories,<sup>59</sup> as well as the possible role of these sanctuaries in regional organization by the first palaces.<sup>60</sup> Haggis has argued for their function as a “regional ritual apparatus” used by emerging elites to mobilize labor and staple goods in the expanding Prepalatial economy.<sup>61</sup> The peak sanctuary thus provided the rural mechanism via religion for emerging elites to extend their economic base beyond their immediate kin or village to a larger region. Nowicki examines peak sanctuaries around the palace of Petras and notes a hierarchy of sanctuaries, with Prinias being the dominant shrine in a network

<sup>50</sup> J. Morrison, pers. comm.

<sup>51</sup> Sofianou & Brogan forthcoming, fig. 8; Christakis 2011, 243–5, fig. 2.

<sup>52</sup> Brogan *et al.* 2011b.

<sup>53</sup> Barnard & Brogan 2011.

<sup>54</sup> Brogan *et al.* 2011b, 581, fig. 29.

<sup>55</sup> Sofianou & Brogan forthcoming.

<sup>56</sup> Sofianou & Brogan forthcoming.

<sup>57</sup> M. Tsipopoulou, pers. comm.

<sup>58</sup> Morrison *et al.* forthcoming; Tsipopoulou & Alberti 2011, 494–5, fig. 43.

<sup>59</sup> Peatfield 1983; Nowicki 1994, 33–5; Haggis 1999, 73–9; for the peak sanctuaries in the Siteia region, Nowicki 2012, 137–52.

<sup>60</sup> Cherry 1986.

<sup>61</sup> Haggis 1999, 77–9.

of more distant ritual sites across the Siteia area (Fig. 1).<sup>62</sup>

The prominent shrine on Prinias is visible from all sites in the Siteia Bay and thus may have served as the “regional ritual apparatus” of the palatial group at Petras for mobilizing the labor and staple resources in the region.<sup>63</sup> While Prinias is not visible from Papadiokampos, two important features of the nearby landscape do have a direct line of sight to Prinias: Liopetro and the Trachilos Peninsula (Fig. 1). The refuge site of Liopetro not only has a defensible position but also tremendous views of East Crete, including Ierapetra, all of the Mirabello and Siteia Bays, Cape Sidero and Palaikastro. Although no Minoan remains have been reported there, their existence should be expected, possibly in the form of a peak sanctuary. Another shrine was recently recorded by Sofianou on the western side of Trachilos near the center (with pebbles, cups, cooking pots and figurines recovered), and this site does offer a potential link between Papadiokampos and Prinias.<sup>64</sup> The Trachilos shrine looks west towards the settlement at Papadiokampos, and a preliminary study of the finds suggests that it was used in MM II, when the first palace was built at Petras and the settlement at Papadiokampos suddenly expanded. Is the MM II presence at Trachilos and Papadiokampos perhaps evidence that the residents of the Petras palace were interested in defining and controlling this strategic point at the western limit of its territory?<sup>65</sup>

While it is not difficult to imagine the interest of the palace in protecting its western flank and claiming this strategic harbor, it is difficult to demonstrate obvious material connections linking the two sites. We believe that much further study is required, particularly petrographic analysis, before we can identify what we suspect are deeper cultural links between Papadiokampos and sites in the

broader Siteia region; these relationships must also be examined carefully for changes over time (e.g., pre- and post-Theran eruption settlement patterns). It may well be that the pattern of ceramic production and exchange noted by Day for LM I material in the Siteia Bay is also true for MM II pottery – i.e., that the first and second-order sites were both producers and consumers and that exchange patterns were not organized by or through the Petras palace.<sup>66</sup> Economically, it appears that the community at Papadiokampos was making wine, dye, textiles and metal goods, all of which would have been of interest to the Petras palace, but it will take further study and excavation to determine clearer links between the two sites. While earlier descriptions of Cretan palace states using hierarchical and economic models may prove useful in understanding these relationships, Knappett’s idea of a loosely aligned, segmented state is probably the most appropriate hypothesis for the moment, particularly in the Protopalatial period, given the lack of material evidence.<sup>67</sup> The pattern in the Neopalatial period is much less clear; however, emerging theories of Knossian dominance over the entire island in some phases of the Neopalatial period may explain the lack of clear hierarchy in the local landscape.

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<sup>62</sup> We thank K. Nowicki for showing us a copy of his paper, which will appear in the *festschrift* for Costis Davaras.

<sup>63</sup> We want to thank K. Nowicki for sharing his ideas about this site.

<sup>64</sup> An initial report of a brief cleaning operation at the site in September 2011 was reported by the authors at the Cretological Conference at Rethymnon in October 2011. Nowicki has also noted the link between these sites.

<sup>65</sup> Nowicki also argues for this conclusion in his paper.

<sup>66</sup> Day 1997.

<sup>67</sup> Knappett 1999, 635–9.



# Discussion

- Haggis** Most of the pottery illustrated is MM IIA. What was interesting is that, reflecting back on Christakis' paper, these linear patterns of communication are really a Neopalatial phenomenon, and we have to look for other forms of communication in the earlier period. The relationship to Prinias is a good example, and I am pleased to hear you talk about that. The small sanctuary is also very interesting, if there is any chance, you should excavate it. This is a class of sanctuaries that Branigan has talked about. For a while we have been pursuing these, some small hill top shrines. Then we just abandon trying to find them, because they are so un-intrusive, so invisible. It will be useful finally to dig one. It will be wonderful if you do this. That is the way I always imagined these things functioning, sort of intermediary ways of linking landscapes, in between those peaks.
- Brogan** Yes, it would be interesting to see if the pottery is similar to that of the settlement.
- Haggis** You have pebbles and we find a number of these pebbles, smashed pots and figurines in similar shrines.
- Blackman** As you said this is an exposed coast, with strong winds, do you imagine there was much contact by sea? Where would you have a harbor?
- Brogan** It is an interesting question. We did not have time to show it. Floyd McCoy, the geologist working with us, has done some bathymetric work. One of the things that he discovered is that there is a possibility that a large part of the Neopalatial site has been destroyed by the sea. He also noted that the area to the left, where the small church of *Analypsis* is situated, is like a wind surfers paradise. Every day you can see about ten people wind surfing there. So a shelter must have been necessary, because boats cannot get around. He also noted that there is a strip of land, that if it was raised by 2–3 m, it could make a tremendous shelter. So he needs to figure out how much the sea level has changed.
- Krzyszkowska** One presumes that these large vessels that you suggest come from Zakros, Palaikastro, etc. were not transported over land to a site like Papadiokampos.
- Brogan** Jerolyn Morrison is helping with the fabrics and she discovered a remarkable variety of clay sources for our pottery.
- Papadatos** What I think would be very interesting is to see not only the relationships, or the parallel history, between Petras and Papadiokampos, but also between Petras and Hagia Photia, towards the east, because what I see is that Petras was the main center of habitation in the area, throughout history, from the Final Neolithic to LM IIIC. And

during this very long period we have settlements that pop up in certain phases, for instance at Hagia Photia in EM IB, the cemetery and its settlement; then in MM IA the fortified building; then we have the two MM II tholos tombs; and then in MM II we have Papadiokampos, then probably a gap, and then again in LM IB. I think it would be very interesting to see the parallel histories between Petras which is the main center of habitation, and the smaller settlements that are perhaps trying to fill some gaps. From this point of view I was thinking if we can also introduce conflict into this discussion, and I do not mean physical conflict, but economic conflict.

**Tsipopoulou** I would like to invite Mike Wedde to comment, because some 12 years ago, it was of course long before the excavation at Papadiokampos, but I was aware of the existence of the site, we spent a long time discussing and speculating, and finally we wrote a paper called “Further and hinter shores”, about sea communication in the area. This was of course a construction out of our minds, without much evidence from the soil.

**Wedde** That was so long ago. The paper remains unpublished. Because of the bay of Siteia being stretched as far as Klimataria, there would have been a very important anchorage at Petras, and note that I use the term anchorage, because I have yet to be convinced that we have harbors or ports in Minoan Crete, if we define the word harbor as a major man-made structure to protect ships. As far as I know, we have no evidence for that, whatsoever. I do not consider the building at Kommos, I do not consider the building at Nirou Chani, and I do not consider the submerged structure at Malia, which all have been labeled as ship sheds. I think a harbor is a much later event, at least as far as the Aegean is concerned. Of course there were harbors in Egypt, because it is very easy to build a harbor on the Nile, you just dig a deep hole on the sand and lead the water in. It is a completely different situation if you are faced with the destructive forces of the Aegean. Therefore I would not go searching for a harbor at Papadiokampos, but if that land tongue works out, just like at Kommos, you would have a good, protected anchorage. But I also have to admit that when I wrote that, I was so thrashed by an external critic, that I finally did not publish it, as I could not possibly rewrite it the way he wanted and reformulate it into a totally different paper. So this is all still very much undefined and unpublished.

**Blackman** If you put your boats up the beach, you nevertheless are going to have a problem because of the severe wind. Generally the whole question of sea levels in eastern Crete is still under debate. I am glad to see that you work with Floyd McCoy. If you assume a relative rise in sea level since the Minoan period, then of course you are talking about a different topography. Years ago we wanted to do work at Palaikastro but we never got the permit. There is clear evidence of submersion in eastern Crete, and it would be lovely to have a general study from this area, because it effects your reconstruction of beaches, and the whole concept of harbors. I think we have got some Minoan harbors, the *neoreia*, but we are not going into that now.



### *Greek abstract*

Ο Παπαδιόκαμπος και ο κόλπος της Σητείας τη 2<sup>η</sup> χιλιετία π.Χ. Διερεύνηση μοντέλων περιφερειακής ιεραρχίας και ανταλλαγών στην Ανατολική Κρήτη

Η εγκατάσταση της Εποχής του Χαλκού στη θέση «Παπαδιόκαμπος» ανακαλύφθηκε πρόσφατα από την ΚΔ' ΕΠΚΑ του Υπουργείου Πολιτισμού και Τουρισμού στη δυτική πλαγιά της χερσονήσου του Τράχηλα, που χωρίζει τους κόλπους του Μιραμπέλου και της Σητείας. Η τοποθεσία αυτή είχε στρατηγική σημασία για τους δρόμους του εμπορίου μεταξύ της Βόρειας-Κεντρικής και Ανατολικής Κρήτης, αλλά και προς άλλους προορισμούς του Νοτιοανατολικού Αιγαίου και της Ανατολικής Μεσογείου. Ένας από τους πρωταρχικούς σκοπούς της έρευνας είναι η αναζήτηση του ρόλου που είχε στην ευρύτερη περιοχή κατά την Παλαιοανακτορική και Νεοανακτορική περίοδο. Στην ανακοίνωση υπογραμμίζονται πρόσφατες προσεγγίσεις στην περιφερειακή ιεραρχία οικισμών, σε μελέτες της Παλαιοανακτορικής και της Νεοανακτορικής Ανατολικής Κρήτης, πριν από την εξέταση των νέων κεραμικών και αρχιτεκτονικών ευρημάτων από τον Παπαδιόκαμπο. Τα ευρήματα αυτά προσφέρουν ένα σύνολο δεδομένων, ουσιαστικό για την συζήτηση του αν ο οικισμός ήταν προσανατολισμένος προς τον κόλπο της Σητείας ή όχι. Μπορεί να μην είναι συμπτωματικό ότι η πόλη κτίσθηκε την ίδια εποχή με το πρώτο ανάκτορο του Πετρά.



# The website [www.petras-excavations.gr](http://www.petras-excavations.gr)

*Konstantinos Togias*

## *Abstract*

The community outreach activities for the archaeological site of Petras were completed with the creation of the constantly updated “Petras Excavations” website ([www.petras-excavations.gr](http://www.petras-excavations.gr)). The aim of the project was to provide access to the results of the research at Petras in a functional and easily accessible way. This paper presents the structure and the content of the website, the user-friendly navigation menus, and gives information about its technical features.

## Introduction

On the occasion of completing 25 years of research at Petras, the Minoan urban settlement and palace of Siteia, we created the website “Petras Excavations” – [www.petras-excavations.gr](http://www.petras-excavations.gr) (Fig. 1a) – in the summer of 2010. This website comprises an effort to present concisely all excavations, surface surveys and studies that have taken place since 1985. Moreover, outreach activities, educational programs, exhibitions and interventions for site enhancement are also presented. Additionally, the visitor to the website can find information about the researchers of Petras, the increasing bibliography, and view many photographs of the excavations, the finds and people who worked or visited Petras. The website design and the selected technologies adhere to valid standards and recommended methodologies for the accessibility and the interoperability of applications and web pages.<sup>1</sup> Our objective was to make available the rich content, which derives from 25 years of research at Petras, to the general public, in a pleasant, functional and easily accessible way.

## Technical features

The “Petras Excavations” website is based on the Drupal content management system,<sup>2</sup> which inte-

grates the most state-of-the-art technologies and standards for the World Wide Web. Drupal is an open source system<sup>3</sup> for the creation of web pages, blogs and websites. It is used for creating various types of websites, such as web portals, news web pages, commercial and business web pages, educational web pages, multilingual web pages, social networking systems, and other types of web applications.<sup>4</sup> Drupal provides a compact and well documented framework for the creation of applications. Due to its modular structure, and as free/open source software, it can be easily expanded with add-on modules and themes,<sup>5</sup> which are freely available from the particularly active community of programmers and users.<sup>6</sup> Drupal uses PHP programming language<sup>7</sup> for the creation of dynamic web pages and MySQL data base system<sup>8</sup> to ensure

<sup>1</sup> W3C, Web Content Accessibility Guidelines 1.0, W3C Recommendation 5-May-1999, <http://www.w3.org/TR/WCAG10>

<sup>2</sup> Drupal open source content management platform, <http://drupal.org>

<sup>3</sup> Howison *et al.* 2008.

<sup>4</sup> Sites made with Drupal, <http://drupal.org/cases>

<sup>5</sup> Drupal Modules, <http://drupal.org/project/modules>

<sup>6</sup> About Drupal Community, <http://drupal.org/community>

<sup>7</sup> The PHP scripting language website, <http://php.net/>

<sup>8</sup> The MySQL database website, <http://www.mysql.com/>



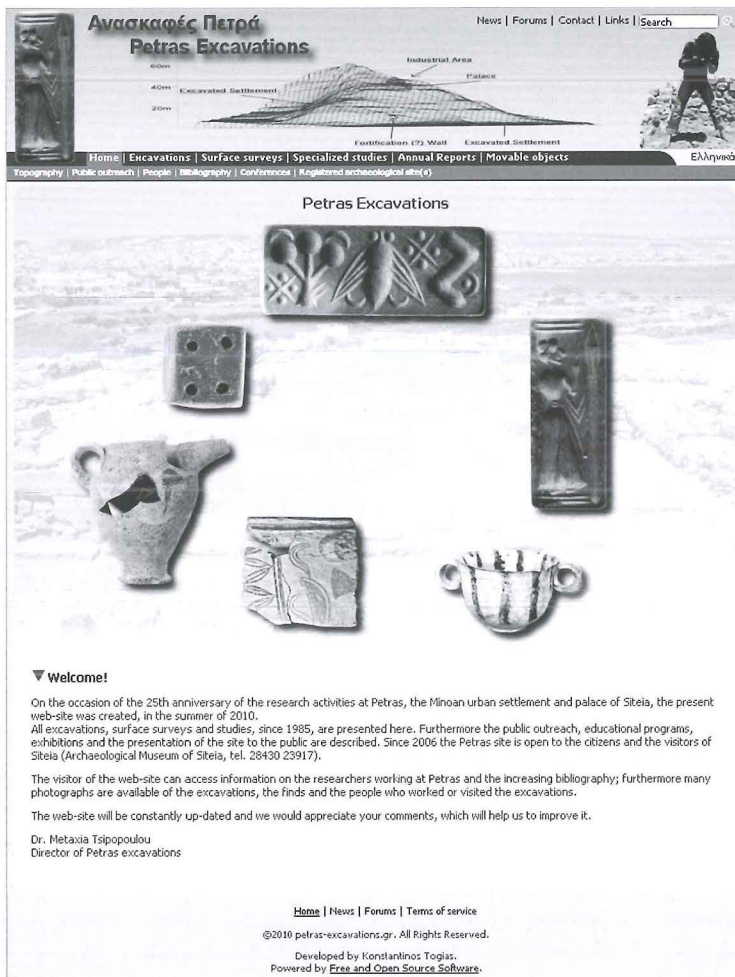
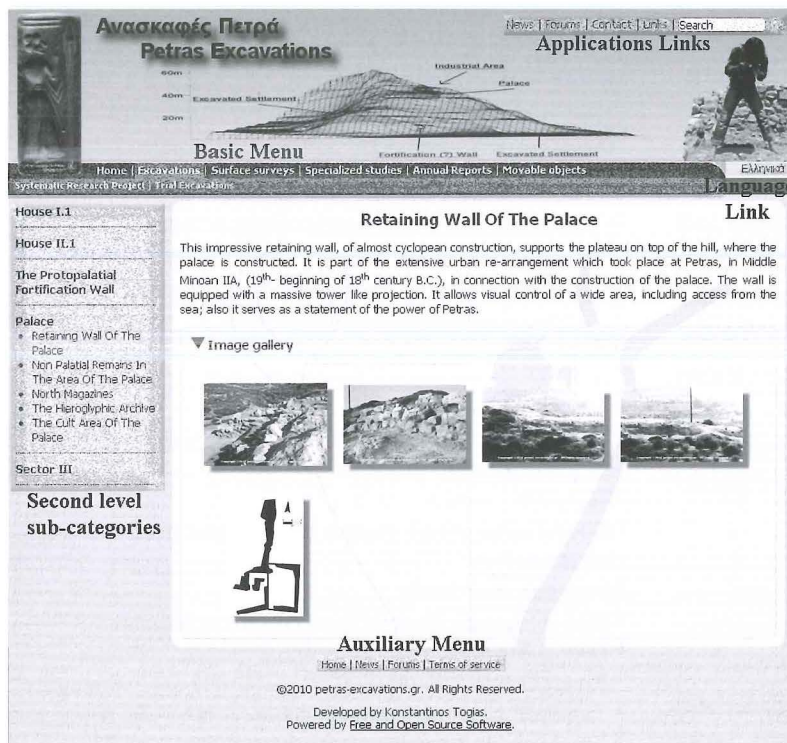


Fig. 1. a) The Homepage of the website; b) The navigation menus of the “Petras Excavations” website.



efficient content management. The web pages are produced using XHTML 1.0<sup>9</sup> with CSS<sup>10</sup> for the description of the presentation, and JavaScript for the interactive parts. Besides, it supports RSS<sup>11</sup> and ATOM news flows.<sup>12</sup>

For the creation of the “Petras Excavations” website we used Drupal version 6 and extended its functionality with the installation of the modules “Internationalization” for bilingual support (Greek – English),<sup>13</sup> “Views” for the creation of customised content pages,<sup>14</sup> “CCK” for the creation of customised content types,<sup>15</sup> “Menu Block” for setting up the navigation menus,<sup>16</sup> “Gallery Assist” for the creation and presentation of collections of photographs,<sup>17</sup> and other auxiliary modules. The figurative theme of the website was produced with the use of the standard Drupal “Zen” theme.<sup>18</sup> The Zen theme was selected due to its compatibility with the up-to-date standards of the World Wide Web, the production of valid XHTML semantic code, as well as the customisation flexibility it provides through CSS and the system of Drupal standard themes. For the appearance of the website elements we used the CSS3 standard<sup>19</sup> which provides advanced format options, such as rounded outlines and shadings. For the interactive parts of the website and the movement effects we used the JQuery library<sup>20</sup> that implements AJAX methods,<sup>21</sup> which are compatible with valid standards and the majority of navigation programmes on the internet, without the use of external applications and add-ons on the browser side. Finally, the “Petras Excavations” website is hosted on a LAMP Server,<sup>22</sup> in a dedicated Data Centre that ensures equally its unhindered operation and availability, as well as content safety through the automatic backup system and frequent software updates.

## Presentation and navigation

The content of the “Petras Excavations” website is presented on homogenous pages which visitors can access through user-friendly navigation menus (Fig. 1b). On the upper part of the pages, the title and the website logo are presented. On right-hand side the basic applications links are located: News flow,

Forums, Contact form and the list of relevant links. From the basic menu, which is presented under the masthead, the user can navigate through the website content and switch the language by clicking on the available link (Greek or English). The pages are organised in multiple levels of categories and sub-categories. The basic categories are presented in the first line of the basic menu, while the second level sub-categories, in the second line. The content of the page appears under the basic menu and can be demonstrated in one or two parts: the left column, which appears only when content exists, and the main content part which takes either, all the width of the page (when the left column doesn’t appear) or the central and the left part of the page. When a second level category is separated in sub-categories then these are presented in a tree form on the left side of the page or in the main content part, if the page does not contain any content. The main content of a page can include text accompanied by interactive (or not) photographs, a collection of

<sup>9</sup> W3C, XHTML™ 1.0 The Extensible HyperText Markup Language (Second Edition), W3C Recommendation 26 January 2000, revised 1 August 2002, <http://www.w3.org/TR/xhtml1/>

<sup>10</sup> W3C, Cascading Style Sheets (CSS) Snapshot 2010, W3C Working Draft 02 December 2010, <http://www.w3.org/TR/2010/WD-css-2010-20101202/>

<sup>11</sup> UserLand Software, RSS 2.0 specification, 2002, <http://feed2.w3.org/docs/rss2.html>

<sup>12</sup> IETF Network Working Group, The Atom Syndication Format, 2005, <http://tools.ietf.org/html/rfc4287>

<sup>13</sup> Internationalization Drupal Module, <http://drupal.org/project/i18n>

<sup>14</sup> Views Drupal Module, <http://drupal.org/project/views>

<sup>15</sup> Content Construction Kit (CCK) Drupal Module, <http://drupal.org/project/cck>

<sup>16</sup> Menu block Drupal Module, [http://drupal.org/project/menu\\_block](http://drupal.org/project/menu_block)

<sup>17</sup> Gallery Assist Drupal Module, [http://drupal.org/project/gallery\\_assist](http://drupal.org/project/gallery_assist)

<sup>18</sup> Zen starting theme for Drupal, <http://drupal.org/project/zen>

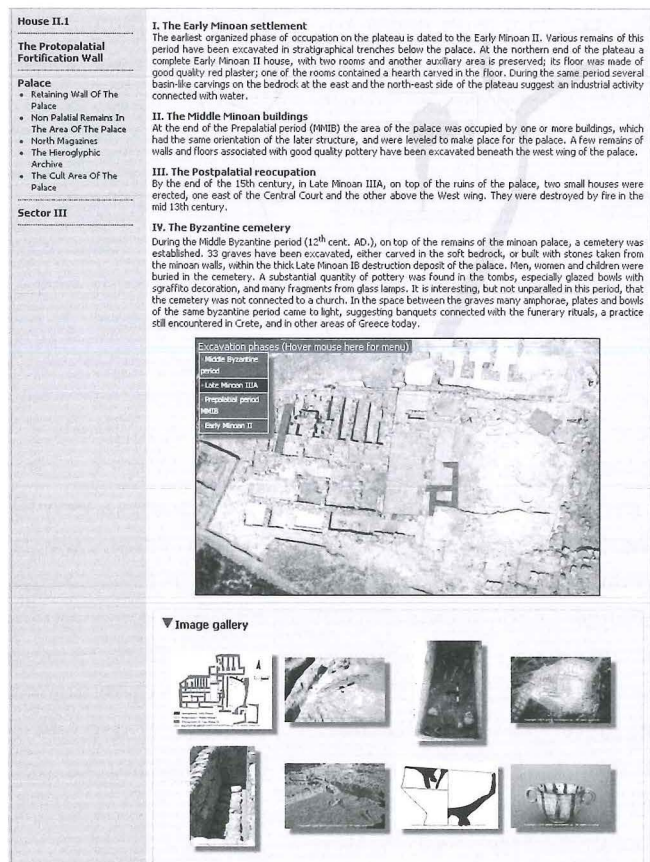
<sup>19</sup> W3C, Selectors Level 3, W3C Proposed Recommendation 15 December 2009, <http://www.w3.org/TR/css3-selectors/>

<sup>20</sup> The jQuery JavaScript Library, <http://jquery.com/>

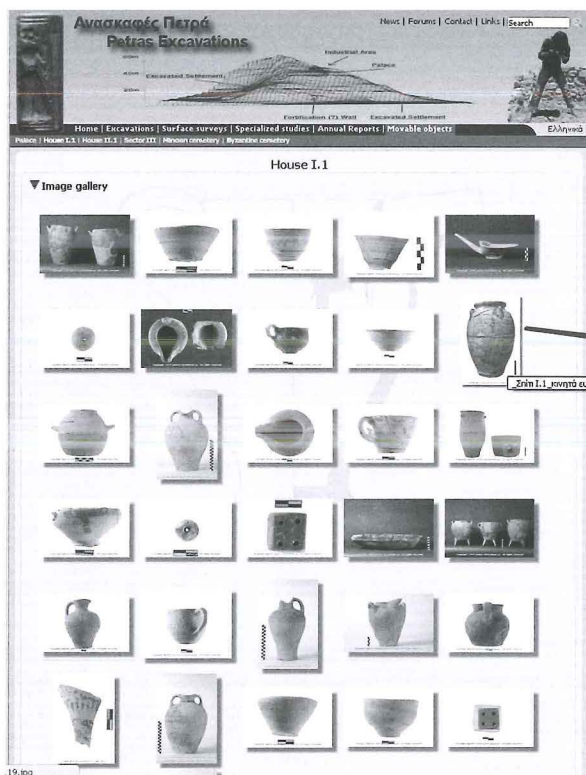
<sup>21</sup> W3C, Scripting and Ajax, <http://www.w3.org/standards/webdesign/script>

<sup>22</sup> Wikipedia, LAMP (software bundle), [http://en.wikipedia.org/wiki/LAMP\\_%28software\\_bundle%29](http://en.wikipedia.org/wiki/LAMP_%28software_bundle%29)

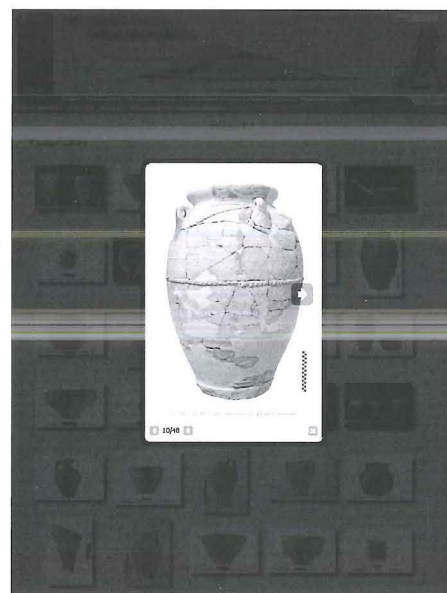




a



b



c

Fig. 2. a) Part of the “Excavations” section; b-c) The “Movable objects” section.

images and links to other relevant pages. On the bottom part of each page, there is one more auxiliary menu with links to the homepage, the news flow, the forums and the website terms of use. The active categories and sub-categories are marked on the main menu in bold letters and on the side menu in black colour, so that users can monitor at any time the page they are visiting.

## Structure and content

The rich material of the “Petras Excavations” website is presented in six main sections: Homepage, Excavations, Surface surveys, Specialized studies, Annual reports and Movable objects.

The first section contains general information about the topography of the Petras region, the registered archaeological site (sites), the outreach activities, photographic material from people who worked or visited Petras, brief CVs of contributors, comprehensive bibliography with the possibility of downloading publications in PDF format, as well as material and images from the Petras Symposium and other Conferences.

In the “Excavations” section, the Petras systematic research projects and trial excavations are presented in detail. Each particular site of the Petras excavations is described in a short text accompanied by related photographic material (Fig. 2a).

In the “Surface surveys” section, the finds from surface surveys are presented in a comprehensive yet concise text.

The section “Specialized studies” includes content related to architecture, pottery, lithics, paleoanthropology and paleozoological studies that have been conducted at Petras.

All the excavation reports since 2004, accompanied by photographic material, are included in the section “Annual reports”.

Finally, the “Movable objects” section (Fig. 2b–c) presents rich photographic material of objects categorized on the basis of provenance.

Apart from the main content, the website makes available a news feed with announcements on upcoming actions and conferences, user forums, a contact form and useful links to other relevant websites.

### *Greek abstract*

Ο δικτυακός τόπος [www.petras-excavations.gr](http://www.petras-excavations.gr)

Η ανάδειξη του αρχαιολογικού χώρου του Πετρά συμπληρώθηκε με τη δημιουργία του δικτυακού τόπου [www.petras-excavations.gr](http://www.petras-excavations.gr), που διαρκώς ανανεώνεται. Στόχος του προγράμματος ήταν η παρουσίαση των αποτελεσμάτων της αρχαιολογικής έρευνας στον Πετρά, σε λειτουργική και εύκολα προσβάσιμη μορφή. Το παρόν άρθρο παρουσιάζει τη δομή και το περιεχόμενο του ιστότοπου, τα εύχρηστα μενού πλοήγησης και δίνει πληροφορίες για τα τεχνικά χαρακτηριστικά του.







## Final discussion

chaired by *J. Alexander MacGillivray*

**MacGillivray** I do not know about you, but I feel dizzy after two days full time; Petras information overload in some ways. I think like with all excavations and all research projects you come away with more questions than you do answers, but I guess that is why we do it. Like many people yesterday, I should probably start by asking why Metaxia Tsipopoulou asked me. That is possibly because we are such good neighbors, and we have been good neighbors – I worked at Palaikastro since the very beginning. Hugh Sackett and I went in 1983 to Palaikastro though we did not start digging until 1986. We were both younger then, it was a really long time ago. So I have been associated with Petras, and with Metaxia, for all of those 25 years. One thing that does come through is the sheer amount of hard work that is involved, I do not just mean the digging, that is the easy part, it is the bureaucracy, the fund raising, and she had to deal with land owners. That part does not really show in the Symposium. We sit back now and we marvel at these results, but there is a whole back story to this, that perhaps should never be told, or nobody would ever go into archaeology. In Metaxia's case, it was very complicated, very difficult, and she showed amazing staying power, and we are very grateful that she did. When I first went to eastern Crete in 1983, you would drive by Petras, and there was nothing there, now 25 years later, what Metaxia has done is that she has given us this amazing site, she has put Petras on the map. Bosanquet went through there for a couple of days in 1901, and wrote about it, but Metaxia has effectively put Petras on the map. It has now become a fairly big dot in the discussions of Bronze Age Crete. One of the things she has shown us, and Costas Paschalidis was reminding me that, from the very beginning, from the Final Neolithic IV to the Byzantine period, Petras, I suppose by virtually being by the sea, has an international spirit and it has international connections. We are even talking about connections with Egypt in MM IB, and it functions very well as a harbor town.

What I thought I might do, in order to lead this discussion, and you may want to talk more with the speakers, was really think about what these 25 years at Petras have given us. Being an old school archaeologist I still tend to think chronologically, instead of thematically. I thought it would be simpler really to run through what these excavations have given us in terms of the broader picture of Bronze Age Crete, and then Bronze Age Aegean, and then in the later periods, in Byzantium. Obviously the place to start is FN IV, when we have the first settlers, and we have strong Cycladic influence. What do you think that means? Are the people of Petras like people from Hagia Photia in the next period? I suppose Petras was looking for metals and lithics. The thing that still amazes me is that these people who we see trading abroad, which means that either they are going by the sea, or somebody is coming to them by sea, were not eating fish; there is a problem sailing over all this wonderful food, and not eating it, although we did see the fish hooks.



So, you can look at EM I and EM II and see what that gives us, in terms of the overall picture, what happens in EM III–MM IA, when we have the wonderful ossuaries with their pots, especially that collection of whole vases, at the end of that period. MM IB is a very interesting period when you had very expensive well painted ceramics that were put down in the Lakkos. And there is the wonderful tempting reconstruction that the hill was used, certainly in that period, if not earlier, for social gatherings, people coming together; feasting, if we want to use that trendy term, it is a focal point, for perhaps more than one community going there. What they are consuming is, certainly, when we are looking at the pottery, material locally made, but also imported, and therefore, slightly more expensive. Who are these people, where do they live, are they coming from further afield, to gather at this place? This was obviously important, and then this was replaced by the first palace, which if I am not mistaken, could be fortified; you think that the terrace wall could work as a fortification wall?

**Tsipopoulou** Not entirely, one part yes.

**MacGillivray** So it gives an impression, like the façades of the other palaces, we then have this change. There is enough wealth, enough power and enough desire to build this larger center, and this coincides with the change, it seems, in the Kephala cemetery, where, instead of re-deposited burials, we have these two males, these two fairly interesting individuals, who are using, presumably, these wonderful seals, that we saw Olga Krzyszkowska present. As they coincide with the construction of the palace, it would be interesting to speculate who were these young men, and why they were buried differently, inhumations, as opposed to whatever their normal practice was.

Then there is the destruction of this first palace, at the end of MM IIB, and we have the archive, that is one of the main reasons why we can talk about it as a palace. How big a center is Petras, is it controlling a wide area, can we tell that from the goods in the archive? I am still not entirely convinced, we might be misleading ourselves with these big state maps that we draw for Middle Minoan Crete. They could be much smaller, like Hellenistic city-state areas, much smaller areas of control. I think we are reading back almost from the modern Greek church boundaries, which currently separate Crete, and so we trying to recreate something like that, but that may have not been the case. That is something we can discuss.

This palace then, like many other buildings throughout Crete, towards or at the end of MM IIB, gets trashed, fortunately for people like Erik Hallager, who then have all this wonderful material to work with, and allows him, or us, to reconstruct what is actually being recorded in this building. And does this palace, that is very well excavated now, much better excavated than Knossos, does this allow us to answer the question that Jan Driessen has posed most recently, is this, are these, social ritual centers, or are they really the palaces of a monarch? Are we meant to view kings, or queens, living here? Or is Crete the only place in the ancient world where you do not have some divinely inspired, or actually divinely stated ruler in charge? Can Petras help us to solve that question in this period?

We then go to MM III, and that is something that we will have to see what it gives us over time, but we have that rather amazing rod, with the Linear A inscription. So, certainly there is administration in that period. But where is the building that has

been used? It is probably the building in which they have the LM IA floor deposits afterwards.

The LM IA period is amazing, I thought that we would never go through a whole two-day conference about a site in the Aegean, talking about its Bronze Age history, without mentioning the Theraeruption. But it came through at Papadiokampos, and it is kind of interesting that it was not mentioned by any of the workers at Petras.

**Tsipopoulou** We do not have ash.

**MacGillivray** You would not have ash, because the tsunami does not get up on a hill. That is what is preserving the ash at Mochlos, Papadiokampos, Palaikastro and other places. But even without the ash, you have destruction, you have abandonment, and then you have a change in LM IB, when you have a smaller courtyard, a slightly rearranged building, could that be a reflection of the kind of damage you had in the period, depopulation, etc.? When Zakros and Gournia and Mochlos and other sites have all these wonderful buildings in LM IB, the Late Minoan Renaissance, Petras has suffered somehow, the harbor at Petras may have stilted in, as a result of the debris flows coming back? It is worth discussing.

Then you have the LM IB destructions. Petras comes in line with the rest of the world. You do not seem to have evidence for LM II, so there is no instant reoccupation of the area, and in a sense it is your great LM IA palace with the Linear A that may be the last glory days at the site.

It is interesting that there is that memory of the place, where for some reason, I suppose it is the topography that demands it as well, where people would come and relocate, but not necessarily relocate to live, because in different periods you live in different places but some local community, possibly even just a family, was coming through where you have the LM IIIC settlement and megaron on Kephala.

Then in the Byzantine period, with a time span of 150 years for the use of the cemetery, it would not have been simply serving just one family, one farmstead. And they were manufacturing stuff also, up on the hill, but it remains a sacred place.

The fun thing is that Hill I has now become a sacred place again. Metaxia has fought tooth and nail to keep it from becoming a suburb of Siteia, and instead she has turned it into a place that reminds people from Siteia, or at least should remind people from Siteia, like Giorgos Alexopoulos, that they do have a very long and rich history, with a lot of external communications.

These are some of the themes I am thinking of. Then there is the theme of burial practices. That would be very interesting, changes in burial practices, what happens in MM III–LM I. If anybody would like to start, attacking, commenting on ideas that have come up, please do.

**Hallager** I was struck by one thing that you mentioned, at the very beginning, the lack of fish, and if I may suggest one possible solution. Based on my experience from the excavations in Khania, it has always been a very great mystery to me why you have no rubbish pits in the LM I settlement. As I travelled around the island I asked all our colleagues excavating LM I settlements “where are your rubbish pits?”, and they were not there. It was Phil Betancourt who gave me an answer, which I am going to suggest also for the missing fish bones. He said that during that period and probably



also in the earlier periods, such organic remains were very important and they were taken out into the fields to be used as manure. This might be one possible suggestion for the missing fish bones.

**MacGillivray** Interesting.

**Vallianou** I just want to point out that Metaxia must be a very happy Greek archaeologist. After 25 years of hard work, and having faced many difficult problems, she managed to complete an important work, to excavate a particularly important site, to establish its relations with other areas, to have very good collaborators, to publish a lot, to reach almost the end of her research, and to make the site accessible to the public, with modest but appropriate interventions. I would like to wish her luck in the future, and I believe that she deserved all she has achieved up to now.

**MacGillivray** Excellent. She has been very clever about getting the right sort of collaborators.

**Macdonald** Can I just ask about the end of LM IB, perhaps you did not go into detail, at least House II.1 is abandoned, not destroyed by fire?

**Tsipopoulou** There is fire, especially since the industrial activity taking place there was connected with hearths, heating water, etc. The whole of Room E gave evidence for a fire. In the Shaw Festschrift, the *Krinoi kai Limenes* volume (Tsipopoulou 2007c), I published, for the first time, several pictures of the destruction deposit over the central court of the palace. There was a thick LM IB destruction deposit, full of blocks fallen from the upper floor, door jambs, from *polythyra*, many with mason's marks among them (we have identified 29 on fallen blocks, and some more are *in situ*). There was this very thick deposit with intense burning, all over the central court and to the east of it. In the central court we had 10 Byzantine graves and also the ossuary. Some of them, as Natalia Poulou-Papadimitriou said, used one Minoan wall and then built another three walls, to have a cist built tomb. In other cases, they excavated in this very thick and compact destruction deposit, which was like the bedrock, and they put their dead in it.

**MacGillivray** So the LM IB fire destruction reached very high temperatures.

**Tsipopoulou** It is something very similar to the Phaistos "*astraki*". We do not have much LM IB pottery, because what we call the west wing of the palace, the parallel corridors on the plan, are all basement, or rather they are structural features to support the upper floors, so they were practically empty of any traces of the latest use. When we dug deeper, we found the walls of previous buildings. The latest phase of the palace is not well preserved, but we do have the destruction deposit.

Besides the central court, there was a room with an intense LM IB destruction deposit. This room is adjacent to the so-called "shrine" with the 4 m long plastered bench. This room with the bench was Protopalatial, and following the MM IIB destruction was sealed and never re-used. To the northeast of it, there was a long room with a flagstone floor, and in it even the slabs were burnt. It was also full of plaster and mudbricks both from the ground and from the upper floors.

- MacGillivray** That suggests that in LM IB the building was sufficiently important for someone to need to destroy it.
- Tsipopoulou** What always makes me wonder is why they kept this smaller, sort of symbolic, central court, and they did all the re-arrangement with the alternating columns and pillars. It has always been a palace with the memory of the earlier glory.
- MacGillivray** The Linear A tablets come from that?
- Tsipopoulou** Yes.
- MacGillivray** So there is administration.
- Tsipopoulou** Yes, but we do not know about the existence of an archive. There were two tablets, in the same trench, at the west part of the building, the same trench that contained the hieroglyphic archive in a deeper stratum. And in between there was also an LM IA destruction deposit, all that in the same trench, we excavated almost 3 m. Kostas Christakis excavated the LM IA destruction deposit.
- MacGillivray** I wonder if, maybe Kostas Christakis will talk about the notion of foreigners and locals that Tina McGeorge brought up quite clearly.
- Paschalidis** I would like to change the subject, based on a comment we exchanged yesterday with Metaxia. In this Symposium, the LM III period was not adequately represented, not because it did not exist at Petras.
- Tsipopoulou** Right.
- Paschalidis** So, in order to have a complete picture of the site we should need to include this important period as well.
- MacGillivray** Is there LM IIIA and IIIB?
- Tsipopoulou** And also LM IIIC, as we saw.
- Paschalidis** There was a cemetery, Metaxia, that you showed us yesterday.
- Tsipopoulou** Yes, there has been a cemetery; we had the larnakes, both chest-shaped and bathtub. The cemetery started in LM IIIB and continued into LM IIIC.
- MacGillivray** The interesting thing about having a settlement like Petras, that was occupied for thousands of years, is that you can almost visualize populations coming and going. One of the best ways to see them is through their burial practices and to see how these change over time. Because you are dealing with the same spot, but obviously you are not dealing with the same people, you are watching populations come and go.



- Tsipopoulou** I would like to remind you about the Achladia tholos, which is Mycenaean in type and construction. This is very close to Petras, only 4 km from the coast, and it was also almost on top of an earlier settlement, a very small one, a *metochi* type, both Proto- and Neopalatial.
- MacGillivray** Was that the one with the 80-year old in it?
- Tsipopoulou** Not 80, she was 45–65 years old when she died.
- MacGillivray** That is pretty old, anyway.
- Tsipopoulou** It was pretty old, and she had suffered from a very significant stress when she was very young, probably malnutrition.
- MacGillivray** The Theraeruption? No the Mycenaean invasion.  
[Laughs from the audience!]
- Tsipopoulou** The LM IB destruction. She was an upper class lady.
- MacGillivray** Does everybody know whatever they possibly want to know about Petras?
- Blackman** I am actually working on Ramnous and I found out about this conference while studying there, with surprise. It is actually wonderful to be there. We are studying with *ΕΛΚΕΘΕ* [Hellenic Center of Marine Research] the problem of relative sea level change. Relative is the important word here, has the sea gone down and the land gone up, or both phenomena? The question goes back to Spratt and the whole question of what Crete has done, we know about elevation in the west, but something was happening in the east, and we have these submerged buildings at Palaikastro, which we wanted to survey. The whole issue of reconstructing the palaeoenvironment is very important. Now, at Siteia we have a *neoreion* that is classical, too late for our Prehistorian friends, but there you have something which functions with a precise sea level, not far from your site. First the geologists disagree about what has happened to the sea. Secondly the land is not one block, so what applies to Palaikastro will not necessarily apply to Siteia.
- MacGillivray** No, you have local tectonics.
- Blackman** But, nevertheless, a local study of the evidence for submerged beach lines would enable you to understand what has happened in the later periods, including eruptions, what has happened to the shoreline. Geologists can help with all that. Keep working with geologists, it is a challenge, they do not know how to apply for archaeological permits, and also the jealousies of geologists are far greater than the jealousies of archaeologists.
- MacGillivray** Impossible!  
[Laughs in the audience!]

**Blackman** Nevertheless, it is very important for reconstructing communications by sea in the Minoan period, it is very important to try to reconstruct where the coastline was before you can understand the use of harbors, whatever harbors mean. It has been a wonderful conference. Congratulations to Dr Tsipopoulou.

**MacGillivray** I think this is probably the best time, to thank not only Metaxia but also her whole crew, for putting together the Symposium, and obviously these two days represent the end-result of 25 years of hard work, but you are probably less than half way there on the site, so we should probably meet every five years and get all the new information.  
[Laughs in the audience]

And I hope you will all join me thanking Metaxia and her colleagues for this fantastic Symposium!







# Petras in context: localism, regionalism, internationalism

Peter M. Warren

The achievement of the Petras Project, under the direction of Metaxia Tsipopoulou, has been remarkable even by the exceptional standards of discovery and interpretation in other parts of Crete in recent decades. From a very modest beginning on Hill I in 1985 – but in the belief that this could not be a site simply of a Neopalatial settlement but one with a major central building – Tsipopoulou has constructed a large-scale operation of fieldwork and study across the plateau and slopes of the hill and the adjacent higher hill, Kephala. The major characteristic of this project is its internationalism. With the crucial support of INSTAP and its intellectual and practical Study Center a stream of international specialists, particularly in the biological and material sciences, has been given by her the responsibility and privilege of studying and publishing specific areas of excavation and categories of finds. The main team has also generated a sub-team, with Yiannis Papadatos having been given responsibility for the FN and EM I settlement on Kephala. The present volume, with its twenty-four papers, reports progress on all these fronts and thus contributes much to increased understanding of Bronze Age Cretan social, political, economic and aesthetic practices.

This overview, written at the invitation of Metaxia Tsipopoulou, comments on Petras at three levels, the uses of the two sites themselves, their regional and their off-island or international dimensions. We do so not by (superfluous) summary of the papers' contents but by offering at these different levels some observations and questions promoted by the contributions to the volume and by the current position in Petrasian discovery. We deliberately focus on points of change, *histoire événementielle*, in the sequence.

## The sites and their occupation

Settlement began, on Kephala, in FN IV and continued through EM IA.<sup>1</sup> Though Nodarou notes technological and typological differences between the pottery of the two assemblages, neither she nor Papadatos see any significant cultural shift, but rather essential continuity. While grog-tempered pottery is so dominant in both assemblages, as it continues to be in the earliest pottery (EM IB), from the Rock Shelter burial material, that it must represent continuous local production, albeit with many Cycladic typological links, there are nevertheless changes among the minor fabrics. Imported Cycladic white mica-schist fabric is almost exclusive to the FN IV settlement. The origin of the calcite-tempered fabric is less clear. Nodarou finds it at all sites along the north coast of Crete in EM I but attributes its relatively rare presence at Petras itself in FN IV and even rarer presence in EM IA to imports. In the Rock Shelter burial material, the quantity is significantly greater and the pottery is EM IB, closely analogous to the Kampos Group material of the huge Hagia Photia cemetery not far to the northeast (and other Cretan sites). She points out that calcite tempering is very common in the Cyclades (marble ware in the Cycladic bibliography) in the EBA.

So how may the demographic position at Kephala be understood? There are three distinct issues. First, while Papadatos considers, on the grounds that the ceramic technological changes are not so deep as to indicate a cultural shift, that theories of population movement “and large-scale coloniza-

<sup>1</sup> Papadatos this volume.



tion of Crete in the FN or the EM IA" cannot be substantiated on the basis of the Kephala pottery, this leaves to be addressed the important matter of the origin of the FN IV settlers. The settlement was new, so the occupants must have come from elsewhere. They would naturally use local clays (grog-tempered fabric) for their pottery, but that tells us nothing about their origin(s), nor does their institution of copper metallurgy, technologically significant though that was. They could have come from elsewhere in Crete, given ceramic parallels, or from the Cyclades, given the mica-schist pottery, or from the Dodecanese/southern Anatolia, given the strong case made by Nowicki for movement from there to hilltop settlements on the coasts of Crete, especially East Crete, in FN.<sup>2</sup> It seems less likely that they came from the coastal cave of Kouphota to the northeast. Although this apparently had "Neolithic" use, it continued, on a larger scale, in EM;<sup>3</sup> a move up to Kephala would surely have meant there was no need to continue less attractive cave occupation in the EBA.

The second issue is that of the ceramic continuities and discontinuities between the FN IV and EM IA settlements, noted above. These seem to the writer to leave open the question whether or not the EM IA settlement consisted of a new population. The Kephala obsidian is not discussed in this volume – Dierckx studies that from subsequent burials – but D'Annibale's study of it elsewhere shows internal development of the newly introduced blade production and is indeed an argument for no new population in EM IA.<sup>4</sup>

The third matter is that of the ending of the settlement. For reasons unknown, the Kephala site was apparently abandoned in or at the end of EM IA (with no further inhabitation of the hill yet documented until a return there in LM IIIC). There may then have been a gap, if settlement on the lower Hill I did not begin until EM IIA. However, Kephala was not without use, since its long and highly interesting burial usage started in EM IB, to judge by the burial material later placed in the Rock Shelter. On which hill, or where else, was the settlement which provided these earliest burials? The matter is all the more interesting since the earliest burials were accompanied, as noted above,

by Kampos Group pottery akin to that of the huge cemetery at Hagia Photia.<sup>5</sup> Was, therefore, the as yet undetermined settlement that of a new (EM IB) population group related to the newcomers at Hagia Photia?

## The sites and the region

Settlement occupation on Hill I continued after EM II apparently without interruption through EM III, MM IA and MM IB. The MM IB contents of the Lakkos (see below) demonstrate increasing ceramic sophistication and perhaps wealth. But already before MM IB, the Hill I settlement must have had relationships with two important but very different new happenings in the region.

One of these was the construction in MM IA a few kilometres to the northeast on the coastal hill (25 m above sea level) of Kouphota, near Hagia Photia, of one of the most functionally mysterious buildings in Bronze Age Crete. It was excavated in 1984–1985 by Metaxia Tsipopoulou herself, with a summary but detailed report.<sup>6</sup> West-east in orientation, rectangular in plan, 27.5 m x 18.0 m, it had some 37 rooms or areas surrounding a rectangular central court measuring 21.0 m x 3.5 m, with a main entrance on the west reminiscent of the (south) entrance of the palace at Malia. Thus purely in terms of plan, rectangular with units grouped around a rectangular court, the building has distinct similarities to the subsequent palaces. Although its purpose remains unclear – the large numbers of stone tools suggest, as does Tsipopoulou, food preparation and consumption, but with very little evidence for storage – and even though the sites are not intervisible, it is inconceivable that the people of Hill I were ignorant of its existence. Could it even have been built by them? Moreover the building was protected by a surrounding wall (preserved on three sides). One might think that

<sup>2</sup> Nowicki 2002; Warren 2011, 138

<sup>3</sup> Platon 1959, 218 and pl. 175β; Tsipopoulou 1989, 33.

<sup>4</sup> D'Annibale 2008.

<sup>5</sup> Nodarou this volume.

<sup>6</sup> Tsipopoulou 1988.

this was for added protection against the prevailing north winds – the gap of several metres between wall and building gave ample space for sheltered circulation and activities – but the strengthening of the wall with solid bastions clearly points to a defensive function. That can only mean protection of the building's occupants and contents, either by Petrasians from off-islanders, other Cretans<sup>7</sup> or locals other than Petrasians, or, less likely, by locals or non-locals in opposition to Petrasians. Whatever the building's function(s) we see already in MM IA either a collective, communal decision or an authoritarian decision behind a construction in this form.

The second major new happening in MM I had even greater regional significance, namely the founding of the peak sanctuary of Prinias, on the highest hill (803 m) south of Petras<sup>8</sup> and of the sanctuary on the hill of Piskokephalo, even nearer to Petras.<sup>9</sup> Peak sanctuaries were the spiritual focus for their surrounding lowland communities and they offer the best evidence for the emergence of regional concepts, identities and beliefs. It is again inconceivable that a major centre such as Petras was unconnected with the Prinias and Piskokephalo sanctuaries.<sup>10</sup>

After the abandonment or destruction of the rectangular building at Hagia Photia-Kouphota, two small circular buildings were constructed, one of them directly on top of it, thus suggesting little interval between them. An MM IB or MM II carinated cup dates these constructions.<sup>11</sup> Notwithstanding the absence of skeletal material, their shape, with the entrance on the east, strongly suggests circular tombs. The absence of parallels in easternmost Crete at the time of excavation has since been somewhat mitigated by the Livari tholos. But who built these apparent tombs? Was it construction to “cancel” the immediately underlying rectangular building, or the opposite, to preserve ancestral memory? And, at about the start of MM II, was it related to a major change at Petras?

This change was the decision to construct the first monumental building across the plateau on the upper part of Hill I at the start of MM IIA. Tsipopoulou suggested that the contents of the adjacent large Lakkos, mainly MM IB pottery,

much of it of very good quality (cf. above),<sup>12</sup> and stone vases, might be clearance from elite houses in levelling the ground for this first palace. Haggis is studying the pottery, has already produced publications<sup>13</sup> and in collaboration with the excavator is preparing the monograph. The Lakkos itself destroyed a preceding EM III–MM IA building. Who took the decision to construct this monumental building, greatly changing the character of the settlement, is an interesting though perhaps unresolvable question. A new dominant group?<sup>14</sup> A powerful family or, in Driessen's terms, a House? Whether the immediately preceding MM IB elites were hierarchical or not, the writer's view is that the foundation of such a building could have occurred only with the consent of all parties,<sup>15</sup> as argued for the same event at Phaistos.<sup>16</sup> As the presence of the hieroglyphic archive in its MM IIB fire destruction demonstrates, the building and its occupants must have had regional significance; the scribal records can hardly have been confined to recording materials and activities just for the building itself.

Like the Hagia Photia-Kouphota building the palace was protected by a defence wall. Even if the wall was, as Tsipopoulou believes, to some extent symbolic and with a retaining function, it does mark a degree of separation of the palace from the surrounding settlement. All the more interesting, therefore, that recent excavations outside it, 100 m from the palace, have revealed evidence of an important contemporary building furnished with three large column bases (and columns have not been found in the palace itself) and with contents

<sup>7</sup> Tsipopoulou (2002, 136) suggests “interlopers” from South-Central Crete.

<sup>8</sup> Davaras n.d., pls. 29, 32, 34, 39–40, 42, 44 and 46.

<sup>9</sup> Cf. Tsipopoulou 2002, 135.

<sup>10</sup> Furthermore, Tsipopoulou has noted (2002, 135, n. 11) that many of the Prinias figurines are made from local Petras clay.

<sup>11</sup> Tsipopoulou 1988, 45, fig. 10.

<sup>12</sup> Tsipopoulou this volume for an analysis of the internal links between and *comparanda* for the pottery of House Tomb 2 and the Lakkos.

<sup>13</sup> Haggis 2007.

<sup>14</sup> Cf. Tsipopoulou 2002, 137.

<sup>15</sup> Tsipopoulou this volume.

<sup>16</sup> Warren 1987, 54.



of a ritual character.<sup>17</sup> The wealth of Petras was clearly substantial and spread through the settlement at this time. This wealth is demonstrated even more conspicuously in the contemporary house tombs on Kephala, with their accompanying (secondary) burial goods in a wide range of materials.<sup>18</sup>

The MM IIB destruction of the palace is accompanied, or perhaps slightly preceded (MM IIA?), by the cessation of the Kephala cemetery. This is curious, in that the palace itself was rebuilt, including now the substantial North Magazines, and remained the central place of its region to its end in LM IB. So too continued the surrounding settlement with its well studied, large LM I houses.<sup>19</sup> After destruction in LM IA (Theran effects?) the contents of the LM IB palace, including 36 large pithoi (capacity around 20,000 litres),<sup>20</sup> show that, whatever the social situation, the regional agricultural economy in no way declined. Petras's territory may even have extended as far west as Papadiokampos. For this, the evidence is at present interestingly contradictory: against relatively few ceramic links between the sites is the possibility that a sanctuary on the Trachilos Peninsula, apparently MM II, may have linked the sites with its views to both.<sup>21</sup> Christakis argues well that hierarchy (palace-controlled) and lower level heterarchies are not mutually exclusive; the Petras-Siteia Valley (that is regional) system was not based on adoption or emulation of ostentatious (Knossian) features.

We should recall that the existence of several so-called villas in the valley, substantial buildings within settlements or separate from them, had for years seemed to many,<sup>22</sup> starting with their excavator, Nikolaos Platon, to suggest a possible major centre in relationship to them,<sup>23</sup> and this possibility had naturally played a part in Tsipopoulou's thinking in 1984 when deciding to investigate Petras.<sup>24</sup> It was therefore a pleasant but not completely unexpected surprise that the Neopalatial palace was found to be a centre with Linear A records from MM IIIB (in Sector III, some 50 m from the palace) to LM IB,<sup>25</sup> succeeding that of MM II with its hieroglyphic archive;<sup>26</sup> it was, however, a surprise that hieroglyphic was still being used in LM IB alongside Linear

A. The Linear A records, or at least some of them, surely continued to be related to the economy of the region.

References have been made above to the wealth and prosperity of the settlement and palace implied by the material remains, including that of the cemeteries, even if the breaks and major changes at various times could mean moments of insecurity or even, in the third millennium, the arrival(s) of newcomers. That burials were continuous over a very long period (from EM IB onwards) and on a single occasion secondarily placed in the Rock Shelter,<sup>27</sup> taken together with the secondary burials in the house tombs, is a clear argument in favour of continuity of population. But who or what caused the fire destruction of the MM IIB palace? Natural agency (earthquake) or human agency? The fact that it was immediately rebuilt, though with some changes in layout, is neutral in respect to the identity of the builders and controllers. An element of continuity in the written records, that is, apparent continued use of hieroglyphic in Linear A times, could argue for continuity of population. There is very clear evidence of insecurity in MM II; no one would have (re)inhabited the vertiginous ledge of Katalimata in the Ha Gorge other than for safety. The cause of the final, LM IB destruction likewise remains open, though the present writer does not find the suggested strong degree of *Angst* in the region at this time.

<sup>17</sup> Tsipopoulou this volume, Introduction; Rupp & Tsipopoulou this volume for an LM IA seal providing a valuable addition to a group depicting women and animal sacrifice.

<sup>18</sup> Tsipopoulou, Betancourt, Ferrence *et al.*, Dierckx, Krzyszkowska this volume; see also below.

<sup>19</sup> Alberti; Mavroudi this volume.

<sup>20</sup> Tsipopoulou 2002, 140; Christakis this volume.

<sup>21</sup> Sofianou & Brogan this volume.

<sup>22</sup> Cf. Tsipopoulou 2002, 133.

<sup>23</sup> For the villas, Platon 1997; Tsipopoulou & Papacostopoulou 1997.

<sup>24</sup> Tsipopoulou this volume, Introduction.

<sup>25</sup> Hallager this volume.

<sup>26</sup> Tsipopoulou & Hallager 2010.

<sup>27</sup> Triantaphyllou this volume.

## The sites and the international dimension

The strong Cycladic connections over several centuries from FN IV to the end of EM I were noticed above. At the same time, it may be suggested that it is more appropriate to think of a single material culture zone, comprising parts of the southern Cyclades and the north coast of Crete, in strong interaction, i.e. *not* a Corrupting Sea, at this time.<sup>28</sup> Surface finds in the cemetery area show that these connections continued in EM II, Tsipopoulou drawing attention to the discovery of no fewer than four EC white marble figurine fragments, one figurine having been at least 58 cm in height!<sup>29</sup>

More distant off-island connexions are implied by the fine range of foreign raw materials in the jewellery and sealstones; silver, lead and copper were probably Cycladic, but gold, ivory, *lapis lazuli*, blue chalcedony, carnelian and banded agate bespeak more distant Near Eastern sources. Whether the objects were themselves made at Petras, that is, whether the raw materials were imported to the site or whether they were made elsewhere and brought in as finished goods, remains unknown, though stylistic arguments might emerge. In its uniqueness, the remarkable EM III/MM I steatite seal suggests local production.<sup>30</sup> At the very least, the exotic, foreign nature of the materials must have been known and appreciated in the Petrasian community.

Several topics covered in this volume are wide-ranging rather than period-specific, and are varied among themselves. Thus Simandiraki on miniature vessels and the symbolic dimensions of miniaturiza-

tion, Theodoropoulou on marine exploitation, and McGeorge on the geographically wide practice of intramural infant burials. It is also well worth noting that Triantaphyllou shows that the population secondarily buried in the Rock Shelter enjoyed good health.

Finally, we must welcome the most fruitful study, unwelcome though the discovery may have seemed to a Bronze Age perspective in its destruction of much Bronze Age palatial evidence!, of the 11<sup>th</sup> and the 13<sup>th</sup>–15<sup>th</sup> centuries cemetery of 33 graves set into the palace area of Hill I.<sup>31</sup> Biological as well as burial evidence for these periods in Crete is scarce and this well-referenced study, encompassing in addition, pottery of all periods up to the 18<sup>th</sup>/19<sup>th</sup> centuries from Hill I, is a valuable addition to knowledge.

For the wider presentation of all this work Tsipopoulou was able to proclaim as live the Petras website described here by Togias. So, from 1985 to today, a triumphant progress.

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<sup>28</sup> In the discussion of a paper at the 11<sup>th</sup> Cretological Congress (Rethymnon 2011) James Muhly made the amusing and perceptive observation that when Photeine Zapheiropolou was excavating the Kampos Group Kouphonesia tombs they had to live on *barbounia* – there was little else (i.e., how could such a place have been the point of departure for all the Kampos Group people in northern Crete?).

<sup>29</sup> Tsipopoulou this volume, Introduction.

<sup>30</sup> Rupp this volume, Postscript to paper.

<sup>31</sup> Poulou-Papadimitriou this volume.





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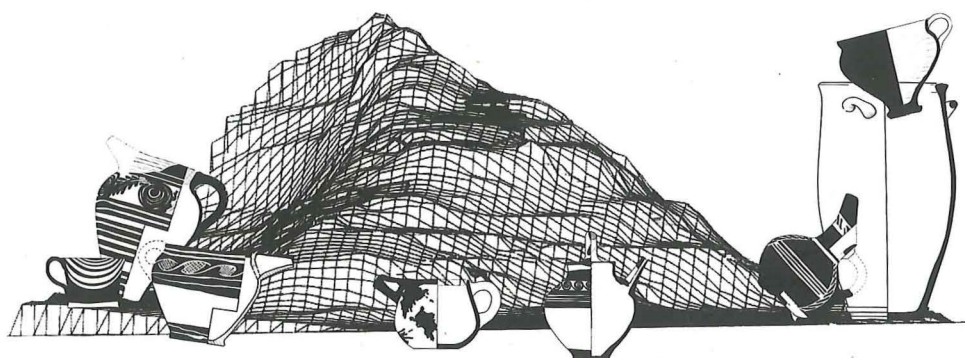












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